University of St. Thomas

Carbon Neutrality Plan and Progress Report

11/01/2016

Amended 3/15/2018

Amended 2/15/2019

Amended 4/2/2020

TABLE OF CONTENTS

Appendices

1.0 BACKGROUND AND INTRODUCTION

The University of St. Thomas is deeply committed to advancement of the common good which includes protection of the environment and responsible use of shared resources. This plan describes the university's goals for achieving neutrality in greenhouse gas emissions, the university current emission status and the steps taken over the last several years to reduce emissions and the path the university will take to achieve carbon neutrality.

In 2008, then University of St. Thomas president, Fr. Dennis Dease, signed the American College and University Presidents' Climate Commitment (ACUPCC), pledging to take action to address climate change. The ACUPCC commits the university to take tangible actions to continuously reduce greenhouse gas emissions, with the ultimate goal of achieving complete carbon neutrality by 2035.

This plan consists of three main sections:

- Description of current and past greenhouse gas emissions.
- Current and future greenhouse gas mitigation strategies
    - Reduction of consumption
    - Production of renewable energy
    - Purchase of green power
    - Offsetting of remaining emissions
- Tracking of progress in meeting greenhouse gas emission goals.

2.0 EMISSION INVENTORY

The University of St. Thomas used and continues to use the Clean Air-Cool Planet Campus Carbon Calculator to estimate greenhouse gas emissions. The Campus Carbon Calculator is the recommended tool for signatories to the ACUPCC and is widely used by other educational institutions.

The Carbon Calculator divides emissions into three broad categories called scopes:

- Scope 1 – Direct emissions from sources that are owned or controlled by the university. For the University of St. Thomas these are primarily from combustion of fossil fuels in campus boilers, natural gas fired appliances, stoves and ovens, and fossil fuel powered university vehicles.
- Scope 2 – Indirect emissions from sources that are neither owned nor operated by the university. For the University of St. Thomas these sources are primarily purchased electricity for both the St. Paul and Minneapolis campuses and purchased steam for the Minneapolis campus.
- Scope 3 – Emissions from sources neither owned nor operated by the university but either directly financed by or strongly linked to the university. These sources include:
    - University direct purchased or sponsored air travel such as faculty/staff travel, student travel abroad and overseas student travel to and from the university.
    - Faculty/staff and student commuter travel to and from campus.

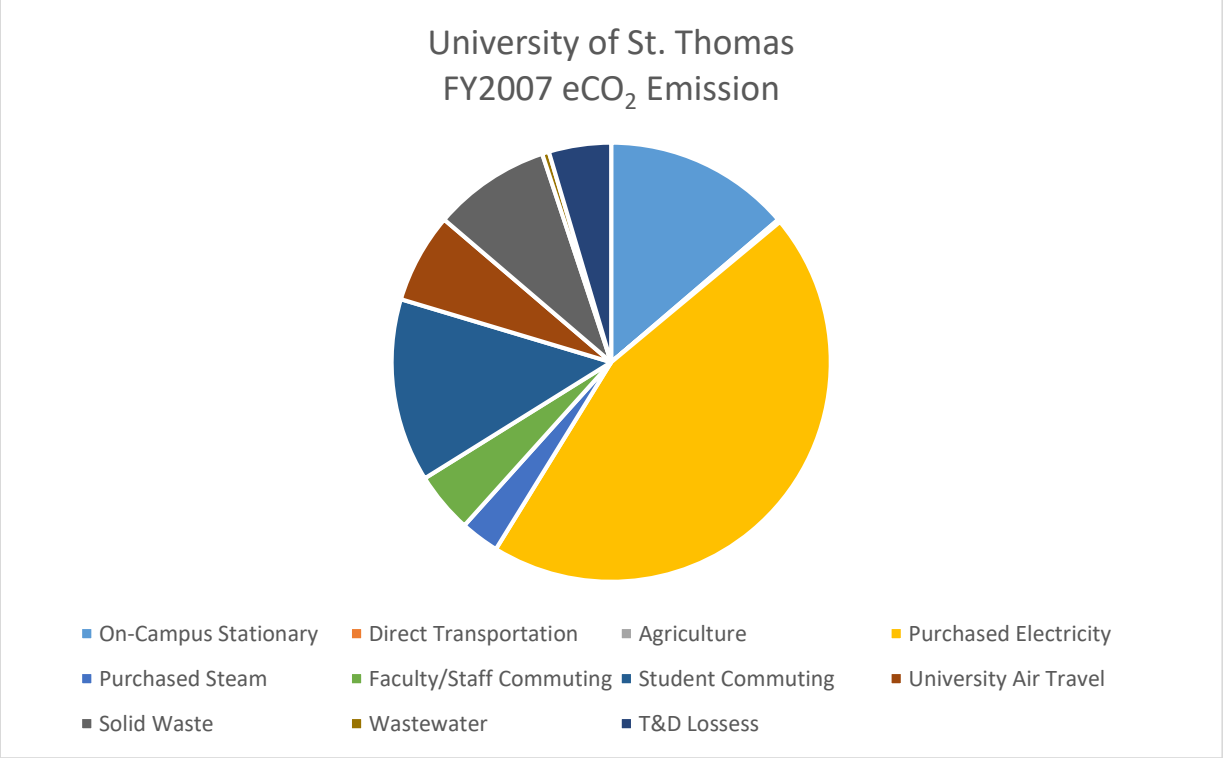
- Management and disposal of the university's solid wastes (garbage, recycling, hazardous wastes, universal wastes, sewage).

The Carbon Calculator also allows the university to offset its emissions through the use of offsets. Offsets involves the use of the university's financial power to purchase financial instruments that result in a net reduction in global carbon emissions and then can be used to reduce the university's overall carbon emission totals. Offsets can be as simple as the purchase of green power (wind, solar, water power), or can be more complex such as paying for reforestation projects, or sponsoring global energy efficiency initiatives.

2.1 2007 Emission Inventory

Although the university signed the ACUPCC in 2008, it started tracking carbon emissions in 2007 and has chosen to use 2007 as the baseline for its carbon emissions. In 2007 the university emitted 66,590 metric tonnes (tonnes) of CO_2. Off those emissions 9,672 tonnes were direct or Scope 1 emissions, 33,053 tonnes were directly purchased or Scope 2 emissions and 26,218 tonnes were financed or influenced Scope 3 emissions. Approximately 47% of our carbon emissions were due to the purchase of electricity to light and power university information technology systems on both our campuses, cool and ventilate our St. Paul and Minneapolis Campuses, and ventilate our St. Paul campus laboratories.

Figure 1 shows the relative source contributions to total campus emissions. On-campus stationary sources refer to campus boilers, natural gas furnaces, campus laundries, and kitchens. T&D (Transportation and Distribution) losses refer to assumed electricity losses in the electric grid to transport and deliver electricity to the university and are accounted for separately from our purchased electricity.



2.2 Greenhouse Gas Emission Trends 2008 – 2016

Table 1 below shows the university's carbon emissions from FY2008 through FY 2015. Table 1 lists the Scope 1 and the purchased electricity portion of Scope 2 emissions, as well as total emissions and emissions after subtracting emissions offsets. Summaries of the 2008 – 2016 emission inventories are included in Appendix A.

In 2008 the university began purchasing wind-generated electrical power to offset its electricity related carbon emissions. In 2008 – 2010, those offsets amounted to 25% of the university's electrical energy consumption. In 2011 the purchase of wind-generated power rose to 40% of electrical consumption and in 2012 to 45% of electrical consumption. In 2013 and 2014 the university offset 100% of electrical consumption through the purchase of wind-generated power.

In 2015 the university made a decision to temporarily halt the purchase of wind-generated power in the last quarter of the fiscal year. In 2015 the wind-generated power offset amounted to 71% of the university's purchased electricity. By 2015 the annual additional cost of purchasing wind-power over conventional power had risen to $182,000/year.

Table 1
University of St. Thomas
Greenhouse Gas Emissions FY 2008 - 2016

Year	Stationary Source Emissions (tonnes CO_2)	Purchased Electricity Emissions (tonnes CO_2)	Total University Emissions (tonnes CO_2)	Total University Emissions with Renewable Energy Offsets (tonnes CO_2)
2008	10,488	29,731	66,415	58,919
2009	9,506	29,107	65,802	58,399
2010	9,115	26,533	64,978	57,976
2011	11,236	28,433	67,474	56,248
2012	8,165	28,024	59,852	47,176
2013	10,234	23,310	57,872	32,557
2014	12,161	21,788	57,657	33,580
2015	10,180	25,936	59,918	41,249
2016	8,421	24,636	49,594	NA

Figure 2 shows the university's emissions with and without offsets from FY 2008 through 2016. The total emissions without offsets remained essentially steady from 2008 through 2011, then showed a steady decline from 2012 through 2016.

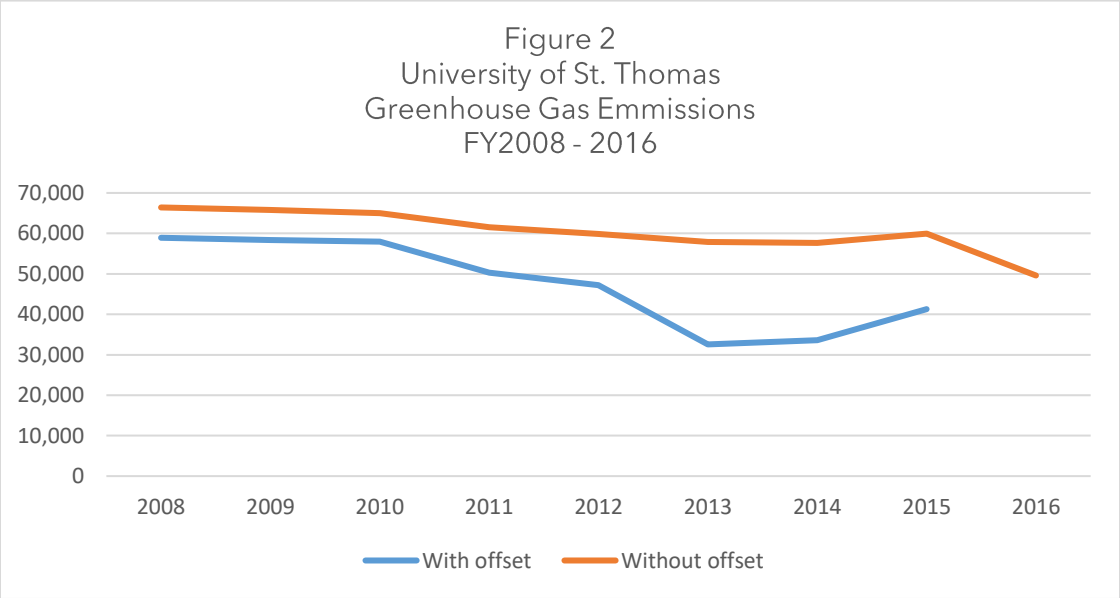
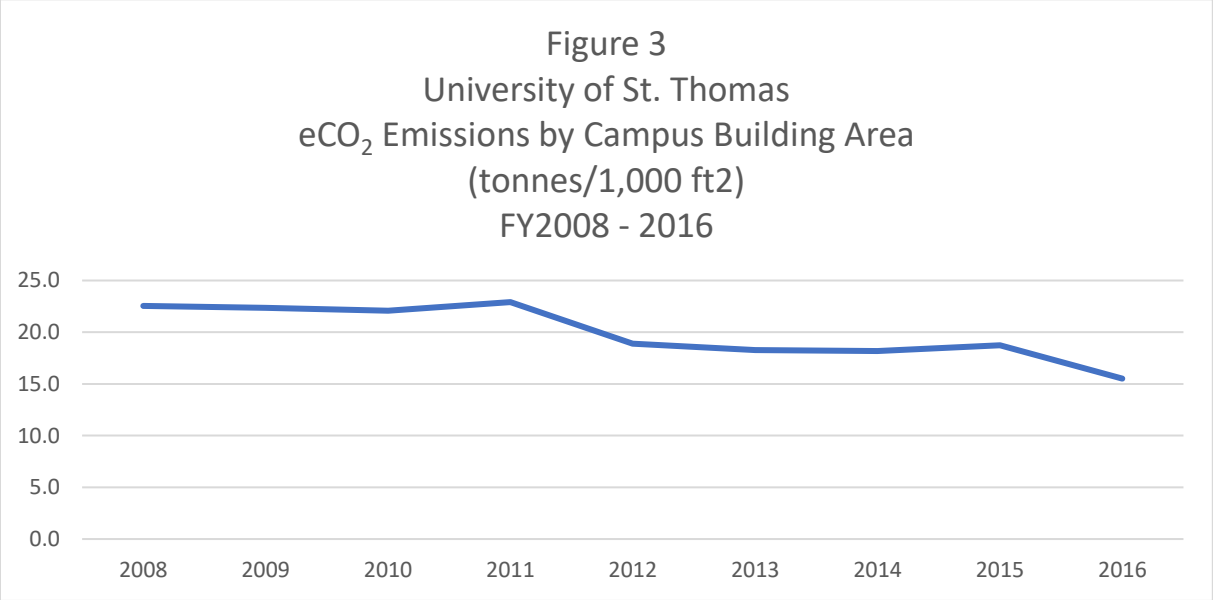
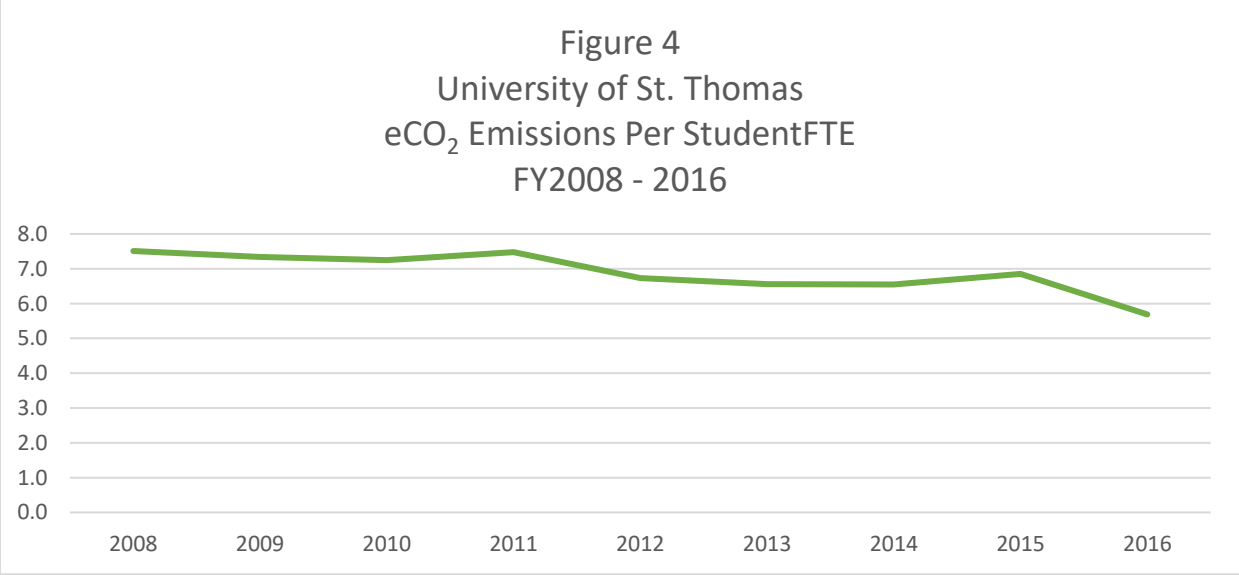


Figure 3 and 4 present the university's carbon emissions normalized for total campus building area (Figure 3) and student full-time equivalent (FTE) enrollment (Figure 4). Of particular note is the reduction in the eCO_2 emissions per student FTE from 7.5 tonnes in 2008 to 5.7 tonnes in 2016. Both figures show a significant drop in emissions normalized for area and enrollment between FY 2010 and 2012, most likely due to the replacement of the former athletic and field house complex (PE&A) and Foley Theater with the current Anderson Student Center (ASC) and Anderson Athletic and Recreation Center (ARC); both of which are modern, larger and more energy efficient buildings.

There is a second substantial drop in emissions per building area and student FTE. in FY2016, which most likely reflects energy conservation strategies implemented in FY2015 and FY2016. These strategies are discussed in Section 3.1.





2.3 2016 Emissions

The 2016 Emission Inventory is summarized below in Table 2 and Figure 5. Our 2016 emissions reflect the energy efficiency and other control measures implemented by the university since the signing of the ACUPCC in 2008.

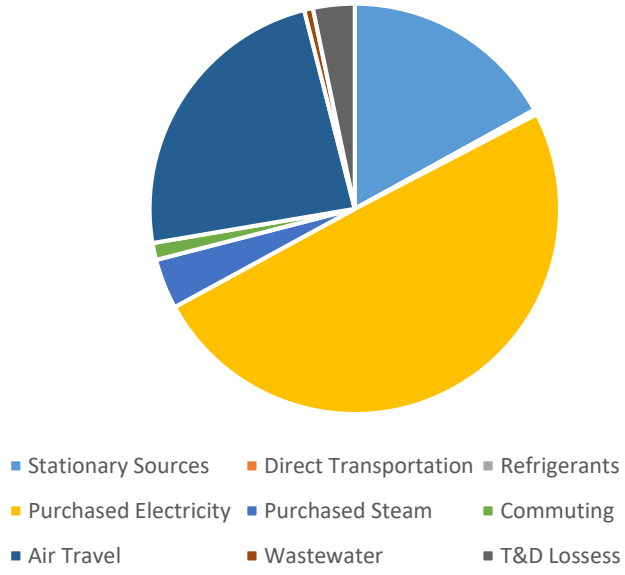
Table 2 University of St. Thomas Summary of FY2016 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	8,421
	Direct Transportation	110
	Refrigerants and Chemicals	85
Scope 2	Purchased Electricity	24,636
	Purchased Steam	1,957
Scope 3	Commuting	661
	Air Travel	11,754
	Wastewater	343
	Solid Waste[1]	0
	Scope 2 T&2 Losses[2]	1,626
Totals	Scope 1	8,616
	Scope 2	26,593
	Scope 3	14,385
	All Scopes	49,594
	All Offsets[3]	0
Net Emissions		49,594

1 Carbon emissions associated with transportation and disposal of campus solid waste. Note in FY 2016 all Solid Waste was either recycled or incinerated for energy recovery, resulting in no net emissions from solid waste disposal.

2 Carbon emissions associated with energy losses in the regional power grid.

3 No offsets were purchased in FY2016

Figure 5
University of St. Thomas
Relative Contributionn of Emission Sources
FY2016



In 2016, purchased electricity continued to be the single largest contributor (49% of total emissions) to the university's total emissions, although quantity of emissions due to purchased electricity has declined by approximately 5,000 tonnes since 2008.

The second largest contributor to the university's emissions is air travel (23% of total emissions). Air travel includes directly purchased faculty/staff travel on university business, student study abroad travel and overseas students' travel to and from their home countries.

The next largest contributor to the university's emissions are stationary sources, such as hydrocarbon fueled steam boilers, water heaters, furnaces, ovens and driers. Stationary sources have accounted for approximately 17% of university carbon emissions since the university began tracking carbon emissions.

Solid waste (garbage disposal) management has accounted for approximately 10% of university carbon emissions. The carbon emissions from the solid waste disposal included the carbon cost of collecting and transporting the waste as well as the emissions associated with decomposition of the waste in a landfill (primarily methane gas).

Starting in FY16, the university changed its solid waste disposal contractor. All university solid waste is now sent to the Hennepin County Energy Recovery Center for incineration to produce electricity and steam for heating. Sending our waste for energy recovery allows us to completely discount emissions related to solid waste disposal.

3.0 Current and Future Greenhouse Gas Mitigation Strategies

The following sections describe measures implemented since the signing of the AUPCC in 2008 to reduce greenhouse gas emissions and planned or proposed measures and strategies to further reduce emissions.

3.1 Reduction of Consumption

Key to the university's strategy to reduce energy consumption and reduce emissions of greenhouse gases is a commitment to ongoing building recommissioning; energy audits and implementation of energy conservation measures.

The university is partnering with Xcel Energy, its supplier of electricity and natural gas for its St. Paul campus and of electricity for its Minneapolis campus, to perform energy commissioning studies for its major campus buildings. Recommissioning is a process whereby Xcel assists commercial partners, in this case the university, in improving the energy efficiency of existing building operations by identifying existing functional systems that can be "tuned up" to run as efficiently as possible through low or no cost improvements. A copy of Xcel Energy's recommissioning process flow chart is attached in Appendix B.

In addition to building recommissioning, the university is also partnering with Xcel to perform in depth energy audits through the Commercial Efficiency program. The Xcel Energy audits are in depth assessments of energy use, control and distribution with in a building. Whereas recommissioning focuses on low and no cost improvements, energy audits include all feasible improvements and defines Energy Conservation Opportunities (ECO). On an annual basis each ECO is reviewed with Excel Energy and projects are prioritized based on the estimated payback period and complexity involved.

3.1.1 Lighting, Heating, Ventilation and Air Conditioning

The university has invested significant resources in reducing its consumption of energy. Consumption of purchased electricity and fossil fuels (primarily natural gas and fuel oil) are significant drivers of the university's carbon emissions.

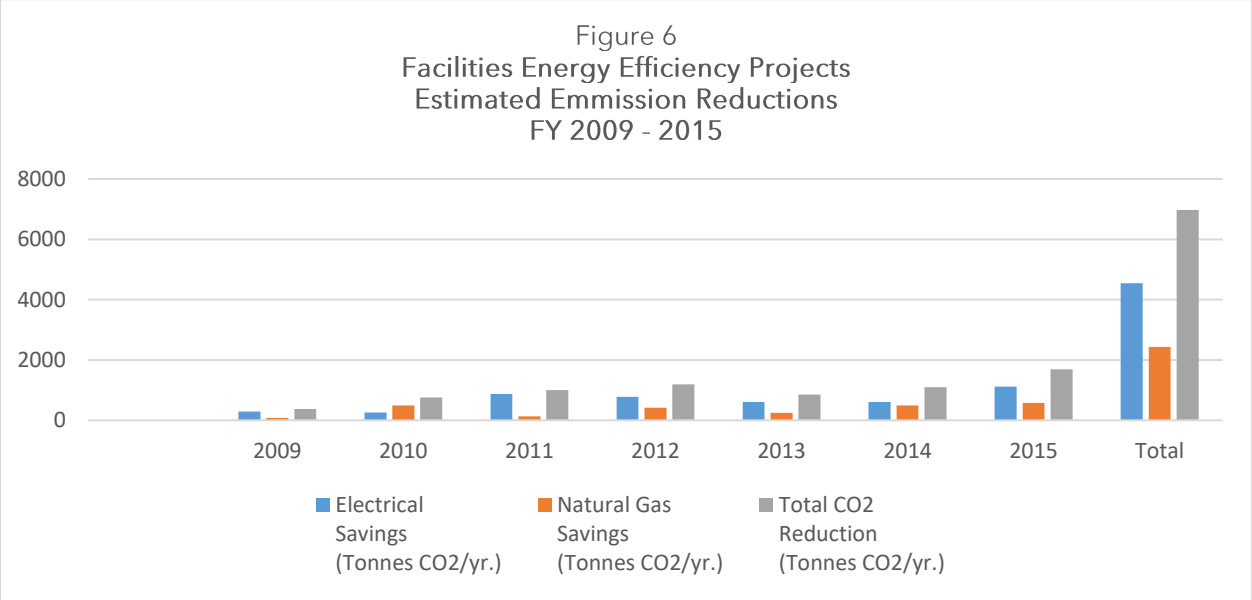
The university has initiated approximately 180 separate projects to reduce energy consumption since 2008 (a complete list of these projects is included in Appendix C. Measures taken to reduce energy consumption associated with lighting, heating, cooling and ventilating the university buildings have included:

- Retrofitting of fluorescent lighting in residence halls and older administrative and academic buildings to more efficient fluorescent lighting (2008 – 2010).
- Replacement of incandescent and fluorescent spot lighting throughout the university with LED lighting (2012 – 2015).
- Installation of lighting occupancy sensors throughout the university (2011 – 2016).
- Replacement or upgrade of air handling units in Aquinas Hall (2009), O'Shaughnessy-Frey Library (2015).

- Upgrading of laboratory ventilation systems throughout the Owens' Science Hall (2015 – 2016).
- Installation of monitored energy management systems throughout the university (ongoing).
- Replacement and upgrading of air conditioning chillers throughout the campus (2012 – 2015).
- Modernization of steam handling systems throughout the campus (ongoing).

Figure 6 shows the emissions reductions achieved through energy efficiency projects from 2009 through 2015. Cumulative savings by the end of FY 2015 were:

- 6,465,757 kWh in electrical usage
- 4,544 tonnes of carbon emissions associated with electrical usage.
- 458,354 therms of natural gas usage.
- 2,431 tonnes of carbon emissions associated with natural gas used for heating.



In addition, the university is implementing or investigating other measures to reduce energy usage associated with the heating, ventilating and air conditioning of campus buildings. These include:

- Reduction or elimination of summer heating boiler use. In McNeely Hall and Murray Herrick Center the university has installed dedicated hot water boilers, sized just to provide domestic hot water. The heating boilers serving these buildings have been shut down for the summer of 2016. Depending on the impact of the switching from heating to domestic hot water boilers, the university may expand these program to other campus buildings.

- Install condensing boilers in JRC and other campus buildings to generate domestic hot water. These boilers are far more efficient than traditional boilers in generating domestic hot water.
- Reduction in the temperature of heating water used for campus dormitory radiators (Brady Hall, Dowling Hall, Ireland Hall, John Paul II Hall, Grace Hall and Cretin Hall) from 190°F to 160°F. Water temperatures can be adjusted to match outside conditions in the event of extreme cold events. This measure is being implemented in FY 16 and 17. Further reduction of heating water temperatures will be considered based upon the success of current reductions in reducing energy use, while maintaining occupant comfort.
- Eliminate simultaneous cooling and reheating of conditioned air in campus buildings during the summer. Through careful monitoring and control of air conditioning systems, the university's mechanical maintenance department is able to supply the correct mix of chilled air, recirculated and fresh air to keep campus environments comfortable without needing to reheat over-chilled air. This measure is being implemented in a phased manner during the summer of 2016.
- Where possible shutting down HVAC systems in St. Paul and Minneapolis campus buildings when the buildings are unoccupied. Where this is not possible, matching HVAC operation as closely as possible to actual building occupancy.

The university intends to partner with Xcel Energy through its Commercial Energy program to conduct energy studies for campus buildings. The university believes continued participation in this program will result in additional energy saving opportunities.

3.1.2 Water, Wastewater

The University of St. Thomas has implemented several measures to reduce water consumption and generation of wastewater on both the St. Paul and Minneapolis campuses. These include:

- Installation of 2.5 gallon per minute shower heads in all campus dormitories and in the Anderson Athletic and Recreation Center. The university is investigating the use and acceptability of 1.5 gallon per minute shower heads.
- Low-flow toilets and urinals have been installed throughout both the St. Paul and Minneapolis campuses.
- Low-flow faucet aerators have been installed on most sinks in university administrative and academic buildings and in newer residence halls.
- Use of dedicated on-campus wells to provide water for irrigation of the St. Paul campus to reduce reliance on City of St. Paul water.
- Closer monitoring and control of water usage in campus cooling towers to minimize spillage and water loss.

The university is investigating direct measurement of evaporative cooling water loss in campus cooling towers. Currently water consumption in the towers is treated as wastewater, however the majority of water consumption is likely due to evaporation. Direct monitoring of

water use and evaporative loss would allow more accurate reporting of wastewater generation and likely reduction of associated carbon cost.

3.1.3 Solid Waste Management

The university is aggressively reducing the quantity of solid waste it generated through diversion to recycling. Measures already implemented include:

- Switching to a single sort program that lessens the barriers to recycling by reducing the need to sort recyclable wastes.
- Contracting with a waste hauler for end of academic year move-out to ensure that discarded furniture and appliances are sent for some form of recycling, rather than being disposed of as trash.
- Putting single sort recycling containers on every residence hall floor, and throughout academic, athletic and recreational buildings.
- Collection of food services kitchen waste for composting and animal feed.
- Publicizing and promotion of recycling efforts.

As of FY2016, 50% of the university's solid waste by weight had been diverted to recycling. By FY 2018, the university will be diverting 60% of solid waste to recycling and by FY 2030 will be diverting 80% of solid waste to recycling. Planned measures to increase diversion of solid waste to recycling include:

- Putting single sort recycling containers in every campus office, classroom and meeting room, rather than just in common areas.
- Implementing food waste collection for composting and animal feed in residence hall kitchens and employee break rooms.
- Ongoing promotion of recycling through regular newsroom articles, rallies, and meetings.

In FY2016, the university made a major change in its solid waste management program. The university changed solid waste management contractors and the method in which solid waste is collected on campus. Prior to FY2016, solid waste was deposited in several large roll-off bins located around campus. The roll-off bins were collected by a waste hauler, who then took the waste to a solid waste transfer station. At that point the transfer station sent the waste to various regional landfills for ultimate disposal. Under this system the waste hauler was not able to tell the university exactly where its solid waste went for final disposal or provide the university with accurate and timely reports on the amounts of solid waste the university was generating.

Under the system implemented in FY2016, waste is now deposited in bins located throughout campus. University personnel collect those bins and bring them to a central campus compacter where the waste is weighed then compacted and stored. The university's waste haulage contractor collects waste from a single campus location and transports that waste to Hennepin Energy Recovery Center (HERC). The university now has reliable and accurate data on campus solid waste generation and its final disposal. Disposal of the university's solid waste through energy recovery incineration allows the university to eliminate solid waste as a carbon emission source for purposes of calculating the university's carbon emissions.

3.1.4 Commuting

The university has taken several measures to encourage students and employees to use alternate forms of travel to and from the university.

- The university charges an annual fee based upon salary for employees who wish to park on campus. The fees are adjusted based upon the employee's salary. Currently St. Paul campus fees for surface lots and the Anderson Parking Facility are:
    - Base pay 0 - $30,000 - - $250/year
    - Base pay $30,001 - $60,000 -- $350/year
    - Base pay $60,000 + -- $450/year
- Commuter students who wish to park on campus must purchase a commuter parking permit. St. Paul campus permits are $200/year while the Minneapolis permits are $450/year.
- Resident students other than freshmen may participate in a student parking lottery. Successful lottery applicants may purchase a resident parking permit for $450/year. Freshman resident students are discouraged from having a vehicle on campus. A very limited number of freshman resident student permits are available for $1,080/year.
- Full-time employees who choose not to drive to campus and do not purchase a parking permit are eligible to purchase a highly subsidized MetroPass for use on public transport. The cost for the MetroPass is $180/year, a discount of $960 compared to the retail cost of an annual MetroPass.
- Employees who purchase an annual parking pass, may purchase a monthly MetroPass for a reduced rate.
- Students who do not purchase a parking pass may purchase a Metro Transit C-pass for $150/semester. This is a savings of $325/semester compared to the retail cost of a C-Pass.
- The university participates in the HOURCAR car sharing program. There are two HOURCAR locations on the St. Paul campus.
- The university strongly encourages bicycle commuting.
    - The university provides secure bicycle stands throughout both the St. Paul and Minneapolis campuses.
    - The university actively works with both the cities of St. Paul and Minneapolis to provide safe bike routes to and from campus.
    - The university library provides a free bike rental program for university employees and students.
    - The university partners with Twin Cities NiceRide to provide two NiceRide facilities on the St. Paul campus and one NiceRide facility on the Minneapolis campus. NiceRide is a bicycle rental program with an extensive distribution system throughout the Twin Cities.

3.1.5 Air Travel

The University of St. Thomas recognizes that commercial air travel is a major source of greenhouse gas emissions and that air travel also accounts for 20% of the university's greenhouse gas emissions. The university also believes in the value of international education and service opportunities for its students, and of attendance at international educational and research events for its faculty and staff. At this point the university has not developed a program to minimize commercial air travel for students, faculty or staff.

3.2 Production of Renewable Energy

The university has two solar array electrical power generation systems on its St. Paul Campus. On the roof of the Anderson Student Center there is a 3,692 square foot, 39.36 kW array that was installed during October 2014. On average this array produces 56,000 kWh/year and supplies 3.2% of the total annual electricity supply for the Anderson Student Center.

The second and smaller array is located on the roof of the Brady Residence Hall. This array which was installed in 2012, produces approximately 3.5 kWh/year.

The two arrays were installed in part as demonstration projects and in part to provide educational and research opportunities for students. At present data from the solar panels are used for teaching and research purposes in five courses:

- Biology 409, Urban Ecosystem Ecology
- Chemistry 101, Environmental Chemistry
- Chemistry 115, Accelerated General Chemistry
- Engineering 123
- Environmental Science 212, Society and Sustainability.

While the university will investigate opportunities to place additional arrays on campus buildings, on-campus solar power generation will never offset more than a small portion of the university's electrical consumption and greenhouse gas emissions.

3.3 Purchase of Green Power

In FY2008, the university began the purchase of wind-generated power through the Xcel Energy WindSource program. From FY2008 – FY2010 purchase wind power amounted to 25% of the university's purchased electricity. In 2011 and 2012 wind power accounted for approximately 40% of campus purchased electricity. In 2013 and 2014, wind power accounted for 88% of campus purchased electricity. In 2015, in part due to the cost premium associated with purchase of wind power and in part due to the likelihood of a viable solar farm program in Minnesota, the university curtailed purchase of wind source power after 8 months of FY 2015.

In FY2017, the university will investigate options for purchasing alternate green power sources that are both economical and have an environmental benefit that maximizes carbon offsets.

3.4 Offsetting Remaining Emissions

The university will have carbon emissions from campus related activities that cannot be fully mitigated through emission reduction strategies or purchase of green power. Even with rigorous improvements in efficiency of campus steam generation and distribution and heating, ventilation and air conditioning systems, the campus will still need to burn fossil fuels, albeit at levels much reduced from current levels, to generate steam and hot water for heating of campus buildings, as well as for domestic hot water and for cooking in campus kitchens. In addition, there are some sources of emissions over which the university has very little control such as air travel associated with study abroad programs, staff and faculty travel and emissions related to student, faculty and staff commuting to and from campus, that cannot be mitigated directly through emission reduction strategies or purchase of green power.

At present the university is investing its resources in further carbon emission reduction strategies and green electrical power sources. The university's intent is to aggressively reduce the emissions over which the university has control and then pursue additional offsetting strategies when reduction strategies are no longer feasible. Long term off-setting strategies which the university intends to investigate include:

- Investing in green and reduced carbon power generation in countries and areas using primarily coal and diesel for power generation.
- Purchase of forest tracts to preserve them from loss of carbon capture potential and investing in reforestation projects to increase land carbon capture potential.
- Investing in carbon capture technologies as they are developed and become both technologically and financial practical.

4.0 Tracking of Progress in Meeting Greenhouse Emission Goals

In 2016, the University of St. Thomas joined the non-profit Second Nature, which was formed as the successor organization to the ACUPCC. Second Nature maintains and updates the Campus Carbon Calculator tool for estimating campus carbon emissions and provides a mechanism for signatory institutions (including the University of St. Thomas) to share their carbon emission reports and emission reduction strategies.

The university's Environmental Health and Safety Department, located within Facilities Management is responsible for preparing the university's annual carbon emission report, using Second Nature's Campus Carbon Calculator Tool. In the Fall Semester of each academic year the EH&S Department will provide Second Nature with the complete carbon report for the previous fiscal year (July 1 – June 30). That report will also be provided to the university's senior leadership and the Sustainability Committee. A summary report will be placed upon the Sustainability web page (link?). The report will also be provided to the greater university community through the university's Newsroom.

As well as providing a means for sharing carbon emission reports with other institutions, Second Nature also allows signatory institutions to post and share their Climate Action Plans and Carbon Neutrality Plans. The university will post its plans and revisions to those plans on Second Nature's website.

5.0 Annual Greenhouse Gas Inventory Supplements

5.1 FY2017 Emissions

The university's 2017 greenhouse gas emission inventory is summarized below in Table 3 and Figures 6 and 7.

Table 3 University of St. Thomas Summary of FY2017 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	7,953
	Direct Transportation	114
	Refrigerants and Chemicals	447
Scope 2	Purchased Electricity	23,118
	Purchased Steam	1,511
Scope 3	Commuting	662
	Air Travel	8,662
	Wastewater	271
	Solid Waste[1]	0
	Scope 2 T&2 Losses[2]	1,077
Totals	Scope 1	8,514
	Scope 2	24,629
	Scope 3	10,656
	All Scopes	43,779
	All Offsets[3]	0
Net Emissions		43,779

1 Carbon emissions associated with transportation and disposal of campus solid waste. Note in FY 2017 all Solid Waste was either recycled or incinerated for energy recovery, resulting in no net emissions from solid waste disposal.

2 Carbon emissions associated with energy losses in the regional power grid.

3 No offsets were purchased in FY2017

The FY 2017 report shows a slight reduction in Scope 1 emissions of 102 MTCO2e compared to FY2016. A 468 MTCO2e reduction in campus stationary source emissions (boilers, furnaces, ovens, etc.) due in part to implementation of planned equipment upgrades and in part to a mild winter were largely offset by increased emissions due to refrigerant loss. The university reports its refrigerant emissions based upon refrigerant purchased during the fiscal year. Year to year purchases vary and may not reflect actual losses of refrigerant over that fiscal year.

The university saw substantial reduction in both Scope 2 and 3 emissions. Reductions in Scope 2 emissions of approximately 2,000 MTCO2e were largely achieved due to energy efficiency measures implemented the summer and fall of 2016. These measures included:

- Completion of the Owen's Science Hall laboratory ventilation project which reduced the volume of tempered air exhausted from the building while improving control and distribution of laboratory exhaust hood ventilation.
- Shut-down of air conditioning systems in academic and administrative buildings when buildings are not occupied.
- Continued conversion from fluorescent to LED lighting throughout the St. Paul and Minneapolis campuses. This is a multi-year project which should result on on-going reductions in electricity related emmissions.

Scope 3 emissions saw an approximately 3,700 MTCO2e reduction compared to FY2016. The reduction in scope 3 emissions was largely due to 26% reduction in air miles for both faculty/staff and study abroad travel. A small reduction (70 MTCO2e) occurred in emissions due to wastewater discharge to the sanitary sewer system. Since the university does not measure discharge to sewer, we assume all our purchased water is discharged to sewer. In FY17, we began monitoring evaporative water loss from campus air-conditioning cooling towers. That allowed us to deduct water lost due to evaporation from the amount we report as discharged to sanitary sewers.

Figure 7
University of St. Thomas
FY2017 Greenhouse Gas Emissions by Scope

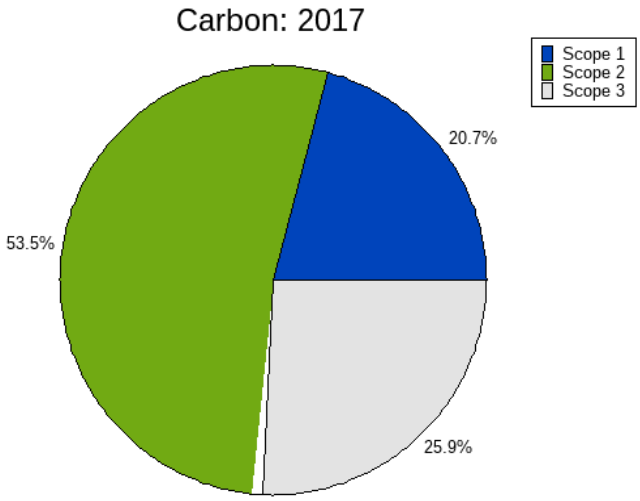
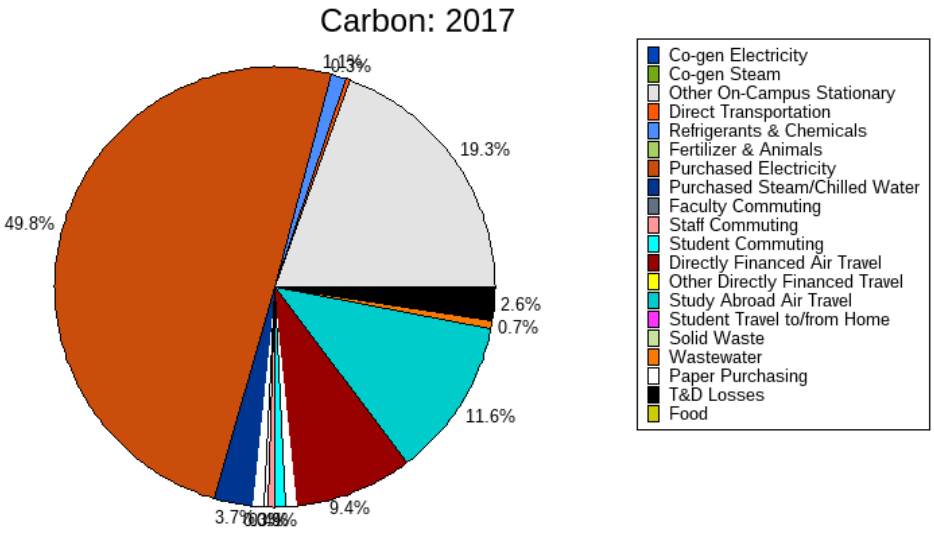


Figure 8
University of St. Thomas
FY2107 Greenhouse Gas Emissions by Source



5.2 FY2018 Emissions

The university's FY2108 greenhouse gas emission inventory is summarized below in Table 4.

Table 4 University of St. Thomas Summary of FY2018 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	9,167
	Direct Transportation	113
	Refrigerants and Chemicals	217
Scope 2	Purchased Electricity	20,278
	Purchased Steam	1,569
Scope 3	Commuting	662
	Air Travel	8,349
	Wastewater	271
	Solid Waste[1]	0
	Scope 2 T&2 Losses[2]	1,061
Totals	Scope 1	9,497
	Scope 2	21,847
	Scope 3	10,336
	All Scopes	41,680
	All Offsets[3]	0
Net Emissions		41,680

1 Carbon emissions associated with transportation and disposal of campus solid waste. Note in FY 2018 all Solid Waste was either recycled or incinerated for energy recovery, resulting in no net emissions from solid waste disposal.

2 Carbon emissions associated with energy losses in the regional power grid.

3 No offsets were purchased in FY2017

5.3 FY2019 Emissions

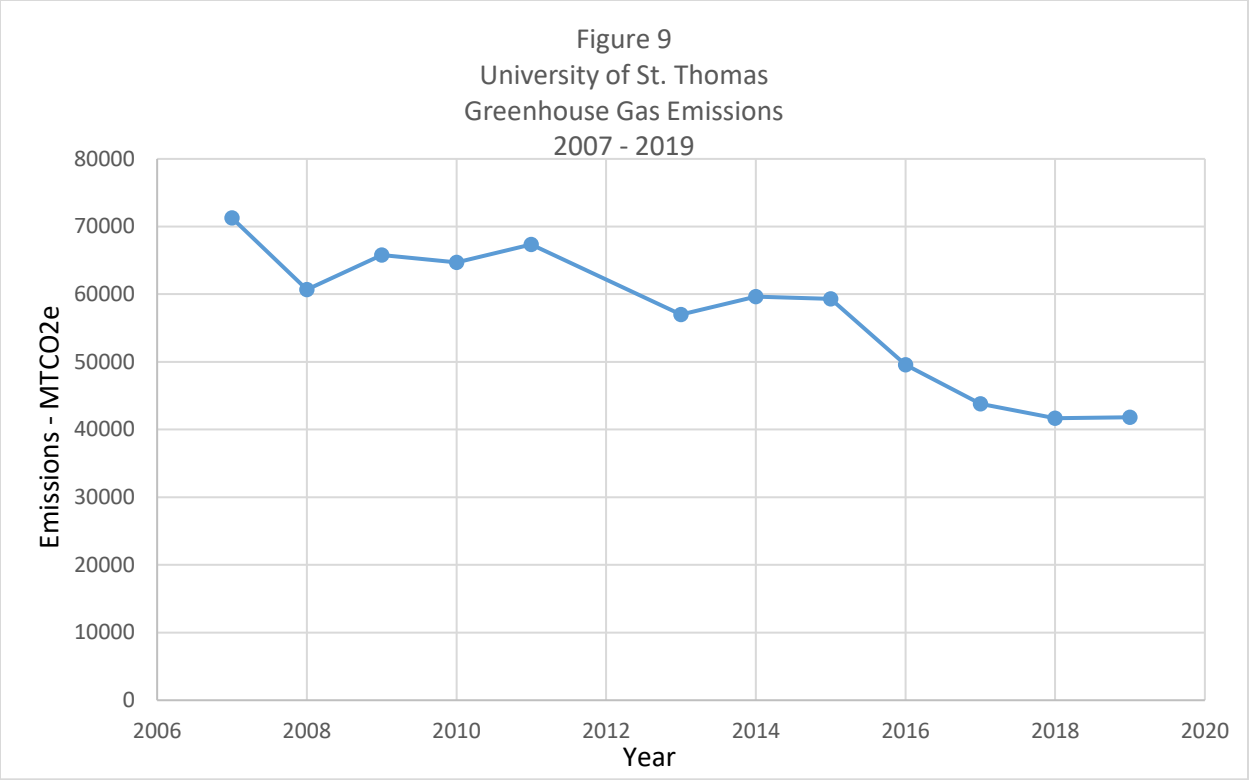
The university's FY 2109 greenhouse gas emission inventory is summarized below in Table 5.

Table 5 University of St. Thomas Summary of FY2019 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	9,609
	Direct Transportation	97
	Refrigerants and Chemicals	200
Scope 2	Purchased Electricity	19,178
	Purchased Steam	1,567
Scope 3	Commuting	634
	Air Travel	9,280
	Wastewater	271
	Solid Waste[1]	0
	Scope 2 T&2 Losses[2]	1,266
Totals	Scope 1	9,905
	Scope 2	20,745
	Scope 3	11,180
	All Scopes	41,680
	All Offsets[3]	0
Net Emissions		41,830

1 Carbon emissions associated with transportation and disposal of campus solid waste. Note in FY 2019 all Solid Waste was either recycled or incinerated for energy recovery, resulting in no net emissions from solid waste disposal.
2 Carbon emissions associated with energy losses in the regional power grid.
3 No offsets were purchased in FY2019

In FY 2019 total carbon emissions increased by 150 $MTCO_2e$, or 0.4%. While electricity related emissions declined significantly, that decline was cancelled out by increased air travel related emissions and a slight increase in heating related emissions.

Figure 9 presents the overall trend in our carbon emissions from our 2007 base emissions year through FY2019. Our total carbon emissions have declined by 29,445 $MTCO_2e$ since 2007. The reductions are largely due to improvements in heating, cooling and lighting efficiency as well as a major change in how our campus solid wastes are handled. Beginning in 2016 we began implementing major improvements in our solid waste recycling programs. Those improvements have approximately halved the amount of non-recycled waste. We also stopped landfilling the remaining waste. All non-recycled wastes are now sent for energy recovery incineration. The combination of increased recycling and energy recovery incineration allows us to report zero net emissions from solid wastes (a reduction of approximately 4,000 $MTCO_2e$).



Tables 6 and 7 present emissions comparison data between University of St. Thomas and local private colleges and universities (Table 6) and national peer institutions (Table 7). In comparison to reporting MPCC schools the University of St. Thomas has significantly gross emissions per student. Our emissions per building area are in-line with reporting MPCC schools. Our emissions reductions are higher than all but St. John's University (note that SJU has not reported since 2014 and is no longer listed on the SecondNature.org site).

Comparison between University of St. Thomas and national peers is complicated by the fact that St. Thomas is located in the International Energy Conservation Code (IECC) climate zone 6. All other peer schools are located in lower climate zones, reflecting their more moderate climates. St. Thomas exceeds all but one of our national peers in terms of total emission reductions. Our emissions per student and emissions normalized to building area are comparable to our national peers.

Table 6

Comparison of MPCC Schools Reporting Green House Gas Emissions Second Nature Inc.					
	University of St. Thomas	Carleton College	College of St. Benedict	Macalester College	St. John's University[1]
Baseline Year	2007	2008	2008	2007	2008
Most Recent Report Year	2019	2019	2018	2019	2014
Enrollment (FTE)	8,783	1,872	1,876	2,160	1,896
Total Building Area (GSF)	3,191,084	1,936,472	1,319,613	1,425,958	1,346,820
Total Gross Emissions (MTCO2e)	41,830	17,929	13,530	13,131	20,104
Gross Emissions Change	41%	34%	25%	33%	58%
Gross Emissions/ Student (MTCO2e/FTE)	4.76	9.58	7.21	8.32	10.60
Gross Emissions/Area (MTCO2e/ 1,000 GSF)	13.11	9.25	10.25	12.38	14.93

Table 7
Comparison of National Peer Schools
Reporting Green House Gas Emissions
Second Nature.org

	University of St. Thomas	Gonzaga University	Loyola M.mount University	Santa Clara University	University Of Dayton	Villanova University	University of San Diego
Baseline year	2007	2009	2008	2005	2013	2007	2019
Current year	2019	2018	2017	2018	2018	2018	DNR
Enrollment	8783	7304	8050	8994	DNR	9,085	DNR
Bldg. Area (g.s.f.)	3,191,084	2,914,176	3,500,000	3,174,771	5,330,033	4,687,202	DNR
Gross Emissions (MTCO2e)	41,830	24,001	20,769	27,132	78,758	52,828	DNR
Emission Reduction	41%	16%	36%	3%	2%	42%	DNR
Emission/ Student	4.76	3.29	2.58	3.01	DNR	5.81	DNR
Emissions/ 1000 s.f.	13.11	8.23	5.93	8.55	14.78	11.27	DNR

Attachments

Attachment A: 2008 – 2015 Emission Inventory Summaries

Attachment B: Xcel Energy Recommissioning Process

Attachment C: 2008 - 2016 Energy Efficiency Projects

Attachment A

2008 – 2015 Carbon Emission Inventory Summaries

Table A-1 University of St. Thomas Summary of FY2008 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	10,488
	Direct Transportation	108
	Refrigerants and Chemicals	73
Scope 2	Purchased Electricity	29,731
	Purchased Steam	1,959
Scope 3	Commuting	10,134
	Air Travel	11,754
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	3,044
Totals	Scope 1	10,669
	Scope 2	37,615
	Scope 3	18,130
	All Scopes	66,415
	All Offsets	7,498
Net Emissions		58,917

Table A-2 University of St. Thomas Summary of FY2009 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	9,507
	Direct Transportation	117
	Refrigerants and Chemicals	37
Scope 2	Purchased Electricity	29,107
	Purchased Steam	1,791
Scope 3	Commuting	10,839
	Air Travel	5,504
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	2,973
Totals	Scope 1	9,661
	Scope 2	30,898
	Scope 3	25,241
	All Scopes	65,800
	All Offsets	7,403
Net Emissions		58,397

Table A-3 University of St. Thomas Summary of FY2010 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	9,115
	Direct Transportation	104
	Refrigerants and Chemicals	20
Scope 2	Purchased Electricity	26,533
	Purchased Steam	1,675
Scope 3	Commuting	13,802
	Air Travel	5089
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	2,712
Totals	Scope 1	9,239
	Scope 2	28,208
	Scope 3	27,529
	All Scopes	64,976
	All Offsets	7,002
Net Emissions		57974

Table A-4 University of St. Thomas Summary of FY2011 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	11,236
	Direct Transportation	75
	Refrigerants and Chemicals	20
Scope 2	Purchased Electricity	28,433
	Purchased Steam	1,915
Scope 3	Commuting	11629
	Air Travel	5,325
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	2,913
Totals	Scope 1	11,331
	Scope 2	30,348
	Scope 3	25,793
	All Scopes	67,499
	All Offsets	11,226
Net Emissions		56,273

Table A-5 University of St. Thomas Summary of FY2013 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	10,393
	Direct Transportation	118
	Refrigerants and Chemicals	179
Scope 2	Purchased Electricity	29,053
	Purchased Steam	1,788
Scope 3	Commuting	662
	Air Travel	6,352
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	1,883
Totals	Scope 1	10,690
	Scope 2	30,841
	Scope 3	15,455
	All Scopes	56,987
	All Offsets	25,316
Net Emissions		31,671

Table A-6 University of St. Thomas Summary of FY2014 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	12,155
	Direct Transportation	117
	Refrigerants and Chemicals	179
Scope 2	Purchased Electricity	27,419
	Purchased Steam	2,241
Scope 3	Commuting	662
	Air Travel	8,684
	Wastewater	NR
	Solid Waste	5,925
	Scope 2 T&2 Losses	1,813
Totals	Scope 1	12,272
	Scope 2	29,660
	Scope 3	17,727
	All Scopes	59,659
	All Offsets	24,078
Net Emissions		35,581

Table A-7 University of St. Thomas Summary of FY2015 Carbon Emissions		
Scope	Source	Equivalent CO_2 Emissions (tonnes)
Scope 1	Campus Stationary Sources	10,189
	Direct Transportation	110
	Refrigerants and Chemicals	246
Scope 2	Purchased Electricity	25,936
	Purchased Steam	2,421
Scope 3	Commuting	661
	Air Travel	11,754
	Wastewater	346
	Solid Waste[1]	5,927
	Scope 2 T&2 Losses[2]	1,731
Totals	Scope 1	10,545
	Scope 2	28,357
	Scope 3	20,419
	All Scopes with Solid Waste	59,322
	All Offsets[3]	(18,669)
Net Emissions with Solid Waste		40,652

Attachment B

Xcel Energy Recommissioning Process

INFORMATION SHEET
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Recommissioning Process

Phase 1: Preapproval

1. Customer selects a Recommissioning study provider and reviews the study provider's project proposal
2. Customer completes Xcel Energy's Recommissioning program study preapproval application and sends application and project proposal (including Addendum A) to the customer's Xcel Energy account manager
3. Xcel Energy reviews the preapproval application and project proposal and sends a preapproval letter with the preapproved study funding amount to the customer and customer's study provider

Phase 2: Study Approval/Study Rebate

Study is reviewed and a study rebate is paid.

4. Study provider completes the study and sends a copy to Xcel Energy's energy efficiency engineer and account manager
5. Xcel Energy reviews the study and other supporting documents
   - Energy Conservation Opportunity (ECO) form
   - Recommissioning calc tool
   - If applicable, other ECO calcs submitted by the study provider
6. Xcel Energy approves the final study and sends the customer and study provider a study approval letter and final ECO form
7. Study provider schedules a meeting with customer and Xcel Energy account manager to present the final Recommissioning study; customer is then invoiced for the cost of the study
8. Customer completes the study rebate application and sends the signed application, copy of the study invoice, and the ECO form's implementation plan tab to the Xcel Energy account manager
9. Xcel Energy pays the study rebate to the customer

Phase 3: Implementation

13. Customer implements recommended ECO measures
14. Customer signs the implementation plan tab of the ECO form and sends the ECO form with ECO itemized invoices to the Xcel Energy account manager.
15. Xcel Energy pays the implementation rebates to the customer; implementation rebate amounts are based on actual costs of ECO implementation

Timing Key

Please note: Timing depends entirely on the quality of the data provided to Xcel Energy.

- Study preapprovals take two weeks or less.
- Study approvals take two weeks or less.
- Rebates take three to six weeks to process.

For Additional Information

If you have other questions, please call our Business Solutions Center at **1-855-839-8862** or visit us at **xcelenergy.com/Rebates**.

Attachment C

2008 – 2015 Energy Efficiency Projects

Table C-1 2008 – 2016 Energy Efficiency Projects University of St. Thomas.					
Opportunity Description	**Est kWh Annual Savings**	**Est kW Saving**	**Est Therms Annual Savings**	**Completion Date**	**Notes**
T8 Retrofit - Res Hall & OEC	193,585	45.7	-	9/10/2008	
T8 Retrofit - Cretin, Grace & Loras	107,934	25.48	-	9/10/2008	
Burner Project - OWS #1	-	0	14,611	11/24/2008	
Ltg Retro - T12 to T8	11,349	2.679	-	4/16/2009	
Trane Units @ Dowling/Brady	1,602	1.191	-	4/16/2009	
Aquinas AHU Upgrade - VFD's	11,129	2.13	-	5/28/2009	
Aquinas AHU Upgrade - Motors	6,648	1.072	-	5/28/2009	
Aquinas Hall - VAV's	6,053	4.5	-	6/15/2009	
Faculty Residence Retrofit	2,796	0.66	-	6/25/2009	
Maintenance Room Retro	21,243	5.015	-	6/25/2009	
St John Vianney Ltg Retro	33,455	7.898	-	6/25/2009	
Ireland Dorm Retrofit	23,980	5.661	-	6/25/2009	
FY 2009 Total	**419,774**		**14,611**		
Boiler Tune-up - Murray Hall 2009	-	0	1,945	9/14/2009	
Boiler Tune-up - OWS #3 2009	-	0	4,226	9/14/2009	
VFD's in Sorin Hall	16,694	3.195	-	10/23/2009	
Burner Project - OWS #2	-	0	14,611	11/18/2009	
BOILER TUNE UP - 2159 Grand	-	0	221	11/24/2009	
Low Wattage T8 Retro - Campus Wide - Ph I	43,631	10.3	-	11/24/2009	
BOILER TUNE UP - 2085 Grand	-	0	402	11/24/2009	

Ltg Retro @ 30/32 Finn	13,788	3.255	-	11/24/2009	
Ltg NC @ 2055 Summit	37,865	8.939	-	11/24/2009	
Ltg Retro @ 2057 Portland	2,190	0.517	-	11/25/2009	
Lighting Retro @ 44 Cleveland	5,332	1.259	-	11/25/2009	
Boiler Tune-up - McNeely Hall 2009	-	0	8,451	12/28/2009	
Boiler Tune-up - Summit Classroom 2009	-	0	1,650	12/29/2009	
Boiler Tune-up - Physical Plant 2009	-	0	40,537	12/30/2009	
Boiler Tune-up - Service Center (1 & 2) 2009	-	0	11,407	12/30/2009	
Boiler Tune-up - OWS #1 & #2 2009	-	0	9,981	12/30/2009	
2 @ 10hp 2010 Motor replacement	868	0.238	-	2/11/2010	
Low Wattage T8 Retro - Ph II	41,108	9.831	-	2/17/2010	
7.5hp 2009 Motor replacement	474	0.13	-	2/24/2010	
Ltg Retro @ 2120 Summit	13,680	3.272	-	2/24/2010	
Ltg Retro @ 2103 Grand	1,129	0.27	-	2/24/2010	
Ltg Retro @ 2093 Grand	3,020	0.723	-	2/24/2010	
Ltg Retro @ 2097 Grand	3,136	0.752	-	2/24/2010	
Ltg Retro @ 2091 Grand	2,097	0.502	-	2/24/2010	
Ltg Retro @ 2117/2119 Grand	10,800	2.583	-	2/24/2010	
Ltg Retro @ 2109 Grand	5,683	1.36	-	2/24/2010	
Low wattage Retro - Ph III	41,108	9.831	-	3/19/2010	
Aquinas Hall Ltg Retro	65,165	15.585	-	3/19/2010	
School of Divinity Ltg Retro	50,940	12.183	-	3/19/2010	

Pump motors - 2 @ 10hp	868	0.238	-	5/27/2010	
School of Divinity Ltg Ph II	10,933	2.615	-	6/17/2010	
WindSource Contract Main Svc #1	8,929,200	0	-	6/25/2010	
WindSource Contract Main Svc #2	3,217,200	0	-	6/25/2010	
FY 2010 Total	**12,516,909**		**93,431**		
JEEP OEC Motors (Return Fans)	4,612	1.27	-	9/14/2010	
JEEP OEC VFD's	82,174	22.631	-	9/14/2010	
MNEMS-471 JEEP OEC Efficiency Controls (E)	137,264	16.06	-	9/22/2010	
MNEMS-471 JEEP OEC Efficiency Controls (G)	-	0	13,017	9/22/2010	
Pool Pump VFD's	72,286	19.853	-	9/23/2010	
EDA - Anderson Athletic Facility - G	-	0	11,530	12/17/2010	
EDA - Anderson Athletic Facility - E	939,105	253	-	12/17/2010	
LED lamps in Terrance Murphy Hall	2,336	0.559	-	12/17/2010	
MN5101 Cust LED - Ph I	4,076	0.96	-	4/25/2011	
FY 2011 Total	**1,241,853**		**24,547**		
Campus Wide Occ Sensor - PHP +	37,614	8.997	-	11/29/2011	
Occ Sensors - Flynn	3,665	0.876	-	11/29/2011	
Occ Sensors - McNeely	4,041	0.966	-	11/29/2011	
Occ Sensors - OWS	23,214	5.552	-	11/29/2011	
Occ Sensors - Grace/Cretin	6,927	1.657	-	11/29/2011	
2011 Boiler Tune-up - McNeely 1 & 2	-	0	4,908	11/30/2011	
2011 Boiler Tune-up - PHP 1, 2 & 3	-	0	46,505	11/30/2011	

2011 Boiler Tune-up - Svc Ctr 1 & 2	-	0	13,087	11/30/2011	
2011 Boiler Tune-up - Summit Clasroom	-	0	958	11/30/2011	
Dowling Motors - 4 @ 5hp Pumps	3,447	0.947	-	12/13/2011	
2011 Boiler Tune-up - OWS 1 & 2	-	0	11,451	12/21/2011	
VFD's at Opus Hall ~ 2 @ 7.5hp 1-8JMIT	9,848	2.712	-	5/11/2012	
1hp VFD @ Library Exhaust Fan 1-8L0QX	704	0.19	-	5/15/2012	
40-ton Air Cooled Chiller 1-8K9TZ	9,376	1.743	-	5/15/2012	
3hp VFD @ Terrence Murphy 1-8L0R4	2,015	0.56	-	5/15/2012	
Opus Hall 30hp & 75hp VFD - Ph I 1-8JMHP	65,173	17.949	-	5/15/2012	
EDA - Anderson Student Center - Elect 1-4XDJI	856,467	209	-	5/22/2012	
EDA - Anderson Student Ctr Gas 1-4XDKC	-	0	950	5/22/2012	
Dowling VFD's - 4 @ 5hp Pumps 1-8D5SE	15,366	4.22	-	5/22/2012	
Morrison VFD's - 15hp + 30hp 1-8D5S4	65,815	18.076	-	5/23/2012	
PHP VFD - 2 @ 5hp 1-8D5RV	6,640	1.829	-	5/25/2012	
FY 2012 Total	**1,110,312**		**77,859**		
MN 5255 Cust T12 to T8 8ft Ltg 1-82F8X	27,708	11.86	-	7/26/2012	
Summit Classroom VFD's	25,071	6.899	-	8/31/2012	
Res Hall LED Retrofit Ph I	240,240	57.456	-	10/10/2012	
Student Ctr LED Ltg	9,076	2.171	-	10/10/2012	
Res Hall LED Retrofit Ph II	86,887	20.78	-	10/10/2012	
Elevator LED MR16's	5,513	0.754	-	10/10/2012	
LED Ltg in Book Store 1-8CKFC	3,203	0.766	-	11/9/2012	

Brady Hall VFD's- 5hp + 2hp 1-8D5SU	21,304	5.867	-	11/29/2012	
Custom Heat Recovery @ Brady 1-83BOF	-	0	12,778	12/10/2012	
JRC Aud LED	6,807	1.628	-	2/4/2013	
OEC Bldg LED	7,346	1.757	-	2/4/2013	
O Library LED	45,545	10.893	-	2/4/2013	
Book Store LED phase II	8,809	2.107	-	2/4/2013	
Flynn Foyer ltg	1,969	0.471	-	2/4/2013	
BEC Aud LED	5,906	1.412	-	2/4/2013	
Chapel LED ltg	12,106	2.896	-	2/4/2013	
OWS 3M Aud LED	5,606	1.341	-	2/4/2013	
Trash Rooms Occ sensors	3,383	0.809	-	2/12/2013	
JRC Aud Cust LED Ltg	17,361	8.491	-	3/21/2013	
Univ of St Thomas - OEC PHII	32,783	7.841	-	3/21/2013	
O'Shaughnessy Lib - PHII	89,556	21.418	-	3/21/2013	
BEC Aud - PHII	18,352	4.389	-	3/21/2013	
Binz Cust LED Cafeteria	40,084	7.747	-	4/2/2013	
JEEP Burner Project - OWS #3	-	0	3,459	4/10/2013	
2013 Boiler Tune Up - McNeely	-	0	4,908	6/14/2013	
2013 Boiler Tune Up - Service Ctr	-	0	13,087	6/14/2013	
2013 Boiler Tune Up - OWS 1 & 2	-	0	11,451	6/14/2013	
2013 Boiler Tune Up - Summit Classroom	-	0	958	6/14/2013	
Murray Hall Dorms - LED 2013	3,437	0.822	-	6/19/2013	

Murray Herrick LED Ltg	61,255	14.649	-	6/19/2013	
MHC Bookstore LED Track Ltg	3,114	0.745	-	6/20/2013	
Grace Res LED Ltg	18,635	4.457	-	6/20/2013	
Occ Sensors @ Frey Library	1,612	0.386	-	6/24/2013	
Grace Hall Vanity LED Ltg	22,087	12.084	-	6/24/2013	
Occ Sensors @ Law School	9,333	2.232	-	6/24/2013	
Schultze Cafeteria Cust LED Ltg	31,714	10.326	-	6/28/2013	
FY 2013 Total	**865,802**		**46,641**		
2013 Boiler Tune Up - Murray Hall	-	0	1,130	7/5/2013	
2013 Boiler Tune Up - PHP All 3	-	0	46,505	7/5/2013	
Murray Hall Dorms Cust LED	43,604	16.327	-	7/9/2013	
SOD - LED lamps 2013	19,298	4.615	-	9/10/2013	
School of Divinity Chapel Cust LED	18,339	8.049	-	9/10/2013	
Summit Modulating Burner/Turbulators	-	0	1,714	9/11/2013	
VFD for Well Pump - North Campus	18,189	4.996	-	9/27/2013	
VFD on Well Pump South Campus	18,189	4.996	-	9/27/2013	
Res Halls ECO 1 - E (Ph I)	13,111	1.5	-	10/8/2013	
Res Hall Gas ECO 1, 3, 4 & 6 (Ph I)	-	0	10,510	10/8/2013	
Murray-Herrick Chiller Rm Fan VFD's	33,559	9.243	-	11/19/2013	
Murray-Herrick Chiller Rm Pump VFD's	92,181	22.01	-	11/19/2013	
MNEMS-808 Eff Controls - OSS & OWS (E - JEEP)	235,442	26.88	-	11/20/2013	
MNEMS-808 Eff Controls - OSS & OWS (G - JEEP)	-	0	3,869	11/20/2013	

Inc to LED in McNeely Elevators	6,534	0.894	-	12/17/2013	
Inc to LED In Elevators - TMH & Schultze	18,378	2.514	-	12/17/2013	
Herrick Eff Controls - E	121,674	17.289	-	5/20/2014	
Herrick Eff Controls - G	-	0	8,672	5/20/2014	
Murray Eff Controls - E	175,379	26.682	-	5/28/2014	
Murray Eff Controls - G	-	0	19,996	5/28/2014	
Florence Chapel LED Ltg	31,505	7.534	-	6/26/2014	
TMH Bookstore - Inc to LED	6,790	1.624	-	6/26/2014	
Occ Sensors - Murray, Herrick & Library	11,557	2.807	-	6/30/2014	
TMH LED Downlight Rm#255	1,578	0.377	-	6/30/2014	
Sitzmann CFL to LED Retro	3,330	1.596	-	6/30/2014	
FY 2014 Total	**868,637**		**92,396**		
Courtroom LED Cans	10,581	2.53	-	11/7/2014	
TMH Rm #252	6,046	1.446	-	11/10/2014	
New Track Ltg @ TMH	884	0.211	-	11/10/2014	
BEC Display Case LED Ltg	3,581	0.857	-	11/10/2014	
OWS Stained Glass LED Floods	3,612	0.864	-	11/10/2014	
Physical Plant Occ Sensors	4,881	1.168	-	11/20/2014	
Murray Hall Mod Burner w/ Turbulator	-	0	3,228	1/28/2015	
St Thomas Main PHP - steam trap replacements	-	0	5,985	2/10/2015	
St Thomas Loras - steam trap replacements	-	0	1,596	2/10/2015	
Univ of St Thomas - steam trap audit	-	0	-	2/11/2015	

St Thomas Summit Classroom - steam trap replacements	-	0	399	2/11/2015	
EDA Quick - New So Facilities Bldg	62,012	41	-	3/31/2015	
EDA Quick-So Facilities Bldg (G)	-	0	6,517	3/31/2015	
O'Shaughnessy/Frey Lib VAV VFDs	69,135	19.04	-	5/6/2015	
O'Shaughnessy-Frey Library Controls (E)	187,166	23.743	-	5/7/2015	
O'Shaughnessy-Frey Library Controls (G)	-	0	11,014	5/7/2015	
Murray Steam Tunnel Pipe Insulation	-	0	4,663	6/15/2015	
SJV Eff Controls (E)	33,755	3.853	-	6/15/2015	
SJV Eff Controls (G)	-	0	7,146	6/15/2015	
Instantaneous Water Heaters - JPII (Dorm)	-	0	1,751	6/15/2015	
Instantaneous Water Heaters - SJV (Dorm)	-	0	1,703	6/22/2015	
McCarthy Gym Locker room Occ Sensors	5,285	1.264	-	6/22/2015	
John Ireland Library LED Retro	22,564	7.022	-	6/23/2015	
FY 2015 Total	**409,502**		**44,002**		
Frey Library Htg Pipe	-	0	6,896	7/22/2015	
Frey Library Htg Pipe - Replaces OID2262159	503	0.266	-	7/22/2015	
Morrison Pkg Ramp LED Ltg	255,652	29.184	-	8/24/2015	
Flynn Pkg Ramp LED	159,782	18.24	-	8/24/2015	
Univ of St Thomas - steam traps Library 2015	-	0	27,930	10/27/2015	
Univ of St Thomas - steam trap audit May2015	-	0	-	10/27/2015	
Instant Rebate - Lighting	2,802	0.936	-	10/31/2015	
Instant Rebate - Lighting	15,478	5.168	-	11/5/2015	

15-ton Chiller - SJV	4,324	1.052	-	11/25/2015	
OWS Lab Hoods (E)	591,185	100.65	-	11/30/2015	
Instant Rebate - Lighting	1,584	0.529	-	11/30/2015	
OWS Lab Hood Project (G)	-	0	31,790	12/1/2015	
OWS Lab Hood VFD's	95,042	26.175	-	12/7/2015	
Ireland Hall Eff Controls (G)	-	0	1,359	12/8/2015	
TMH Pkg Ramp LED's	29,293	3.344	-	12/8/2015	
New Boiler @ 2057 Portland	-	0	332	12/9/2015	
ECO 8,11-16: 4 Bldg Bundle (E)	284,991	32.53	-	12/14/2015	
ECO 8, 12-16: 4 Bldg Bundle (G)	-	0	19,810	12/14/2015	
Terrence Murphy Hall Recommissioning Study	-	0	-	12/22/2015	
Instant Rebate - Lighting	1,923	0.642	-	1/1/2016	
JPII Eff Controls (E)	9,849	1.124	-	2/18/2016	
JPII Eff Controls (G)	-	0	1,816	2/18/2016	
Instant Rebate - Lighting	177	0.059	-	2/29/2016	
Instant Rebate - Lighting	937	0.313	-	3/15/2016	
Fast Track RCx-OWS Temp Controls (G)	-	0	11,010	5/25/2016	
Fast Track RCx - OWS Temp Controls	81,734	9.69	-	5/25/2016	
North Loop Stairwell Occ Sensors	9,516	1.156	-	5/27/2016	Submitted
South Loop Stairwell Occ Sensors	3,267	0.397	-	5/27/2016	Submitted
Morrison Custom Water Heater Replacement	-	0	4,723	6/30/2016	Pending-Done Per David
Child Dev Ctr Eff Controls (E)	10,831	1.236	-	6/30/2016	Pending-Done Per David

Child Dev Ctr Eff Controls (G)	-	0	2,706	6/30/2016	Pending-Done Per David
McNeely High Eff Water Heater	-	0	497	6/30/2016	Pending Completion
FY 2016 Total	**1,558,870**		**108,869**		