

Tracking the Campus Carbon Footprint

FULFILLING THE AMERICAN COLLEGES AND UNIVERSITIES PRESIDENTS CLIMATE COMMITMENT (ACUPCC) AT THE UNIVERSITY OF WISCONSIN-EAU CLAIRE



Blue AND Gold = Green

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INTRODUCTION

Since signing the American College and University President's Climate Commitment in 2007, the University of Wisconsin-Eau Claire has completed five biennial Greenhouse Gas Emission (GGE) inventories. All inventories were completed by students enrolled in an Honors course. By presenting both current and historic data, we report measured emissions by sector, and highlight areas where additional efforts are needed. This presentation concludes with recommendations to inform the development of a Campus Climate Action Plan.

METHODS

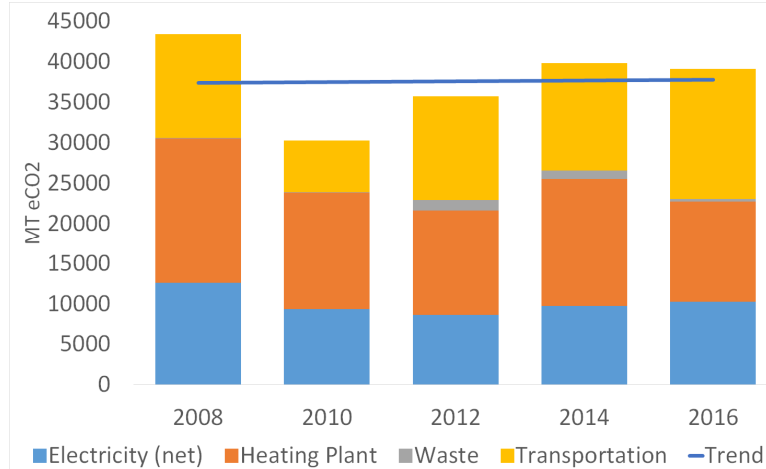
For all five GGE inventories, students collected and reviewed data from a variety of sources:

- electricity and natural gas receipts from Xcel Energy
- natural gas, heating oil, and coal usage by the university heating plant
- mileage for domestic and international travel
- survey data about travel from home to campus
- other minor contributions to the GGE

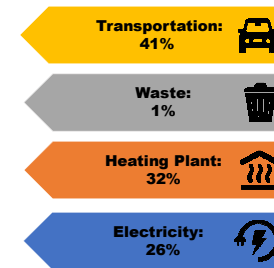
Greenhouse gas emissions were then calculated for four major sectors: electricity, heating plant, waste, and transportation. The calculations measured how many Metric tons (MT) of equivalent carbon dioxide (eCO₂) were released into the atmosphere during the 2015-2016 fiscal year. Equivalent carbon dioxide is a standard unit of measurement that accounts for different greenhouse gases and their relative ability to warm the atmosphere.

FINDINGS SUMMARY

Inventory results indicate that heating plant emissions have declined due to fuel switching from coal to natural gas, and increased efficiency. Electricity was reduced by purchases of offsets via renewable energy credits from Windsource (an Xcel program) and the UW System. Transportation-related emissions have risen primarily due to increased travel for domestic and international immersion experiences. One of the primary source of waste emissions is refrigerant leaks; there were no leaks recorded during the last year.



2016 Emissions



TOTAL:
37,771 MT eCO₂

EMISSION TRENDS

The trend line indicates that our emissions have been comparable across all five inventories, with a statistically insignificant slope of only +0.1% per year. Given that we have added more buildings over the years, this actually indicates a higher efficiency per square foot. Electricity, heating, and transportation continue to be our biggest emission sectors.

NEXT STEPS

The University of Wisconsin-Eau Claire is one of the few schools that uses students to create the Greenhouse Gas Emissions report for the ACUPCC. Honors students will be collaborating with faculty mentors and an advisory committee of students, faculty, and staff to develop a UWEC Climate Action Plan as a necessary element of our ACUPCC reporting requirements. By utilizing students, our campus fulfills its mission of fostering creativity, critical insight, and intellectual courage as hall marks of a liberal college education.

DEVELOP A UWEC CLIMATE ACTION PLAN

Reach Carbon Neutral date

- Interim goals to benchmark progress
- Timeline for success
- Monitor and track progress

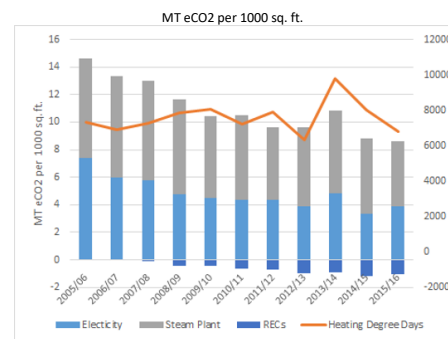
Campus Priorities

- Sustainable buildings/infrastructure
- Student and staff behavior changes
- Foster sustainability education
- Engage community

ELECTRICITY AND HEATING

WASTE

TRANSPORTATION



Electricity and heating data were compiled from utility bills for the fiscal year of 2015-2016, and divided by the total campus built area. These data were inserted into the carbon emissions calculator to give the amount of carbon dioxide equivalence in metric tons (MT). Purchased RECs were taken into account which reduced the overall emissions and is shown in the figure as negative eCO₂ emissions.

- Electricity Emissions: 9,815 MT eCO₂
- Heating Emissions: 12,482 MT eCO₂

Important Findings in these Data :

- The annual emissions per square foot have decreased by 4.7% per year
- The spike in the emissions from 2013/14 was due to the increased number of heating degree days.
- Increasing the amount of Renewable Energy Credits leads to decreased emissions.

Waste currently accounts for 1% of UWEC's carbon footprint, or 352.1 MT of eCO₂. The emission totals for this sector are further reduced because our landfill converts methane produced in waste decay to electricity and our compost counts as a reduction.

- Wastewater: 412.4 MT eCO₂
- Landfill: -60.3 MT eCO₂
- Chemical/Hazardous Waste: *de minimis*

RENEWABLE ENERGY

In addition to other carbon cutting initiatives, UWEC has also been purchasing renewable energy credits (RECs) through Xcel's Windsource program since 2012. We have also installed a solar-thermal array on top of Davies that heats and stores up to 16,000 gallons of hot water, as well as a 17.5 kW photovoltaic array on top of McIntyre Library.

Unfortunately, there are no accessible monitoring mechanisms in place to track and report the contributions of these arrays.

Student immersion and exchange programs accounted for the majority of the transportation emissions; this included student and faculty flights. Directly Financed travel included students and faculty University sponsored events and trips, and conferences. Direct transportation is vehicle use on campus, accounting for a meager 1% of emissions. Commuting includes faculty, staff and students daily trips to campus.

- Total Transportation emissions: 6,612.5 MT eCO₂

