Scope 1: On Campus Stationary Sources

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Introduction

The ACUPCC defines Scope 1 as a category of greenhouse gas emissions from fossil fuels and refrigerants consumed on campus. This includes combustion of natural gas for heating and cooling and for laboratory equipment, use of fuel oil in generators, gasoline and diesel fuel for grounds-keeping and fleet vehicles, propane usage, and HFC's (refrigerants) for food services and air conditioning. The objectives were to access UW-Green Bay records of on-campus fossil fuel consumption and refrigerant replacement for fiscal years 2001 through 2007 and produce an estimation of UW-Green Bay's on campus stationary sources carbon emissions.

Methods

•Data collection involved contacting UW-Green Bay departmental directors to access energy usage records and converting data into a compatible format for the Carbon Calculator.
•Results from the calculator were used to estimate on campus stationary emissions and relate them to the total carbon emissions for the entire campus (figure 1.1, 1.2 & 1.3).

Buildings

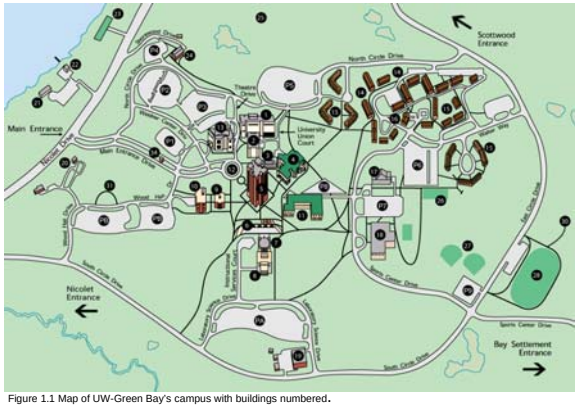

Figure 1.1 Map of UW-Green Bay's campus with buildings numbered.

Results

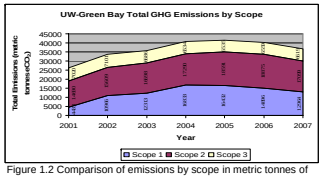

Figure 1.2 Comparison of emissions by scope in metric tonnes of eCO_2 per year

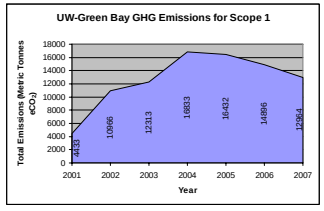

Figure 1.3 Scope 1 emissions by fiscal year in metric tonnes eCO_2

Table 1.1 The eCO_2 from the Carbon Calculator for each fiscal year

Fiscal Year	Scope 1 eCO_2 Metric Tonnes/Year
2001	4,458
2002	10,991
2003	12,338
2004	16,908
2005	16,457
2006	14,903
2007	12,964

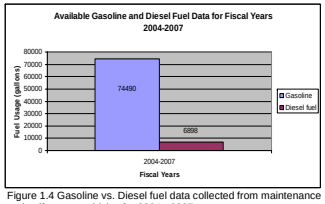

Figure 1.4 Gasoline vs. Diesel fuel data collected from maintenance and golf course vehicles for 2004 - 2007

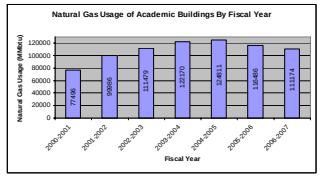

Figure 1.5 Natural gas usage of academic buildings by year in MMbtu

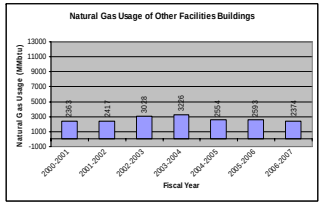

Figure 1.6 Natural gas usage for Facilities Building, Golf Course Pro Shop, Language House, Chancellor's House, University Union, and Lambeau House by fiscal year

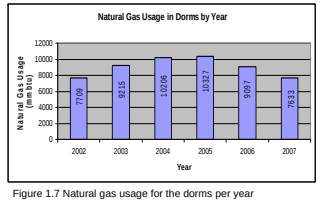

Figure 1.7 Natural gas usage for the dorms per year

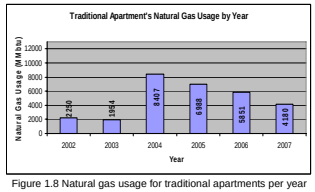

Figure 1.8 Natural gas usage for traditional apartments per year

Recommendations

• Establish a database compatible with the Carbon Calculator requirements

• Sustainability committee oversees the database

• Facility heads report to the Sustainability committee with data at the end of each fiscal year.

• Become a leader in the community at reducing stationary carbon emissions

Conclusion

On campus stationary emissions are the second largest contributor of UW – Green Bay's eCO_2 emissions (figures 1.2, 1.3 & table 1.1). When comparing Scope 1 with the other sources of emissions (figure 1.2) this is a large portion of the overall emissions. The campus has made an effort to improve energy efficiencies and can be seen in figures 1.5 – 1.8 with a decline in the natural gas usage over the years. However, with the university in an expansion phase and such a higher emission rate already, the campus must make reducing carbon emissions a greater priority.

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