St. Cloud State University
Climate Action Plan
Version 3.0
2016

ST. CLOUD STATE
U N I V E R S I T Y

Report Issue Date: January 15, 2016

Prepared to meet the requirements of the American College & University Presidents' Climate Commitment

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A. Executive Summary

Overview

St. Cloud State University President Earl H. Potter III signed the American College & University Presidents Climate Commitment (ACUPCC) in 2009. Signatories of the ACUPCC have agreed to create Climate Action Plans for accelerating research and educational efforts to equip society to re-stabilize the earth's climate and reducing their campus greenhouse gas (GHG) emissions. They have also agreed to publicly report their plans and subsequent progress reports and adaptations to the plan. This document shall serve as St. Cloud State University's plan to achieve climate neutrality.

To date, three Greenhouse Gas Emissions Inventories have been completed. These document emissions from fiscal years 2004-2014. In 2014, SCSU emitted 41,056 metric tons of eCO_2. Total emissions were 6,627 metric tons less than in FY 2009, a reduction of 13.9 percent.

The most significant source of eCO_2 emissions for SCSU is electricity purchased from Xcel Energy. This source, coupled with transmission and delivery (T & D) losses, accounted for 36 percent of SCSU's total GHG emissions in FY 2014.

On-campus stationary sources of GHG emissions, such as boilers, accounted for 14,427 metric tons of eCO_2, or 35 percent of total emissions.

Air travel was responsible for 9 percent of emissions, and daily commuting accounted for 18 percent of emissions in FY 2014. Direct transportation (university-owned vehicles) were responsible for 1 percent of emissions, and other directly financed travel (namely rental vehicles) were responsible for an additional 1 percent of emissions.

2014 Total Emissions by Sector
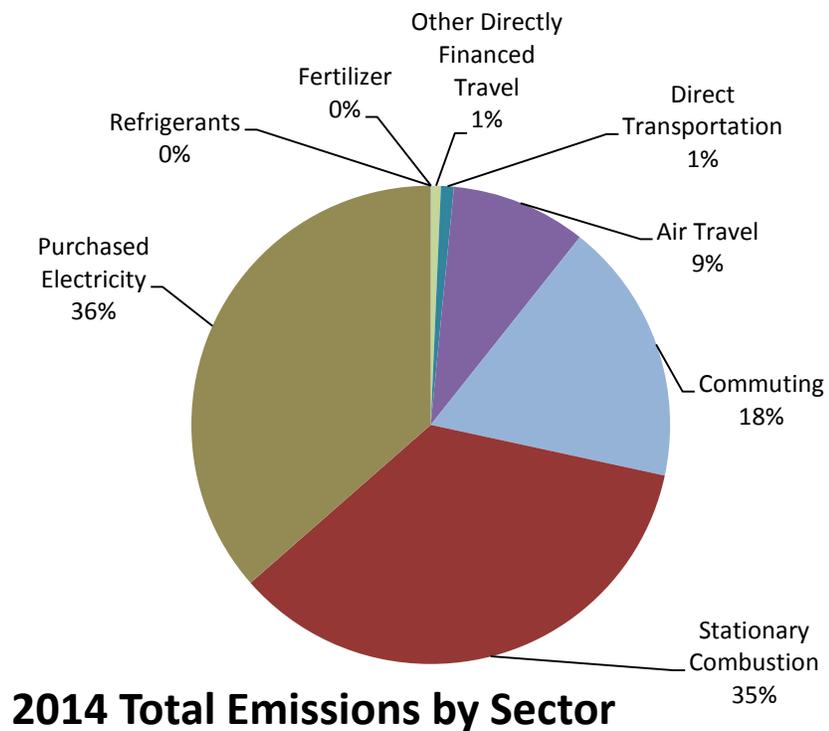
Greenhouse Gas Emissions Target

Carbon neutrality goals were established as part of St. Cloud State University's 2012 Climate Action Plan. The targeted carbon neutrality date for St. Cloud State University is 2035, with a short-term target of a 15% reduction by 2017 and a mid-term target of a 40% reduction by 2024 relative to 2009 emissions.

2009

2017

2024

2035 - Climate Neutral
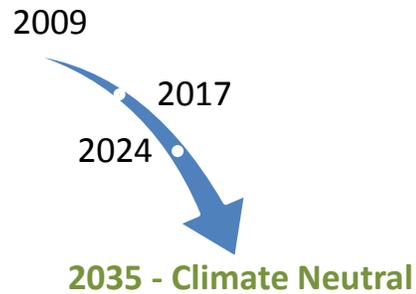
Summary of Recommendations

St. Cloud State University is making strides to reduce its emissions. However, additional energy conservation measures will only have an incremental effect on the overall emissions. In order to achieve the ultimate goal of climate neutrality, dramatic changes will have to be made.

To reach campus emission targets, this Climate Action Plan has outlined and prioritized mitigation strategies by emission source categories. Tracking each mitigation strategy in terms of scopes 1, 2 and 3 will help ensure all forms of emissions are addressed. The first goal will be to reduce usage. An overall reduction in energy used will not only reduce the greenhouse gas emissions, it will reduce operating budgets. A decrease in energy usage will also require smaller renewable energy sources in the future.

In order to integrate renewable energy sources, the Climate Action Plan starts with smaller systems that will be included with new building and site improvement projects. Longer term strategies call for more ambitious systems that will deliver wind, solar and other renewable energies to the campus on a larger scale. Due to the location of the campus within the City of St. Cloud, these initiatives may be implemented on land located off the main campus, perhaps in partnership with other entities.

While every effort will be made to reduce eCO_2 emissions through conservation and by developing University sponsored renewable energy sources, offsets or carbon sequestration may be necessary. Air travel for example, will be particularly difficult to mitigate without offsets unless major technology changes are made in that industry.

Methodology

St. Cloud State University has a wide variety of sustainable and energy efficiency measures already in place. The first task was to research and document these initiatives to provide a baseline in which to begin crafting a plan to achieve climate neutrality.

John Frischmann, Director of Facilities Management, worked with GLTArchitects to interview and collect information from a wide variety of University departments including facilities, academics, research and administration. This ambitious action plan was created by investigating what other institutions have done, evaluating current strategies and brainstorming new ideas.

Implementation

Many of the initiatives outlined in this Climate Action Plan will be implemented by the facilities department at SCSU. With the climate neutrality goal in place, this plan will serve to guide facilities and equipment purchases and repair. A sustainability committee which includes a wide range of university departments is in place at SCSU. This group will continue to meet and provide direction for faculty, students and staff to ensure this plan is implemented, measured and updated.

Due to improvements in technology and unforeseen future challenges, this Climate Action Plan is seen as a living document that will be updated periodically.

B. Acknowledgements

St. Cloud State University

Earl H. Potter III, President

Tammy L.H. McGee, Vice President for Finance and Administration

John Frischmann, Former Director of Facilities Management

Ron VanHeuveln, Interim Director of Facilities Management

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C. Introduction

The American College and University Presidents' Climate Commitment (ACUPCC) was formed by a small group of higher education institutions concerned that the earth's climate is rapidly destabilizing. The ACUPCC signatories recognize global climate change as the defining challenge of the 21st century.

The commitment also acknowledges the important role universities play in research, education and modeling solutions relative to this challenge. Since its inception, the ACUPCC has grown from 12 founding members to over 600 signatories, including 11 MnSCU institutions.

As a signatory to the American College and University President's Climate Commitment (ACUPCC), St. Cloud State University has committed to eliminating our greenhouse gas (GHG) emissions in a reasonable period of time. An inventory of current and past GHG emissions has been completed and will be updated every other year to measure our progress. Additionally, SCSU has agreed to create and implement a Climate Action Plan with a target date and interim milestones for achieving campus climate neutrality. We have agreed to integrate sustainability into the curriculum and make it part of the educational experience. SCSU has also agreed to make the action plan, inventory, and periodic progress reports publically available.

This document shall serve as the third Climate Action Plan for St. Cloud State University and was prepared in accordance with the guidelines established by the ACUPCC. This plan is not intended to be relied upon by any person, entity, or institution. It is an aspiration, and none of the contents shall be binding on St. Cloud State University, its employees, or assignees.

ACUPCC Timeline

As a signatory to the ACUPCC, St. Cloud State University has made a commitment to publicly report on their progress, set a precedent for transparency, be accountable to their peers, stakeholders, and the public, and enable the network to share innovation and best practices.

2009
President Earl H. Potter III signed the American College & University Presidents' Climate Commitment

2010
Greenhouse Gas Inventory completed for FY 2004-2009

2012
Climate Action Plan 1.0 completed

2013
Greenhouse Gas Inventory completed for FY 2010-2012

2014
Climate Action Plan 2.0 completed

2015
Greenhouse Gas Inventory completed for FY 2013-2014

2016
Climate Action Plan 3.0 to be completed

In future years, GHG inventories and Progress Reports are due every other year, ongoing.

D. Overview of Campus Energy Use and Greenhouse Gas Emissions

Greenhouse Gas Emissions Inventory

In September, 2010, a Greenhouse Gas Emissions Inventory was completed for St. Cloud State University and was submitted to the ACUPPC website. This inventory established a baseline to which future inventories and emissions reduction strategies could be compared. In January, 2013, a second Greenhouse Gas Emissions Inventory was completed for FY 2010-2012. A third inventory was completed covering FY 2013-2014. The following is a summary of the most recent inventory. The full report can be found on the ACUPCC website.

Methodology

This inventory included data from fiscal years (FY) 2013 and 2014, covering the period of time from July 1, 2012 to June 30, 2014.

Under the direction of John Frischmann, Director of Facilities Management, GLTArchitects created the inventory, interviewing campus sources and vendors to collect data on six separate categories:

- **Institutional Data**
- **On-Campus Stationary Fuel Use**
- **Purchased Electricity**
- **Agriculture (Fertilizer Use)**
- **Refrigeration**
- **Transportation**

The inventory included data related to all properties owned by the University, including the main campus and the Minnesota Highway Safety Research Center. Leased spaces (University Welcome Center, Coborn Plaza Apartments, and the Twin Cities Graduate Center) were not included in the study.

Institutional data was collected, including building square footages; operational budgets; and staff, faculty, and student counts. This allows for limited peer-to-peer comparisons to be made based on per person and per square foot calculations.

The data gathered was entered into the *Campus Calculator* (software developed by Clean Air-Cool Planet and the primary calculator used higher education institutions). The Calculator converted the information into greenhouse gases, and reported it as CO_2 equivalents (eCO_2) to estimate the carbon footprint of the University. The eCO_2 is reported in metric tons.

Results

In 2014, SCSU emitted 41,056 metric tons of eCO_2. Total emissions were 6,627 metric tons less than in FY 2009, a reduction of 13.9 percent.

The most significant source of eCO_2 emissions for SCSU is electricity purchased from Xcel Energy. This source, coupled with transmission and delivery (T & D) losses, accounted for 36 percent of SCSU's total GHG emissions in FY 2014.

On-campus stationary sources of GHG emissions, such as boilers, accounted for 14,427 metric tons of eCO_2, or 35 percent of total emissions.

Air travel was responsible for 9 percent of emissions, and daily commuting accounted for 18 percent of emissions in FY 2014. Direct transportation (university-owned vehicles) was responsible for 1 percent of emissions, and other directly financed travel (namely rental vehicles) was responsible for an additional 1 percent of emissions.

Total Emissions by Sector (in Metric Tons of eCO_2)
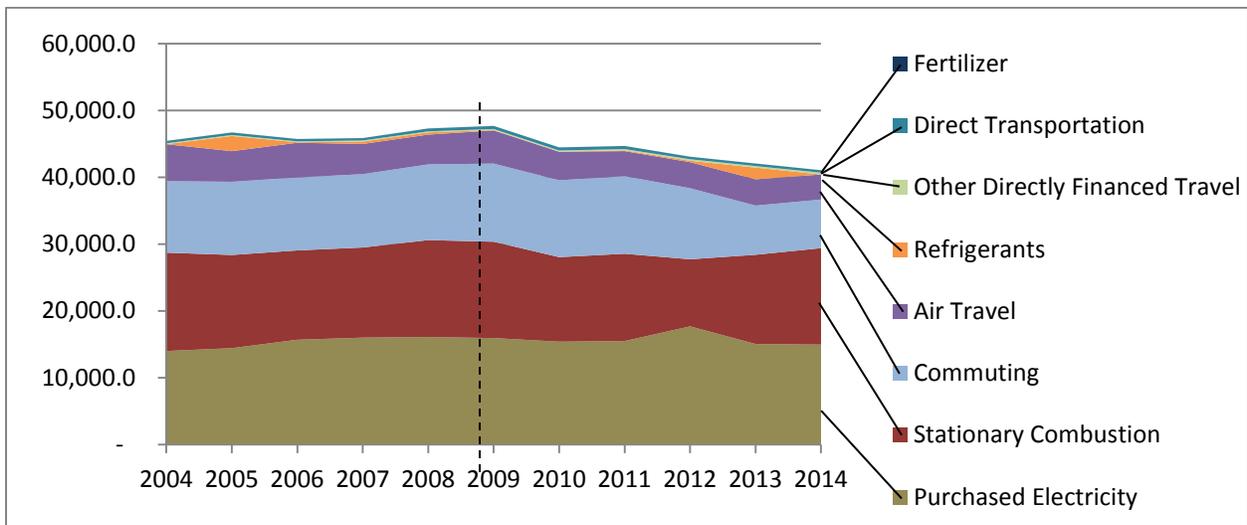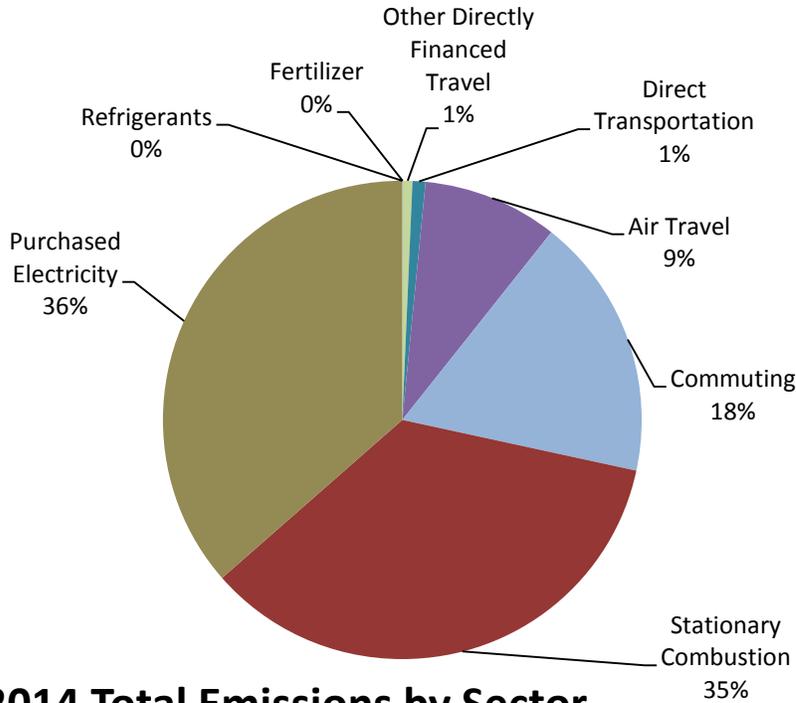
2014 Total Emissions by Sector

Conclusion

St. Cloud State University's best opportunities to improve its carbon footprint will be to reduce its dependence on purchased electricity, continue to reduce the carbon produced by on-campus stationary sources, and reduce the amount of fuel consumed in those sources by providing alternative methods of energy. St. Cloud State University will also need to consider methods to reduce the emissions resulting from daily commuting by students, faculty, and staff, as well as emissions resulting from air travel. Carbon offsets will likely not prove cost effective for SCSU to offset its carbon usage, as carbon offsets are generally expensive relative to the offset created.

E. Emissions Targets

St. Cloud State University has established a target carbon neutrality date of 2035, with a short-term target of a 15% reduction by 2017 and a mid-term target of a 40% reduction by 2024.

St. Cloud State University has a history of pursuing energy-conserving measures and will continue to do so. As St. Cloud State University continues to implement energy efficiency projects, additional energy-reduction strategies will provide incrementally smaller returns. Therefore, to reach the ultimate goal of climate neutrality, dramatic changes will have to be made. The long-term goal of carbon neutrality will require the campus to replace fossil fuel energy sources with cleaner, renewable alternatives.

Emissions Goals
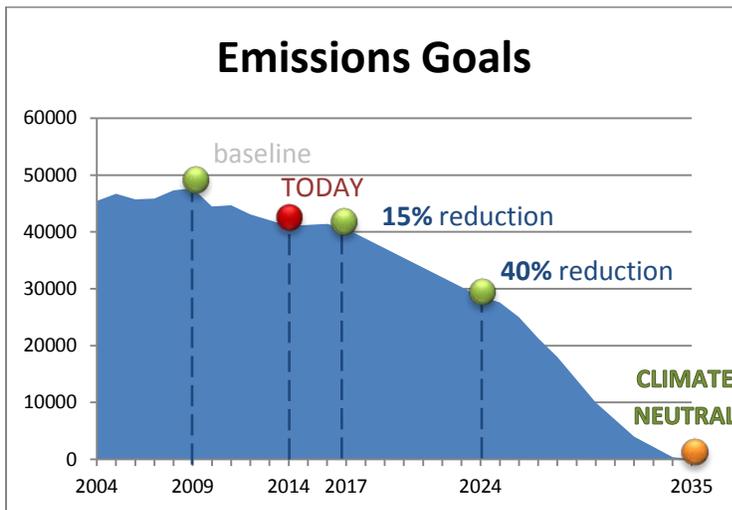
F. Mitigation Strategies

To reach campus emission targets, the sustainability committee has outlined mitigation strategies by emission source categories. The mitigation strategies are vast and vary in both impact and cost. Some projects may be implemented in the short-term with few resources; others will take longer due to cost and complexity. The campus will adjust implementation plans over time based on industry breakthroughs and technological improvements and the level of support from the campus community and partners.

Although this plan prioritizes carbon mitigation strategies into short, medium and long-term approaches, future implementation schedules may change as the campus investigates the viability of each strategy. Financial considerations, environmental impacts, technological advances, and campus academic needs may factor into the prioritization.

The following tables identify strategies SCSU is pursuing to reduce their carbon emissions. To remain consistent with the greenhouse gas emissions inventory and aid in tracking the progress, the strategies are broken down as follows.

Main Categories

Scope 1 Emissions – Sources owned and /or controlled by the University
- On-Campus Stationary Sources
- Mobile Combustion

Scope 2 Emissions – Indirect emissions from purchased electricity

Scope 3 Emissions – Other indirect emissions
- Commuting
- Air Travel

Additional Mitigation Strategies
- Sequestration and Carbon Storage
- Carbon Offsets
- Renewable Energy Certificates

Sub-Categories

Short Term – Ongoing strategy, or to be implemented within 5 years

Medium Term – Implementation anticipated between 6 and 12 years

Long Term- Implementation anticipated between 13-23 years

Status Indicator

0   **Completed**: The strategy has been implemented.

1   **Ongoing**: The strategy is underway or has been partially enacted.

2   **Actively Pursuing**: Actively working to implement strategy.

3   **Researching and Evaluating**: Discussing feasibility for future implementation.

4   **Future**: Identified as a viable strategy, have not currently reviewed or implemented.

Scope 1 Emissions – Sources owned and/or controlled by the University

On-Campus Stationary Combustion	35%
Emissions from all on-campus fuel combustions, excluding vehicle fuels	of 2014 emissions

Short Term	Status	Comments
Explore feasibility of installing microturbine combined cycle plant that can utilize both natural gas and an alternative fuel source, such as algae or food waste.	3	
New buildings: • Construct all new buildings to the Minnesota State B3 guidelines, and meet or exceed requirements that would qualify for LEED Silver or above.	0	
• Commission all new buildings to ensure that equipment and systems are working and energy performance goals are met.	1	
• Enhanced commissioning of all new buildings.	1	
• Incorporate separate meters for electricity, steam, and water use in new buildings.	1	
Renovation projects/existing buildings: • Add insulation during roof replacements.	2	
• Replace remaining single-paned windows with double-paned, thermally efficient glass.	1	
• Additional metering (electricity, steam, and water) during each building renovation project.	1	
• Improve the building envelope performance and reduce energy consumption by decreasing exterior air infiltration.	1	
Space utilization: • Increase online class offerings	2	
• Improve space utilization as outlined in the comprehensive plan	1	
• Decommission buildings that are inefficient and no longer needed by University	1	Holes Hall scheduled to be demolished in 2016.
• Consolidate evening and weekend classes into a limited number of buildings	1	
• Improve class scheduling year round, especially during summer term.	2	
• Consolidate classes to the most energy-efficient buildings that meet teaching needs	2	

Operational commissioning: • Increase operational commissioning.	2	National Hockey Center is the 1st building on campus to conduct operational commissioning.
Energy management system: • Control heating and cooling temperature/set points. • Manage building fan scheduling, increasing set-points, and limiting areas of dehumidification to reduce energy use through EMS. • Delay the start of the summer cooling season until necessary. Base decisions on weather conditions instead of a date on the calendar. • Update building systems software and controls to maximize savings through scheduling with EMS. • Continue to convert to direct digital control (DDC) systems	1 2 1 1 1	Governor's Executive Order 11-12 requires agencies with operational control over state buildings to achieve an aggregate 20% reduction in energy use from the baseline data entered into the B3 Energy Benchmarking tool.
Building automation: • Increase staff in the EMS Control Center to create a position that focuses on commissioning and energy-conservation. • Re-commission existing buildings with direct digital controls (DDC). Convert the existing pneumatic controls to new electronically actuated DDC.	0 2	
Cooling: • ESCO hired to evaluate cooling capacity and to improve efficiency. Lighting, water conservation, building envelope, green IT, HVAC controls, stack heat recovery, and micro-turbines were evaluated. • Add new high efficiency cooling tower. • Upgrade chiller programming. • Revise chilled water piping to improve efficiency per cooling study.	0 0 0 2	Completed in 2012. Maintain old chiller for backup (2013). 2013
HVAC: • Reduce needless pumping by eliminating unnecessary three-way by-pass valves. • Utilize CO_2 sensors in all new construction and major remodeling projects. • Install high-efficiency motors and variable frequency drives.	1 1 1	
Steam: • Replace faulty steam traps. • Repair steam and condensate leaks.	1 1	

	Status	Comments
• Burn natural gas in the campus steam plant exclusively, and continue to forgo burning of any Number 6 fuel oil.	0	Since 2011
• Switch to natural gas supplier that does not limit availability at peak times.	2	
• Implement recommendations from steam study.	2	Study completed 2012.
• Use recovered energy from central boiler stack to preheat combustion air, preheat make-up water, and provide domestic hot water.	2	
Hot water: • Evaluate the hydronic hot water boilers across campus in terms of redundancy and efficiency, and look for opportunities to upgrade to more efficient or alternative-fueled boilers. Review steam to hot water exchangers. Consider tankless water heaters where appropriate.	2	
• Install new low-flow fixtures or upgrade plumbing on existing fixtures to reduce water consumption while maintaining desired performance.	2	
• Convert domestic hot water production to instantaneous gas heaters in individual buildings. Schedule recirculation pumps in DDC or with stand-alone controls.	2	
Laboratory hoods: • Adjust operation/settings/controls to improve energy efficiency.	0	Completed in Robert H. Wick Science Building in 2011 and tested annually.
• Evaluate user operations.	1	
• Arrange for removal of unneeded equipment.	1	
• Upgrade to variable frequency drives and/or heat recovery technology.	1	
• In new labs, utilize ductless hoods.	1	ISELF building has some ductless hoods (completed 2013).
Medium Term	**Status**	**Comments**
Building automation: • Use the campus energy control center to provide both educational opportunities and increased control over building operations. Make results easily accessed by the public.	2	
Hot water: • Evaluate domestic hot water across campus. Upgrade to more efficient and alternative fueled units.	2	
Renewable fuels: • Invest in renewable fuels to replace the use of	3	

natural gas in the campus steam plant.		
HVAC: • Install solar air preheaters with bypasses on outside air intakes on make-up air units, roof top units and selected air handling units	3	
• Replace existing make-up air units (MAUs) and select air handling units or roof top units with new, desiccant-equipped roof top units. Add desiccant units to provide outside air to some AHUs.	3	
Continue to inventory curtains/shading for buildings with overheating issues. This includes: • Increasing shading on the west sides of buildings, where practical, to reduce cooling costs and electricity use during summers.	3	
• Installing thermal shades on the north sides of buildings, where practical, to save on heating costs and steam use.	3	
Continue to pursue ESCO projects.	2	

Long Term	Status	Comments
Evaluate and install solar water heaters.	4	

Mobile Combustion

Emissions from the burning of fuels by institution-owned transportation devices or directly financed by the institution (excluding air travel)

1% *of 2014 emissions*

Short Term	Status	Comments
Reduce size of campus vehicle fleet: • Rent vehicles in lieu of purchasing. • Contract with rental agency to include stipulations on availability of hybrid and high-efficiency vehicles. • Eliminate redundant and/or underutilized vehicles.	0 0 0	All vehicles that were previously leased are now rented on an as-needed basis (2012). Went from having 65 fleet vehicles to 50, eliminated 15 vehicles (2012).
Switch to hybrid / electric options: • Switch to hybrid or electric fleet vehicles. • Evaluate alternative grounds equipment (mowers, weed trimmers, etc.).	1 3	Currently have 4 GEM electric cars (2015).
Increase efficiency of existing vehicles: • Reduce vehicle idling through education and creation and enforcement of an anti-idling policy. • Perform scheduled tune-ups. • Use most efficient vehicle for the task.	1 1 1	
Enact efficiency standards for purchasing vehicles across campus (department, fleet, maintenance, etc.)	2	

Medium Term	Status	Comments
Conduct a fleet efficiency assessment: • Evaluate all vehicle needs and types required. • Enact a replacement policy based on efficiency assessment.	2 2	
Increase efficiency of existing vehicles: • Purchase tire pressure monitors for campus service vehicles.	3	
Alternative fuels: • Evaluate opportunities and implement the use of biofuels in grounds equipment and fleet vehicles. • Explore options for natural gas-powered vehicles	3 3	
Purchase solar-powered trash compacting/recycling receptacles to reduce the number of collections.	3	Units can wirelessly communicate when pickups are needed.

Long Term	Status	Comments
On campus system to eliminate snow hauling to an offsite location (R&D).	4	

Fugitive Emissions
Emissions resulting from the use of refrigerants and fertilizers

<1%
of 2014 emissions

Short Term	Status	Comments
Reduce refrigerant use, where possible.	1	

Medium Term	Status	Comments
Utilize xeriscaping landscape techniques, including drought tolerant plants, to reduce dependence on water and fertilizer.	3	
Eliminate use of R22 coolant at National Hockey Center.	2	

Scope 2 Emissions – Indirect emissions from purchased energy
Sources that are neither owned nor operated by the University but whose products are directly linked to on-campus energy consumption.

Purchased Electricity *Emissions from the production of any electricity the University purchases including transmission and delivery losses*		**36%** *of 2014 emissions*
Short Term	**Status**	**Comments**
New buildings: • Construct all new buildings to the Minnesota State B3 guidelines, and meet or exceed requirements that would qualify for LEED Silver certification or above. • Commission all new buildings to ensure that equipment and systems are working and energy performance goals are met. • Incorporate separate meters for electricity, steam, and water use in new buildings.	1 1 1	
Renovation projects / existing buildings: • Install high-efficiency motors and variable frequency drives in all renovation projects. • Add insulation during roof replacements. • Replace remaining single-paned windows with double-paned, thermally efficient glass. • Additional metering (electricity, steam, and water) during each building renovation project. • Increase building metering to monitor energy and water use in all existing buildings.	1 1 2 1 0	
Exterior lighting upgrades: • Upgrade exterior HID lights with new LED fixtures. • Replace all non-LED wall packs and flag lights with new LED units.	2 2	
Indoor lighting upgrades: • Install occupancy sensors for lighting where practical. • Replace lighting with more efficient bulbs and fixtures. • Evaluate and reduce light levels where appropriate. • Ban all incandescent lamps. • Lighting and control upgrades to National Hockey Center. • Convert all exit lighting to LEDs or photo-luminescent signs that require no electricity. • Utilize Revenue Accounts funds to complete	1 2 1 1 2 2 2	Replaced all HID lamps in parking ramp with LED lamps (2015) Non-Toxic/Radioactive photo-luminescent only.

lighting upgrades where possible (i.e., Residential Life, Atwood, Parking)		
Create an equipment and appliance policy: • Reorganize and reduce the number of printing devices within a purposeful, businesses-needs framework. Move to centrally-located multi-function color printers and eliminate other devices. • Establish an Energy Star policy for all applicable new (and replacement) appliances and equipment purchased across campus and in campus housing. • Inventory refrigerators on campus: identify opportunities to consolidate, retire and/or replace older units with more efficient models.	1 1 2	
Vending: • Evaluate having an exclusive beverage vending contract to reduce redundancy. • Reduce the number of vending machines • Require all vending machines to be Energy Star certified and utilize Vending Miser technology (ESCO).	0 3 1	
Computers / technology: • Measure the energy waste generated by PCs, assess the feasibility of recovery, and implement software and policies to achieve the maximum recovery without overly impacting user experience. • Consolidate servers and encourage use of virtual servers. • Conduct a data center energy audit. • Institute remote power management settings for campus computers using Active Directory or a proprietary software. • Purchase energy star rated equipment • Improve desktop power management	2 3 0 2 0 2	Technology in place to implement desktop power management with MS System Center. (2015) Currently are about 70% virtualized using VMWare ESX (2015) Audit completed by Xcel energy in June 2015 and recommendations have been implemented. Standard equipment list is energy star rated (2015) Technology in place to enforce power management setting; require implementation of policies
Food service: • Evaluate kitchens for equipment utilization and efficiency.	2	

	Status	Comments
• Eliminate redundant equipment and replace old inefficient equipment with new high efficiency replacements.	1	
Continue the partnership with the campus electricity provider, Xcel Energy, for the campus to purchase power from renewable sources.	1	
Install solar photovoltaic (PV) panels to supplement current electrical load.	3	

Medium Term	Status	Comments
Energy management systems: • Use the campus energy control center to provide educational opportunities. • Display results on website.	3 3	
Provide information through a dashboard to encourage conservation behavior in students living on campus.	3	
Re-commission older buildings to ensure the optimal operations of existing equipment. • Priority should be given to buildings with high energy demands, such as research buildings. • Thermal comfort surveys should be used as part of the re-commissioning process to assess occupant comfort and find opportunities to reduce overheating or overcooling.	3 3	
Outdoor lighting efficiency: • Study existing lighting locations and levels. Implement results of this study to reduce lights and light levels. • Utilize "dark sky" techniques to direct illumination where it is needed. • Upgrade outdoor lighting to LED fixtures. • Explore the use of solar or wind powered walkway and street light fixtures.	3 1 1 3	
Reduce and eliminate individual appliances (space heaters, coffee machines, refrigerators, etc.).	3	
Consider Responsible Centered Management (RCM), in which each department pays for expenses and is rewarded for savings.	4	
Progressively add renewable energy generation, like wind turbines or solar panels, to new and existing facilities.	3	
Consider geothermal systems for future projects.	4	

Use solar water heaters where feasible, or to preheat water.	4	

Long Term	Status	Comments
Research and install renewable energy. • Install a large scale photovoltaic array. • Install wind turbines. • Evaluate and implement other renewable energy sources.	4 4 4	Explore an off campus partnership or an SCSU owned property off the central campus. Continue to evaluate as technology changes. Make use of the University as a research facility and seek opportunities to partner with renewable energy companies.
Continue to pursue purchasing electricity from hydroelectric.	3	Existing hydroelectric dam located next to SCSU on the Mississippi River.
Work with local utilities and green energy companies to research and test renewable energy storage. Set up on-campus pilot projects.	4	One of the difficulties with renewable energy is peak energy production does not necessarily match peak demand.

Scope 3 Emissions – Other indirect emissions

Other emissions attributed to the University. This includes emissions from sources that are neither owned nor operated by the University but are either directly financed or are otherwise liked to the campus via influence or encouragement.

Commuting		18%
Emissions from regular commuting by faculty, staff, or students (does not include student travel to and from home over breaks)		*of 2014 emissions*
Short Term	**Status**	**Comments**
Utilize technology to reduce travel: • Increase online class offerings. • Increase video-conferencing utilization. • Expand telecommuting opportunities.	1 1 1	Use of phone conferences has been increasing; video conferencing is not used often due to cumbersome required scheduling process.
Encourage the use of more efficient vehicles: • Consider installing electric vehicle charging stations in campus parking lots.	1	
Promote bike riding as an alternative commuting mode: • Increase access to bike racks; address additional bike parking needs in overflow areas.	1	
Promote bus riding as an alternative commuting mode: • Continue to utilize used cooking oil as an alternative fuel for a bus. • Work with MetroBus to use compressed natural gas as the fuel source of buses serving the SCSU community. • Continue free bus service for students. • Improve bus shelters.	1 1 1 2	Since 2008, SCSU has collaborated with St. Cloud MetroBus to fuel a bus with recycled deep fryer vegetable oil. MetroBus built a CNG refueling station and replaced its fleet with CNG buses (2013).
Provide access to short-term rental vehicles on campus to reduce the need for individual cars.	0	Car Share program implemented in 2015.
Promote carpooling: • Create an online "carpool board" for common destinations. • Offer pay-lot parking incentives for carpooling.	0 3	Rideshare website: https://www.stcloudstate.edu/parking/transportation.aspx
Medium Term	**Status**	**Comments**
Establish an energy dashboard on the web to document bus ridership.	3	

	Status	
Offer pay-lot parking incentives for hybrid, electric, or alternative fuel vehicles.	3	
Increase motorcycle and scooter parking availability.	3	
Promote bike riding as an alternative commuting mode: • Create a master bicycling plan to identify facility, campus, and community needs for providing safe and convenient ways to bike to campus. • Plan for showers in new buildings to promote biking or walking/running.	2 2	

Long Term	Status	Comments
Support and lobby for the extension of light rail to St. Cloud from Minneapolis. A large number of students commute daily from the Minneapolis / St. Paul I-94 corridor.	4	Northstar Commuter rail currently makes it to Big Lake. St. Cloud Metro Bus offers a Northstar Link bus ride from Big Lake to St. Cloud.

Air Travel		**9%**
Emissions from air travel that is paid for by the University, as well as study abroad air travel		*of 2014 emissions*
Short Term	**Status**	**Comments**
Increase video-conferencing utilization to reduce travel.	1	
Evaluate and determine the most efficient meeting locations based on participant locations.	2	
Medium Term	**Status**	**Comments**
Long Term	**Status**	**Comments**
Include corresponding carbon offset with all airline travel.	4	Include cost in departments' budgets to further encourage the reduction of air travel.

Additional Mitigation Strategies

While every effort will be made to reduce eCO_2 emissions through conservation and by developing University sponsored renewable energy sources, offset credits may be necessary. SCSU will also consider developing or purchasing additional carbon sequestration projects.

A carbon offset is a reduction or removal of carbon dioxide equivalent (eCO_2) greenhouse gas (GHG) emissions that is used to counterbalance or compensate for ("offset") emissions from other activities.

Renewable Energy Certificates (REC) may also be purchased. These certificates represent the non-power attributes of renewable power generation. A certificate is created for every 1000 kilowat-hours of electricity placed on the grid.

Carbon Sequestration projects include reforestation, afforestation (new forest on previously non-forested land), and enhanced forest management.

Sequestration and Carbon Storage
The removal of carbon dioxide from the atmosphere and its storage in plant tissue as a result of photosynthesis.

Short Term	Status	Comments
As buildings are consolidated and removed, continue to convert open land to green space.	1	SCSU Comprehensive Facilities Plan calls for increasing green space on campus. When Holes Hall is demolished in 2016, the plan is to install green space in its place.

Medium Term	Status	Comments
Investigate opportunities to increase carbon sequestration through additional University resources and lands, such as reclaiming sites.	3	

Carbon Offsets

Purchased units that fund or otherwise enable projects that reduce, avoid, or sequester emission outside the institution's boundaries.

Short Term	Status	Comments
Look to include carbon offset in parking permit fees.	3	

Medium Term	Status	Comments
Require a corresponding carbon offset when purchasing airline tickets or renting a car if not already zero emission.	3	Cost would be included in department's expenses to further encourage reductions in usage.

Long Term	Status	Comments
Evaluate possibility of purchasing carbon offsets when it is not feasible or technologically possible to eliminate carbon emissions.	4	

Renewable Energy Certificates (RECs)

Purchased product representing the environmental attributes of the power produced from renewable energy projects that are sold separately from the physical electricity.

Short Term	Status	Comments
Maintain renewable energy purchases through the Xcel Energy Windsource program.	0	

Medium Term	Status	Comments
Look to partner / purchase renewable energy or renewable energy certificates from the Mississippi River hydroelectric dam adjacent to SCSU.	3	`
Purchase all energy used from renewable sources.	3	The combination of energy use reductions, state mandates on energy providers and the current and anticipated future availability of renewable energy make this a feasible goal

G. Education

Current activities:

Sustainability has been identified as one of four learning commitments that are essential elements of a St. Cloud State education. Sustainability includes systems that are socially just, environmentally sound, and economically prosperous. St. Cloud State University strives to be a sustainable system by developing and applying best practices to support and nourish all aspects of our university. To ensure environmental, organizational, and social sustainability, St. Cloud State strives to develop programs and services that reduce the university's impact on the environment, are sustainable in their operations, and educate our students to become responsible stewards of our resources, communities and world.

All St. Cloud State University undergraduate students are required to complete the Liberal Education Curriculum, which is organized into ten goals. Goal 10 is "People and the Environment." The stated goal is "to improve students' understanding of today's complex environmental challenges. Students will examine the interrelatedness of human society and the natural environment. Knowledge of both bio-physical principles and socio-cultural systems is the foundation for integrative and critical thinking about environmental issues." The objective is to "examine the interrelationship of humans and the natural worlds from scientific and socio-cultural perspectives and the complex environmental challenges that result. Students can meet this requirement through one approved course or experience."

In addition, St. Cloud State University students participate in sustainable programs in 4 major ways: as part of class projects, service-learning projects, volunteering, and participating in student organizations.

These programs include the following:

1. **SCSU class projects:**
   a. In the spring of 2009, St. Cloud State University faculty and instructors were invited to voluntarily participate in a survey developed by the Faculty Task Force on Sustainability. The survey showed that sustainability themes are included in the education curriculum in 23 departments and programs across campus. Respondents listed over 90 courses in which sustainability content is included. These courses included Biology, English, Gerontology, and Business Computer Information Systems courses.
   b. In 2015, ETS students worked with the University and the County to implement a project to collect water from Q lot parking. The water is pretreated before being released into the Mississippi River.
   c. In 2015-2016, ETS students are working with the University to develop a plan for a project to collect and pretreat water runoff on the north end of campus.
   d. In the Information Systems for Sustainability (IS 459) course, students select a research project related to sustainability. This course has been offered Summer, 2010; Fall, 2014; and will be offered in Summer, 2016. Past research topics have included "The

Carbon Footprint of Media Distribution," "Alternative Energy in Minnesota," and "E-Waste Management."

2. **SCSU service-learning projects**:
   a. Over two dozen environmental service-learning projects have been enacted with area community partners since 2005. Projects have included organizing neighborhood and river cleanups, storm water educational guides for organizations and the general public, and analyses for lake association groups.

3. **SCSU volunteer projects**:
   a. Volunteering with the Department of Natural Resources to prevent lake pollution.
   b. Participating in forums that promote sustainable food production.
   c. Working with neighborhood organizations to create sustainable neighborhoods (Climate Protection Agreement Green Party Healthy Neighborhoods).
   d. SCSU Community Garden
   e. St. Cloud Pedestrian and Bicycle Workforce
   f. Tree planting along the Mississippi river
   g. Native Women's Garden Project (Twin Cities)
   h. Sierra Club Mississippi River Connections
   i. Annual park, river, and neighborhood clean-ups
   j. At the 2015 Earthday Run, an emphasis was placed on waste reduction and diversion. In total, 4 cubic yards of trash, 7 cubic yards of recycling, and 1 cubic yard of organics/compostables were generated. The total waste diversion rate was 75% (recycling and compostables divided by the total generated.

4. **SCSU student organizations** – focused on sustainability and the environment:
   a. Biology Graduate Student Association: for biology students at SCSU working towards a master's in Natural Resources/Ecology or Cell and Molecular Biology.
   b. Environmental & Technological Studies Club (ETS): promote environmental issues and develop technological skills to integrate into a more sustainable society.
   c. Students Organized for Sustainability (Students for Sustainability): helps students develop a better understanding of social, environmental, and economic sustainability and get involved to try to make SCSU campus a "greener" place to live.
   d. Student Organization for Conservation and Climate Action (SOCCA): prepares members for careers in ecology and fosters campus and community awareness of issues in ecology.

Proposed activities: Short-term

Expand and continue student energy conservation programs and support student-led energy-related events:
- Conduct energy conservation educational programs in campus residence halls to encourage computer power management and turning off appliances and lights.
- Post energy and water conservation information on bulletin boards, incorporate it into resident advisor duties, and institute sustainability initiatives and contests by floor and by building.
- Support student-led energy-awareness, such as Earth Hour, Nightwalk for Safety and Sustainability, fairs, movies, and more to encourage dialogue on energy and sustainability issues.
- Administer building-to-building competitions, such as RecycleMania.
- Continue and expand offerings for open seminars with experts clarifying aspects of climate change and fossil fuels resource depletion.
- Present green living and campus sustainability topics during Welcome Week (a required event for incoming freshmen).
- Create and disseminate a Sustainable Living Guide for students living on and off campus.
- Encourage student academic and civic engagement activities related to energy conservation and other sustainability issues.
- Encourage students to write articles, opinion editorials, and letters to the editor to promote sustainability.

Expand and continue staff and faculty programs in energy conservation:
- Develop a faculty/staff curriculum and educational outcomes (i.e., what each faculty/staff should know about energy conservation, sustainability, greenhouse gas emissions and other sustainability elements or actions). This could include listening sessions to create a dialog with various departments to discuss attitudes and hear what barriers there might be to implementation.
- Provide at least one activity per year for staff and faculty to learn about environmental wellness.
- Offer "Green Your Office" trainings.
- Encourage power strips or smart strip use for faculty/staff/departments to control vampire power load.
- Pilot a program with foot warming mats in exchange for space heaters (mats are safer and use much less energy).

Incorporate sustainability into classrooms and labs:
- Develop student educational outcomes (i.e., determine what students should know at each point in their SCSU education career related to energy, sustainability, and greenhouse gas emissions).
- Query course descriptions and review survey data to determine which classes/faculty offer energy and/or sustainability education in classes. Track the number and type of

courses taught, and publicize energy and sustainability learning opportunities for students.
- Create coursework or integrate lessons into existing courses that support sustainability and energy education outcomes.
- Incorporate sustainability research results into courses taught throughout campus.
- Incorporate sustainability and energy-saving tips into lab safety training and audits/inspections.
- Develop faculty training for sustainable classroom management (i.e., reducing paper, electronic media, etc.).

Expand regional community education strategies:
- Offer or identify sustainability internship opportunities.

Proposed activities: Medium-term

Expand staff and faculty programs in energy conservation:
- Develop seminars and opportunities for faculty and staff to learn more about how to reduce their impact within their department. Seminars will be delivered within a department and supported by a handbook. Each department will have a liaison to act as the contact for that department.

Incorporate sustainability into classrooms and labs:
- Identify ways to connect campus operational activities to student courses and research opportunities with the outcome of providing real-world application of classroom knowledge to improving the operations of campus systems.
- Create educational exchange programs with other regional colleges and universities so that students can learn from what other campuses are doing.
- Offer competitive financial awards to innovative and interdepartmental classes.

Proposed activities: Long-term

Integrate sustainability into the SCSU experience:
- Establish an "eco-house": An area/floor/building within campus housing where student residents choose an experience that pushes the boundaries of energy and water conservation, reducing landfilled waste, and other eco-conscious living habits.

Expand regional community education strategies:
- Increase connections to better communicate sustainability-related research activities and results.
- Expand partnerships with regional sustainability leaders.
- Partner with local municipalities, organizations, and agencies to promote further educational outreach endeavors.
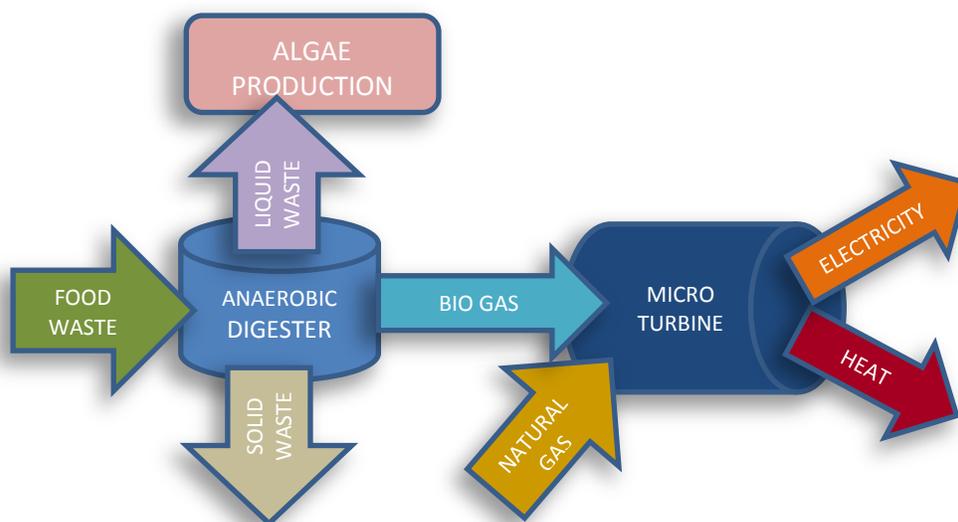
H. Research

Current activities:

St. Cloud State University faculty is actively involved in sustainable research. This work encompasses a wide breadth of areas, including researching organic semiconducting materials for use in devices like organic solar cells, determining the effect of land management techniques on the reintroduction of species, studying transit systems within urban community development, modeling environmental and economic systems and investigating renewable energy options.

Other research projects involve studying water quality throughout the nation and its effects on fish growth and other aquatic life. In addition, St. Cloud State University researchers are evaluating how damming affects the river environment, aquatic life and the impact on the environment when dams fail.

The Integrated Science and Engineering Laboratory Facility, or ISELF, opened in Fall, 2013. It provides state of the art facilities to support sustainable research and partnerships with companies that are global leaders in bio-agriculture, renewable energy, medical devices, pharma/biologics and animal science.

St. Cloud State University has a strong science program which includes a unique focus on algae research. One project that is currently being pursued is a cogeneration microturbine / biofuel plant. Here, campus food waste would go into an anaerobic digester. The biogas can be used as a fuel source for a microturbine to produce heat and electricity on campus. The solid waste will be used as fertilizer. The liquid waste will go on to be used as a food source in algae production. In addition to the education and research possibilities, the algae produced is a valuable product that may be sold for several uses.

Proposed activities: *Short-term*

Promote sustainability research:
- Conduct a survey to determine extent of current sustainability research on campus.
- Help coordinate student research projects in the areas of sustainability.
- Work with Sponsored Programs to publish funded research. Review current database, submit projects related to sustainability for uploading on the University website. Facilitate future identification of related projects by adding a "Sustainability Project" check box on the proposal transmittal sheet. Update website with relevant projects on a monthly basis.
- Continue a colloquium/seminar/brown bag series featuring SCSU researchers.
- Celebrate, reward, and publicize research by faculty members on climate change and sustainability.
- Brand existing SCSU signature programs.

Expand capacity for sustainability research:
- Provide administrative support for grant writing for sustainable research (i.e. editing and formatting proposals, filling out forms, compiling resumes, routing for signatures.)
- Develop a proposal alert system to reduce missed research opportunities.
- Establish fellowships, seed grant program, or other financial support mechanisms to develop new research programs related to climate change and sustainability.
- Provide reassign time to faculty to develop sustainability activities related to the needs of the region.
- Provide access to various new energy efficient and renewable energy technologies to faculty and students for research and education purposes.

Facilitate a network of researchers:
- Create a listserv with interested participants.
- Publish a database indicating the sustainability-related research interests of faculty.
- Develop a newsletter to highlight researchers.
- Continue to provide travel funds to researchers to establish new relationships that lead to joint proposals.

I. Outreach

The Faculty Task Force on Sustainability conducted a survey of St. Cloud State University faculty and instructors spring 2009. While the survey primarily focused on assessing sustainability activities of faculty, respondents were able to list current community partnerships, as well as community partnerships they felt would be needed in the future.

In addition, many of the sustainability education and research initiatives previously outlined include outreach components.

J. Implementation

The Facilities Management Department will be responsible for implementing many of the strategies found in this climate action plan. It will take the cooperation of the entire University community to achieve the ambitious goal of carbon neutrality. The SCSU sustainability committee will provide direction and leadership to prioritize, implement and ensure the action plan stays on course.

To be successful, SCSU will rely on the expertise, research, and roles of faculty and staff across campus. Establishing partnerships will create buy-in from University stakeholders and will expedite implementation.

K. Administrative Support

Administration and Human Resources Actions:
- Continue membership in the Association for the Advancement of Sustainability in Higher Education (AASHE) program.
- Create a Green Award for campus staff, faculty, and students to reward their contributions and improvements in energy and water conservation, waste and recycling, and other sustainable actions.
- Seek ways to reward faculty who teach and conduct sustainability and energy research in an interdisciplinary environment, focusing on the interrelationships between environmental, economic, and social systems.
- Incorporate energy and water conservation, recycling, and sustainability into job descriptions and job evaluations to ensure successful applicants are aware that they are expected to demonstrate a commitment to sustainable practices.

L. Funding

Funding Actions:
- A foundation account named Green Initiatives Fund has recently been created.
- Continue to apply for Energy Rebates from Xcel Energy for efficiency projects.
- Continue to use Repair and Rehabilitation and HEAPR (Higher Education Asset Preservation Replacement) funds through SCSU Facilities Management to upgrade systems and buildings for energy and water efficiency.
- Utilize the state's Guaranteed Energy Savings Program (GESP) to self-fund energy saving projects.
- Encourage cost-share opportunities between campus departments and facilities management to implement energy and water conservation projects.
- Consider establishing a Green Revolving Fund and involve students, staff, and faculty on decision making to make energy-efficient projects more visible.
- Explore external grant funding for energy research projects both on and off campus.
- Encourage student-led funding initiatives (e.g. green fees).

- Seek Development Office partnerships to solicit donor funding from foundations for energy projects.

M. Measurement and Assessment

St. Cloud State University will conduct a Greenhouse Gas Emissions Inventory at least every-other year to track progress. These inventories will be made publicly available through the ACUPCC website and will be shared with the campus community.

This Climate Action Plan identifies strategies that St. Cloud State University intends to take in the short, medium, and long term to achieve its goal of becoming carbon neutral. It is a living document that should remain flexible to take advantage of new opportunities and technology. This document shall be periodically updated to reflect actual outcomes and to incorporate strategic initiatives.

Appendix 1. Other University sustainability initiatives that do not directly affect eCO₂ emissions

For the purposes of the ACUPCC, climate neutrality is defined as having no net greenhouse gas emissions.

While the ACUPCC allows for tracking of eCO₂ emissions from solid waste, it is optional for signatories to include it in their inventory. St. Cloud State University has chosen not to include it in their inventory. Therefore, any reduction in solid waste, while worthwhile, does not impact the reported eCO₂ emissions.

St. Cloud State University has undertaken many additional initiatives that may not directly reduce the reported eCO₂ emissions but that contribute to a sustainable campus. The following chart documents these activities.

Current	Comments
Buildings: • Continually improve indoor air quality and monitor indoor air quality. • Has an active preventative maintenance plan. • Use green or environmentally preferable materials. • Use LEED silver / B3 building as minimum guidelines.	
Purchasing: • Has a campus-wide stated preference to purchase environmentally preferable products. • Purchases Green Seal green cleaning products. • Purchases recycled content office paper. • Purchase Energy Star equipment. • Purchases office paper, paper towels, and toilet paper with post-consumer recycled content.	
Landscaping: • Prioritizes use of native plant species in landscaping. • Has implemented technologies or strategies to reduce the environmental impacts of snow and ice removal. • Uses low impact fertilizers. • Works to improve the sustainability of campus grounds through Integrated Pest management (reduction of chemical use).	

Water:

- Has taken measures to reduce water consumption.
- Uses water reducing faucets.
- Uses water reducing shower heads.
- Uses ultra-low flow toilets.
- Has implemented policies and programs to reduce stormwater runoff and resultant water pollution.
- Uses rain gardens for stormwater retention and cleaning.
- Uses bio-swales for stormwater retention and cleaning.
- Has a SWPPP (Stormwater Pollution Prevention Plan).
- Has building-level water consumption meters.
- Uses native plant material on campus.
- Uses weather data or weather sensors to automatically adjust irrigation practices.
- Has used underground storm water storage tanks to reduce storm sewer loading.
- Continue to install water bottle refill stations throughout campus.

Reduce waste:

- Has a waste reduction policy.
- Has a written policy on hazardous waste material disposal.
- Has a reuse policy.
- Has a recycling policy.
- Knows where waste is disposed.
- Diverts construction and demolition wastes.
- Has an e-waste recycling and/or reuse program.
- Verifies that e-waste is being properly disposed.
- Seeks to minimize and safely dispose of all hazardous, universal, and non-regulated chemical waste.
- Recycle used oil, paint, Styrofoam, cardboard, fluorescent lamps, car batteries and antifreeze.
- Has a surplus department or formal office supplies exchange program that facilitates reuse of materials.
- Limits free printing for students in all computer labs and libraries.
- Has a policy for students to obtain course catalogues or schedules online before receiving a printed copy.
- Has a program to reduce residence hall move-in waste.
- Has a program to reduce residence hall move-out waste.
- Has a residence hall room furniture exchange or reuse program.
- Utilizes inter-office reusable envelopes for campus mail.
- Use tri-fold paper towels with jumbo roll units or replace with high-efficiency hand dryers.
- Provide an electronic beverage dispenser that utilized reusable cups

Food:

- Has a sustainable food policy.
- Purchases local foods.
- 10% of foods purchased are locally produced.
- 150 miles radius qualifies as local foods for the campus.
- Has a food waste reduction program.
- Uses non-disposable dishes in dining facilities.
- Employs trayless dining.
- Offers diverse, complete-protein vegan and vegetarian dining options during every meal.
- Uses frying oil that does not include trans-fats.
- Seeks to avoid food that includes trans-fats in dining operations.
- Donates leftover or surplus food.
- Uses recycled content napkins in its dining service operations.
- Packaging is recycled.
- Cooking oil is used as fuel in transit buses.
- Pre & post-consumer food waste is sold to local farmer for swine production.

Improve maintenance processes:

- Utilize a chemical dispensing system to ensure correct dilution ratios.
- Use microfiber dusters and mopping units to reduce water use.
- Use cleaning products that meet Green Seal certification standards whenever practicable.

Increase recycling:

- Increase recycling in housing by ensuring that every floor has a dedicated recycling area.
- Continue to plan for and build recycling areas into new and renovated buildings.
- Implement a single-sort recycling program.

Continue a move-out donation/swap program to reduce landfilled waste:

- Continue providing recycling dumpsters at move-in/move-out times.
- Expand the move-out donation/swap program to off-campus students.
- Increase coordination between the University and the garbage/recycling vendors, especially around the end of spring semester when off campus waste disposal behaviors can be problematic.

Short-term	Comments
Increase recycling: • Set a goal for recycling efficiency. • Increase communication so campus members can make appropriate choices on materials. • Eliminate desk-side garbage pick-up, and instead collect recycling, to make staff and faculty more aware of their waste and encourage recycling. • Increase access to recycling bins in crowded common areas. • Implement a program in the residence halls and computer labs to recycle printer cartridges.	
Reduce waste: • Encourage the creation of "green events" that do not create unneeded waste. • Continue to make more publications available "on-line" rather than "in-print." • Consider using trashcan liners that are biodegradable rather than made from petroleum-based resin. • Consider coreless toilet paper. • Use fonts like Century Gothic to reduce toner usage.	
Improve maintenance processes: • Consolidate standards across campus for all building maintenance and cleaning to meet the intent of LEED for Existing Buildings and Operation and Maintenance. • Install polished terrazzo floors where practical so no further floor finish or stripping processes are required.	
Continue and expand sustainable food service practices: • Continue the food waste recycling program and look for ways to expand composting across campus. • Continue trayless dining program. • Provide locally grown foods.	Food waste is sold to a local farmer to use as swine feed.
Continue and expand locally grown food options: • Continue on-campus farmer's market to make locally grown foods available for purchase. • Continue on-campus community garden.	

Improve water quality:	
• Encourage student organization to restore river habitat. • Maintain on-campus rain gardens. • Follow the Stormwater Pollution Prevention Plan (SWPPP). • Continue to implement strategies to reduce the environmental impacts of snow and ice removal (i.e. environmentally preferable salts).	
Reduce water usage:	
• Install water-saving fixtures on all new projects and repairs for bathroom equipment, sinks, and showers. • Default all clothing washers in housing to use the cold water setting. • Use waterless urinals.	
Encourage paper reduction through equipment and faculty requirements:	
• Default set at double-sided copies. • Scan and post online rather than print and mail.	

Medium Term	Comments
Reduce waste:	
• Consolidate waste and recycling standards across campus, meeting the intent of LEED for the Existing Buildings and Operation and Maintenance program. • Establish a campus swap program or "free store," to reduce waste and expenses. • Reduce lab waste through communication about recyclable materials (i.e., pipette tip boxes, pipette tips, centrifuge tubes, and cardboard boxes).	
Reduce water usage:	
• Install shower timers in a residence hall as a pilot project to evaluate their effectiveness in reducing shower time and water use. • Use grey water for irrigation or flushing toilets.	

This report uses Century Gothic font to reduce toner usage when printed.
Please consider the environment before printing.