

Mount Allison University Environmental Audit 2018 - Policy 2102g and 2101

Preamble and Policies

This audit has been completed in accordance with Environmental Policy 2102 section 5, Audit and Accountability, which states: "Each summer the University will complete an audit of its compliance with, and the progress made towards goals set out in, at least two of the sub-policies under this Policy, which audit may include criteria from external bodies such as Stars, ISO14000 or others". The purpose of this audit is to assess the progress of the Buildings (Policy #2102g) and Emissions Reduction (Policy #2101) sub-policies of the University's Environmental Policy (Policy #2102). The entirety of Policy #2102 was approved and made effective May 11, 1999 by the Board of Regents, administered by the Vice-President, Administration, and was revised on April 20, 2012. The last audit of policy 2101, Emissions Reduction, was completed in 2014. The last audit of sub-policy 2102g, Buildings Policy of the Environmental Policy, was completed in 2016.

This audit seeks to analyze the strategies used and progress made towards the goals of the policies using both quantitative and qualitative data obtained from various University departments. Additionally, it will endeavour to provide useful recommendations for the Environmental Issues Committee in making further developments towards achieving campus sustainability through these policies. For the purpose of this audit, applicable credits from the STARS 2.1 Credit Checklist will be used to measure additional progress that Mount Allison is making with respect to the Emissions and Buildings policies.

Many thanks go to those who provided guidance and data to help with the completion of this audit, including members of Facilities Management, Neil MacEachern and Perry Eldridge, as well as those from Financial Services, Barb MacIntosh, Ruth Terrio, Mary Phinney, and others including Dr. Michael Fox of the Geography and Environment Department.

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1 – Policy 2101, Emissions

1.1 Introduction

The Emissions Policy was approved and made effective April 28, 2009 by the President, administered by the Vice-President,

heated. In the winter, either a 600hp or a 700hp boiler system is used for the baseload, and the 200hp or 400hp boiler system is used for the 'swing-load', meaning the difference between peak and baseloads. The University also keeps light fuel (number 2 furnace oil) on hand, but this has not had to be used since 2014.

In the last audit of this policy, completed in 2014, the conversion from the burning of Bunker A to the use of a natural gas system

Heating systems are a large part of the Green Globe certification process, which Mount Allison pursues for nearly all major building projects on campus. This is elaborated upon in section 2.3 of this audit, under the Buildings Policy audit.

Many efforts to reduce the ambient temperature of buildings on campus through the efforts of students and employees happen through the involvement of Eco Reps on campus and the annual C3 challenge that they work to promote. These efforts are elaborated on in section 3 of this audit.

1.3 Electricity

The second area of concentration of the Emissions Policy focusing on electricity use on campus states that it is also a priority for the University to “decrease emissions through a reduction of the use of fossil fuel sourced electricity”. The strategies listed to try and achieve this include:

- Purchasing green power through the grid as it becomes available;
- Retrofitting buildings with energy efficient technology where reasonable to do so;
- Purchasing high efficiency model appliances and computer hardware; and
- Working with students and employees to reduce their use of electricity.

NB Power has yet to make green energy available through the grid, or if they have, its availability has not been made know to Mount Allison. The most recent green energy update on the NB Power website comes from when the Smartflower was being looked into in 2017 as a potential solar energy product for New Brunswick. It was being considered due to its popularity in other Northern countries, its attractive and compact features, and its weather resistance. There have been no recent updates on the testing of this product, although NB Power has indicated they are investigating other renewable energy products such as wind power.

Buildings on campus are gradually being updated to include more energy efficient technology, as per the Buildings Policy (2101g). Projects are selected based on their payback time and convenience, and are often completed by Perry Eldridge of FM. In terms of electricity, this largely occurs through the replacement of lighting on campus. For example, the lights in the Breezeway of the Academic Quad; originally, each one of those fixtures required about 100 watts of energy to operate, but they were reduced to 4 LED wall-packs in order to conserve energy, which is just a fraction of the wattage as opposed to what was being used before. Additionally,

Mr. Eldridge changed all of the outdoor post lights to LED. Most buildings on campus have also been replaced with LED lighting, and dual technology lighting (infrared and motion sensor) has been a part of Mount Allison's standard as of late.

Procurement of goods and services at Mount Allison are authorized through University Purchase orders by the Manager, Procurement Services. Often, the purchasing of high efficiency model appliances and computer hardware is the responsibility of the department through which they are being purchased and is put under the scrutiny of Procurement Services. In other words, purchasing decisions are often made by the staff or department looking to acquire new computers, vehicles, appliances, etc. Additionally, most electrical and mechanical purchases will go through FM before being approved. Under policy 7101 section 8, Environmentally Aware Procurement, it states " the University will purchase, subject to availability and economic considerations, goods and services which:

Some student-led groups on campus participating in University approved travel already consider carbon offsetting programs, but this past year the Mount Allison Students Union's (MASU) Sustainability Committee included carbon offsetting as a suggestion for clubs and societies on campus in their green training presentation meant to be used for clubs and society training events.

1.5 Financial

Section 3 of policy #2101, Finance, states that the University will:

- Ensure that alternative energy or highly efficient energy measures be incorporated in new building projects;
- Ensure that continued fundraising efforts for building projects defer maintenance to lessen energy consumption; and
- Establish a Green Evolving Fund that will be used exclusively to fund energy efficiency projects or portions of projects that is separate from the A&R budget.

As discussed previously, small-scale energy efficiency projects are being completed by FM on an ongoing basis. The next policy to be audited, which is the Buildings policy, focuses on incorporating energy efficiency projects into both existing buildings and new building projects. As far as large-scale projects on renewable energy, projects often have low return on investment and as a result are not always feasible for the University. FM has indicated that they are more interested in developing a new Master Plan towards sustainability as opposed to adopting just one project to focus on. This way, priorities for energy conservation can be more easily established with regards to cost when moving forward.

It is important to note the existence of the Green Evolving Fund, or Green Initiatives Budget, outlined within the emissions policy. The Green Evolving Fund was created to fund energy efficiency projects on campus in 2010. However, while energy efficiency projects are still being completed, the Green Evolving Fund no longer exists. The fund was established as suggested by the Emissions Reduction Policy, but as of the 2015 budget the Green Evolving Fund has been eliminated. According to Financial Services, this fund unexpectedly grew far beyond its original intent. The fund was established as suggested by the Emissions Reduction Policy, but as of the 2015 budget the Green Evolving Fund has been eliminated. According to Financial Services, this fund unexpectedly grew far beyond its original intent.

timeframe they are able to receive an internal loan to complete the project. However, this means that projects that do not pay for themselves at all or in a reasonable timeframe are not approved.

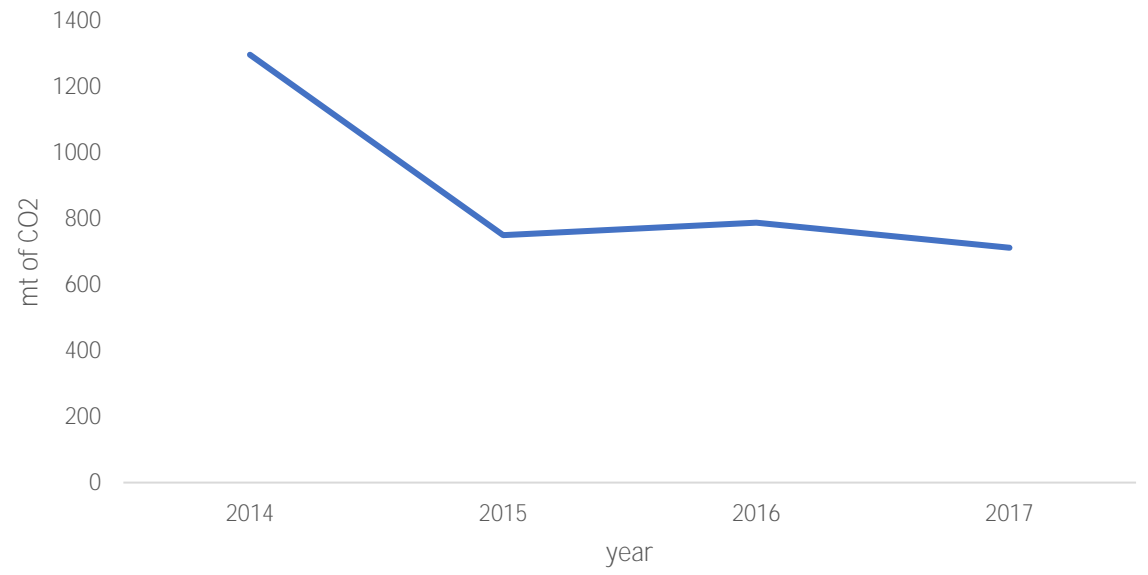
1.6 Indicators

According to Section 4 of the Emissions Policy, Performance Indicators, Accountability and Targets, the Controller is responsible for collecting information and reporting it in the annual Review of Operations completed by Financial Services. As stated within the policy, the metrics 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; and
- Energy consumption per student and per employee.

The University's annual carbon footprint is calculated by Financial Services and reported in the Review of Operations each fiscal year. In the Review, the metric tonnes of CO² are conveyed for what are described as the "major sources" of carbon emissions, which include Heat, Power, and 'Other'. In the 2017 Review of Operations, the overall carbon footprint calculation was estimated at 10,300 mt.

The "other" portion of the carbon footprint made public through the Review of Operations consists of Field Trips, Team Travel, Employee Travel, Refrigerants, Waste, Diesel and the vehicle Fleet. The Carbon Footprint that is included in the annual Review of Operations does not include employee or student commuting emissions, however the footprint data does indicate that it makes up approximately 13% of total eCO² emissions. The data below was obtained from the information used to calculate the 2016-17 overall carbon footprint.



1.7 Summary and Recommendations

Overall the University has been making steady strides towards reducing their carbon footprint. This is primarily being accomplished through small-scale energy efficiency projects completed by FM, such as replacing lighting and ventilation systems across campus. However, the Emissions Reduction Policy has not been revised since its approval in 2009, making it close to being a decade old. This policy needs to be revised in order to better reflect changes and current practices of both the University and of the needs of the environment in order for Mount Allison to better align itself with its Environmental Policy. Revisions could include but should not be limited to:

Updating strategies for decreasing emissions. The University has already switched to natural gas and should more actively investigate alternative energy sources for Mount Allison.

Mount Allison should plan ahead to adopt energy efficiency projects with longer payback periods.

Under section 3, Finance, the policy still states that the University will "Establish a Green Evolving Fund". This fund has since been established and later removed from the budget. The policy should accurately reflect that and state where funds for these projects are now coming from.

Mount Allison should investigate the opportuneness of the Green Evolving Fund. If the funds for green projects are not being set aside, then it should be apparent that the lack of separated funds are not causing less projects to be completed. This

Other Recommendations

Mount Allison should highly consider hiring a Sustainability Coordinator or a position of that nature in order to have a concentrated effort towards green energy projects on campus. Currently, Perry Eldridge takes on much of the responsibilities of a Sustainability Coordinator as Facility Management's Manager of Technical and Energy Services. By spreading out these responsibilities rather than putting everything under one blanket, the University would be able to not only focus on the day to day efficiency of campus, but also potentially take on long-term projects that will increase the University's overall sustainability in the long run, such as a renewable energy project. Having this role will help ensure that the University commits to upholding environmental standards.

The University should consider investing in a carbon offsetting program to account for University-related travel. A program of this nature would not only reduce the University's overall carbon footprint, but it would also appeal to students and staff looking to reduce their individual carbon footprints. It would demonstrate a commitment to footprint reduction and commitment to environmental care by the institution.

Having achieved the ranking as Canada's Top Undergraduate University from Macleans for 19 of the last 27 years, more frequently than any other University, Mount Allison has established itself as a national leader in education and University reputation. This is an enormous achievement, and many students and staff are incredibly proud to call Mount Allison their home. However, from this ranking, stakeholders should be able to expect that Mount Allison is striving to improve upon this reputation by showing continuous efforts to reduce their carbon footprint. This can and should continue to be achieved through small-scale efficiency projects, but larger projects investing in renewable energy should also be considered in order to achieve greater strides towards this goal. Despite the higher payback periods associated with these projects, they are essential in moving forward with emission reduction.

2 – Policy 2102g, Buildings

2.1 Introduction

The Buildings Policy within the Environmental Policy was approved and made effective November 28, 2012 by the Vice President, Administration, and is administered by the Director of Facilities Management. The purpose of this policy is to commit to “constructing, operating and maintaining its buildings in a way that will reduce operating costs, provide healthy environments for students, faculty, staff and visitors and contribute to the goals of protecting, conserving and enhancing the environment”.

Buildings play a significant role in energy consumption and emissions across the globe. According to the 2017 ISO 16745 document, buildings contribute approximately one-third of global greenhouse gas (GHG) emissions. Due to this, measuring and reporting the GHG emissions from existing buildings is critical when it comes to cost effective GHG mitigation efforts. This is especially important during the operational portion of a building’s life cycle, which accounts for 70% to 80% of its total energy use.

At Mount Allison, each building on campus has unique characteristics. This is especially true due to the age of some of the buildings, such as the Owen’s Art Gallery, which is the oldest University art gallery in Canada. Occasionally, upgrading buildings can pose significant challenges if their age causes structural barriers. However, FM has made it a priority to monitor and increase energy efficiency in as many University buildings as possible.

Policy 2102g states three primary objectives, those being:

- Ensuring building projects take all steps necessary to ensure that the building is energy efficient, uses no more water than necessary, and economical in its use of space;
- Ensuring Green Globes design processes and environmental assessments and audits are incorporated in planning for such work; and
- Taking reasonable steps to achieve measurable life cycle cost savings in respect to the building and ensures minimal ecological impact.

In aiming to achieve these goals, the strategies of Policy 2102g are to:

- Rate the energy and environmental performance of existing buildings; and
- To report and implement short-term building repairs in a timely fashion to reduce carbon and water footprints.

2.2 Indicators

The Buildings Policy lists two metrics that are to be used as performance indicators, those being Green Globe Certifications and carbon emissions calculations. According to the policy, it is the responsibility of FM to set and review objectives for buildings, collect building data and report on this information.

Green Globe Certifications

Green Globe Certifications, which are a part of the Green Building Initiative (GBI)(<https://www.thegbi.org/>), are meant to guide companies towards developing more sustainable buildings in their various stages of design, construction and operation. This includes ensuring factors such as:

- Energy conservation
- Lowered water consumption
- Responsible use of materials
- Efficient use of project team time

Additionally, there are six Environmental Assessment Areas for existing buildings that are each worth various amounts of points. Those categories include Energy, Water, Resources, Emissions, Indoor Environment and Environmental Management.

GBI advertises Green Globe Certifications as being an uncomplicated, practical and affordable method for companies to commit themselves to sustainability. Green Globe scores are given in percentages, which are then translated into a number of 'Green Globes' between one and four. Four Green Globes are equivalent to a Gold LEED rating. The certification process is available for multiple project types including new construction, existing buildings and interiors.

2.5 Summary and Recommendations

Overall the University is making great progress towards developing sustainable buildings with small footprints. This is especially true when it comes to incorporating environmentally-aware materials and products in new building projects, as seen through the renovations to the Barclay and Gairdner buildings and the upcoming renovation of Windsor Hall. Small-scale energy efficiency projects completed by FM have also helped significantly in improving the efficiency of buildings on campus, including replacing lighting and ventilation systems on campus to consume less energy.

Policy Recommendations

The metrics for this policy are quite broad and not as encompassing as they could be. In order to more clearly calculate the actual footprint of University owned buildings, the University should have a transparent record of waste output, water usage, and energy consumption for each individual building by either reporting or putting in a system to record these metrics. The policy should include these metrics as indicators within the policy in order to provide a clearer snapshot of buildings emissions. According to Perry Eldridge of FM, there is not an individual footprint calculated for each building, and the University has experienced building metering issues over the years. Waste disposal and water consumption records are available, but not without digging. Mr. Eldridge says energy conservation records are “sparse”, but he has been working to rectify metering issues, which requires funding.

Other Recommendations

Since Green Globes are being used as an indicator for sustainability in buildings on campus, a target rating should be incorporated into the policy itself in order to hold projects to a certain standard in every instance. Mount Allison should always strive to achieve the highest rating available in order to prove its commitment to reducing its environmental footprint, as stated on the Mount Allison website. Mount Allison should also consider having existing buildings certified as a way of establishing a standard on campus. Currently, only new building projects and major renovations are rated under the Green Globe certifications. If Mount Allison were to rate existing buildings the University could establish not only a benchmark but also a comprehensive environmental plan for the future of buildings on campus.

More outreach material and campaigns should be generated in order to engage students and staff in lessening the footprints of University buildings. Currently, the C3 challenge is the only outreach campaign conducted at Mount Allison to raise awareness of energy consumption, and it is led primarily by students. In order to encourage the Mount Allison community to play a role, administration should encourage and facilitate year round outreach material including signage, events and online material. This should include communication of current energy efficiency and sustainability measure being taken by the University to current students and faculty.

In January of 2018, a group of students and faculty members presented to the Environmental Issues Committee about potentially developing green rooftops at Mount Allison, specifically in two locations on the Wallace McCain Student Centre. Their presentation highlighted environmental, efficiency and psychological benefits of green rooftops, as well as the research potential and funding options. A project of this nature would not only prove environmental dedication by the institution, but would also increase building efficiency and roof longevity. Mount Allison would benefit from revisiting this project, perhaps through student led efforts, and investigating other potential projects to work towards greener buildings on campus.

3 – Environmental Stewardship in Relation to Policies 2101 and 2102g

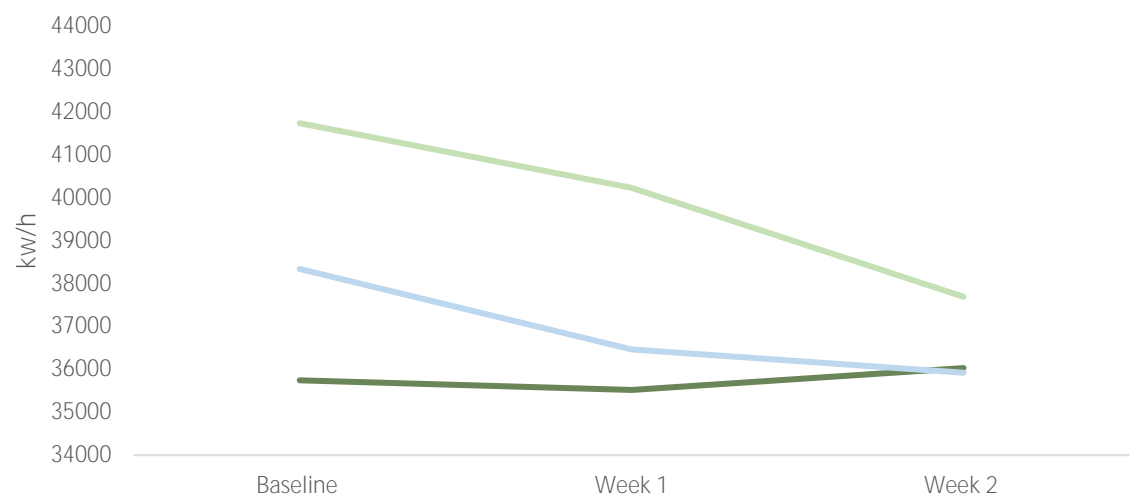
3.1 Introduction

Environmental stewardship, based on the idea of noted conservationist Aldo Leopold that our relationship with the land around us matters, refers to “the responsible care of land and resources, while recognizing that humans are a part of complex natural systems on earth and should embody an ethic of care”. Additionally, The Canadian *Living Planet* report from 2007 notes that Canada’s ecological footprint per person is the fourth largest on the planet. Therefore, it is not surprising that there are a number of initiatives in place both on the Mount Allison campus and on other Canadian University campuses meant to help address problems related to climate change. The majority of these initiatives are student-led or volunteer based. This section of the audit will address some of

The Eco-Rep building audits completed in January of 2018 were made public through the Eco Reps at Mount Allison Facebook Page in a comprehensive report. This report includes audits from residence buildings as well as academic buildings, and reports on items such as waste disposal, energy consumption and efficiency, and advises fixable problems to FM and the Environmental Issues Committee.

3.4 Campus Climate Challenge

The Campus Climate Challenge (C3) is held on campus annually as an initiative to bring awareness to energy use in buildings on campus. Although the challenge is presented as a competition amongst the residences on campus, it is sometimes held as an inter-university competition amongst Atlantic Universities that was originally started at Mount Allison. In recent years, academic buildings have also been included in the calculations.



3.5 Maple League of Universities

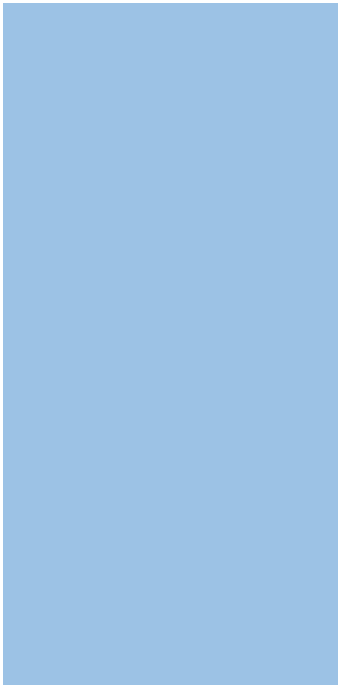
The Maple League of Universities was established in 2013, originally as the U4 League, unifying four small universities that focus on undergraduate education. Consisting of Acadia University, Bishops University, St. Francis Xavier University and Mount Allison University, the Maple League boasts collaboration as a means to increase the opportunities available for students. The four universities are easy to compare, as they all exist in considerably small towns and advertise similar experiences both on and off campus.

Mount Allison should gain inspiration from and build upon the initiatives being taken by their partnering unive

3.6 STARS Credits

In section 5 of the Environmental Policy, Audit and Accountability, it states that the annual audit of two of the sub-policies under this policy may "include criteria from external bodies such as STARS". STARS certifications focus on the overall, gener

				includes both Scope 1 and Scope 2 GHG emissions.
		Outdoor Air Quality	Institution has 1) adopted policies or guidelines to improve outdoor air quality and minimize air pollutant emissions from mobile sources on campus and/or 2) completed an inventory of significant air emissions from stationary sources on campus.	The University does not currently have a policy addressing air quality, although an inventory of emissions that may affect air quality is kept. The University does have a tree planting policy (2102f, Ground Policy), and although tree planting helps towards this, the policy does not specifically reference air quality.
	Buildings	Buildings Operations and Maintenance	Institution owns and operates buildings that are 1) certified under a green building rating system for existing buildings (e.g. LEED O+M) or 2) operated and maintained in accordance with formally adopted sustainable operations and maintenance guidelines and policies.	Mount Allison certifies new buildings and major renovations through the Green Globe rating system. However, it does not have a certification process for existing buildings.
		Building Design and Construction	Institution owns buildings that were constructed or underwent major renovations in the previous five years and are 1) certified under a green building rating system for new construction and major renovations (e.g. LEED BD+C) or 2) designed and built in accordance with formally adopted green building guidelines and policies.	New building projects or major renovation projects at Mount Allison pursue Green Globe certifications and are built with the intent of receiving a high rating under Green Globe standards and regulations.



Purchasing

Sustainable Procurement

Institution 1) has written policies, guidelines or directives that seek to support sustainable purchasing across commodity categories institution-wide, 2) employs Life Cycle Cost Analysis (LCCA) as a matter of policy and practice when evaluating energy and water using products, systems and building components, or 3) has published sustainability criteria to be applied when evaluating products and services.

Mount Allison



wording regarding the

Perry Eldridge, Manager of Technical and Energy Services, (Interview and Email)

Neil MacEachern, Director of Facilities Management, (Interview and Email)

Robert Inglis, Vice-President Finance and Administration, (Interview)

Ruth Terrio, Procurement Services, (Interview)

3. Environmental Stewardship

Cited Work

<https://sustainability.acadiau.ca/campus-sustainability.html>

<https://www.stfx.ca/>

<http://www.ubishops.ca/>

<https://stars.aashe.org/>

https://www.footprintnetwork.org/content/documents/2007_Canadian_Living_Planet_Report.pdf

Data and Information Provided by

Perry Eldridge, Manager of Technical and Energy Services, (Interview and Email)

Dr. Michael Fox, Department Head of Geography and Environment, (Interview)

Robert Inglis, Vice-President Finance and Administration, (Interview)