2012 Research Project: Moravian's Greenhouse Gas Emissions
by Nicole Belanger

The 2010-2011 Greenhouse Gas Inventory for Moravian College was figured with the Clean Air-Cool Planet v6.7 calculator. This calculator is the most widely used tool in US higher education for tracking campus carbon footprints. Moravian college is currently emitting over 10,000 metric tons of eCO_2 per year were eCO_2 is CO_2 equivalents, a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential. This means that the college is producing around 7MT per student. It should be Moravian's goal to lower this figure, which will generate a more sustainable future for its following generations of students. Moravian's vision for the future will be strengthened if it strives for sustainability.

Currently, 52% of Moravian College's greenhouse gas emissions come from purchased electricity. Reducing electricity usage at the college is a valid way to reduce overall greenhouse gas emissions. Therefore, solutions for less electricity usage were researched within the reach of this greenhouse gas inventory project. The average light measurement taken from the college is 635 lux where lux is a measure of the intensity of light that hits or passes through a surface. The recommended lux measurement for a classroom or library setting is 300. The 300lux recommendation comes from the Charted Institute of Building Services Engineers in London This means that Moravian's light usage should be cut in half.

The problem of reducing light and electricity usage can have an exceptionally uncomplicated solution. Moravian College is using enough light that it can shut half of its lights off and still be able to perform at the same working level. This can be done in a variety of ways. In most cases, literally half of the lights do not need to be turned on. Specifically, this can be done in some classrooms and some areas of the Reeves Library. Keeping half of the lights off is an ideal solution because there are no costs associated with it. The other two solutions that were researched are occupancy sensors and daylight sensors. Both of these two have costs associated, but the first year of electricity bill savings will recoup them.

A full analysis was done on the Reeves Library and the light usage within. If the upper level has daylight sensors installed in the heavily windowed areas and occupancy sensors installed in all other areas, the yearly savings on eCO_2 is 48MT and the yearly financial savings is $9,610. Installing occupancy sensors in the stacks area on the lower level and turning half the lights off in the Hound Underground computer lab results in a savings of 18MT of eCO_2 and $3,506 per year. If both the upper and lower levels in the Reeves Library were integrated with these simple solutions, then the college would save the earth 66MT of eCO_2 and itself $13,116. If this analysis was carried through to each of Moravian College's buildings the savings would be much more significant.

It is now clear that Moravian College is currently purchasing more electricity than is needed and reducing the current amount helps reduce global warming and the college's spending.

Please consider these results along with the attached recommendations.

Moravian College
Greenhouse Gas Recommendations – 2012

This letter presents the final recommendations from the greenhouse gas usage research done by student Nicole Belanger. The following recommendations are to be considered for all of Moravian's campus including adjacent properties and any other owned buildings.

Continue Research on Reducing Greenhouse Gas Emissions: Once additional solutions are found, they should be implemented. Exploring and discovering the appropriate solutions will save the atmosphere of greenhouse gases and the college of money. It is recommended that the college give an employee the sole responsibility of this research. The money saved will be worth it.

Start a Fund for Sustainability: Moravian should take at least half of its financial savings from the electricity reduction and put it into a fund. This fund should financially support sustainability efforts of the college. Examples of what this fund should maintain are projects done by the institution, projects done by students, and projects done by faculty. A group will need to evaluate each project to determine its worthiness of the funds.

Use a Rigorous Sustainability Guideline: Using a guideline with more challenging targets allows for more improvement in order to succeed. If the goals are set at a low standard, than there will be no need for improvement. The STARS program is not rigorous enough for substantial sustainability improvements by the college.

Sign the American College & University Presidents' Climate Commitment: As a signatory to the American College & University Presidents' Climate Commitment, the college will promise to conduct a comprehensive greenhouse gas emissions inventory of the campus and, within the first two years of signing, develop a specific plan for achieving climate neutrality at some point in the future.

Maintain a Greenhouse Gas Inventory: The Greenhouse Gas Inventory needs to cover everything that Moravian owns, operates, and influences. The Inventory, when completed, will be useful for Moravian to gain knowledge of its current greenhouse gas levels, quantify the benefits of current activities that reduce emissions, and establish a basis for developing a local action plan.

Track Commuting and Traveling: The two make up almost all of the college's scope 3 emissions and are crucial to an accurate greenhouse gas inventory. Solutions for tracking need to be further examined. However, security should do a daily parking lot count, and all air travel should be aggregated into one spreadsheet.

Create a No-idling Policy: Exhaust from idling vehicles can accumulate in and around the vehicle and pose a health risk to students, drivers and the community at large. Idling vehicles also waste fuel and financial resources.