

~ 1 ~

Climate Action Plan

College of Lake County

College of Lake County Sustainability Center

January 15, 2012

Table of Contents

I.	Introduction	3
A.	CLC’s Climate Commitment	3
B.	Executive Summary.....	4
C.	CLC’s Sustainability Plan and Sustainable Master Plan	5
II.	Greenhouse Gas Inventory: FY 2009-2010	6
III.	Greenhouse Gas Emissions Mitigation Strategies	7
A.	Strategy 01: Building Energy Efficiency and Conservation	8
B.	Strategy 02: Renewable Energy	8
C.	Strategy 03: Alternative Transportation:.....	8
D.	Strategy 04: Campus Grounds:.....	9
E.	Strategy 05: Recycling and Waste Reduction:	9
IV.	Curriculum, Research, and Community Engagement.....	10
V.	Implementation Structure	11

I. Introduction

A. CLC's Climate Commitment

Letter from the President

The College of Lake County is deeply committed to integrating sustainability throughout our institution. It is our priority to take a leadership role in accelerating social, economic, and environmental sustainability on campus, within the local community, and across the State of Illinois.

To have institutional impact, CLC must dedicate resources and expertise to measuring and accounting our sustainability efforts. Through our Sustainability Plan, CLC will promote sustainable practices and transform our dedication into reality. The Sustainability Plan is comprised of priorities and action items for continual improvement and innovation toward a sustainable campus, curriculum, and community.

Building upon this premise of leadership and responsibility, the Sustainability Plan includes this Climate Action Plan for carbon neutrality. Through participation in the American College & University Presidents' Climate Commitment, CLC has established institutional structures to steer development and implementation of the commitment, including calculation of our Greenhouse Gas Inventory and formulation of the College of Lake County Climate Action Plan as part of our comprehensive plan for sustainability.

We are proud of the college's sustainability accomplishments to date, including our Charter Participation and Silver Rating from the STARS (Sustainability Tracking, Assessment and Rating System) administered through the Association for the Advancement of Sustainability in Higher Education. This baseline provides us with a strong foundation and will be used to measure our improvement as we implement our Sustainability Plan.

In addition to the college's commitment to internal sustainable operations, we strive to support the green economy and the communities we serve. CLC is a founding member and administrative agent of the Illinois Green Economy Network. This leadership has allowed for the establishment of our Sustainability and Green Economy Centers which host community-based events, coordinate improved resource management on campus, and contribute to the development of new green job training and educational programs across the State of Illinois. The Sustainability and Green Economy Centers work to support Lake County's own initiatives to propel economic revival through sustainable development practices. Our commitment is to disseminate information and foster collaboration throughout the Lake County community, and state-wide, toward a sustainable future.

Sincerely,



Jerry W. Weber, Ph.D.
President

January 15, 2012

B. Executive Summary

The College of Lake County (CLC) signed the American College and University Presidents Climate Commitment (ACUPCC) in 2009. This demonstrates CLC's commitment to global, social and environmental responsibility. In this, CLC seeks to not only reduce the impact of the college on the environment but also to create a generation of environmentally conscious leaders. This commitment involves developing a Climate Action Plan to layout action items leading toward climate neutrality.

The CLC Climate Action Plan sets goals for future action and develops a timeline for their achievement. In order to determine a baseline, an inventory of greenhouse gas emissions was conducted for Fiscal Year 2009-2010. Through this, strategies were developed to combat the significant sources of emissions. Incorporated with these strategies are educational efforts to promote awareness throughout the college. These strategies will be under constant revision as research and technology further develop.

The proposed strategies are reviewed relative to their scope, cost and anticipated time required for implementation: Short Term, Mid Term, and Long Term action items each have a specific set of goals associated with them. Strategies for the Short Term (2012-2017) are cost neutral or have short payback cycles. Strategies for the Mid Term (2017-2027) and Long Term (2027-2042) involve a greater financial investment. This 30-year plan allows for the implementation of various strategies to achieve the overall goal of climate neutrality.

College of Lake County's Climate Action Plan was adopted on in Spring 2012.

C. CLC's Sustainability Plan and Sustainable Master Plan

In conjunction with the College of Lake County Climate Action Plan, CLC has developed a Sustainability Plan to encompass its multiple commitments to sustainability. This allows for the Sustainability Plan to capture programs and accomplishments across the institution in association with our four commitments:

- 1. American College and University Presidents' Climate Commitment (ACUPCC)**
- 2. Sustainability Tracking, Assessment and Rating System (STARS)**
- 3. Illinois Campus Sustainability Compact**
- 4. Operational Plan to the College of Lake County Sustainable Master Plan**

The CLC Sustainability Plan serves as an Operational Plan for implementation of a Sustainable Master Plan for the college facilities. The following outlines the major sustainability goals of the Master Plan:

- I. LEED Platinum Certification for New Buildings**
 - (1) Phase 1: Years 1-5
 - (a) Add Space with No Net Added Energy*
 - (b) Scalable Infrastructure for Becoming Grid-Free*
 - (2) Phase 2: Years 5-10
 - (a) Grid-Free*
- II. Renewable Energy Strategies**
 - (1) Geothermal
 - (2) Wind
 - (3) Solar
 - (4) Fuel Cell Investigation
- III. Transportation Strategies**
 - (1) Encourage Fuel-Efficient Vehicles
 - (2) Pursue Electric Vehicle Charging Stations
 - (3) Incentivize Premium "Green" Parking Spaces
 - (4) Encourage Fewer Vehicles
 - (5) Bus or Shuttle Lines Connecting Campuses to Train Stations

For additional information on the CLC Sustainability Plan and Sustainable Master Plan visit: www.clcillinois.edu

II. Greenhouse Gas Inventory: FY 2009-2010

A Greenhouse Gas Inventory can be defined as the total set of greenhouse gas emissions caused by an organization, event, product or person. The most commonly measured greenhouse gases are carbon dioxide, methane, nitrous oxide and water vapor. GHG emissions are measured in three scopes, based on emission source, and then converted to metric tons of carbon dioxide equivalent. CLC developed the following calculation using the Clean Air – Cool Planet Campus Carbon Calculator.

Figure 1.0: Calculation

	Scope 1	Scope 2	Scope 3
Definition	Emissions generated on-site by burning of fossil fuels and use of chemicals	Emissions generated off-site and purchased for use by the college	Emissions generated by individuals commuting to and from campus
CLC Sources Measured	<ul style="list-style-type: none"> Natural gas use Gas & diesel fleet Refrigerants Fertilizers 	<ul style="list-style-type: none"> Electricity purchased Paper purchased 	<ul style="list-style-type: none"> Full and part time faculty, staff, & student travel
Method	<ul style="list-style-type: none"> Facilities metering Natural gas budget 	<ul style="list-style-type: none"> Facilities metering Electricity budget Purchasing receipts 	<ul style="list-style-type: none"> Mass Transit Survey, Fall '09 Institutional Effectiveness, Planning, and Research office calculations
Total	5,824.4 MTCO ₂ e	16,847.4 MTCO ₂ e	7,586.2 MTCO ₂ e
= 30,258.1 MTCO₂e FY 2009-2010			

Figure 1.1: Results

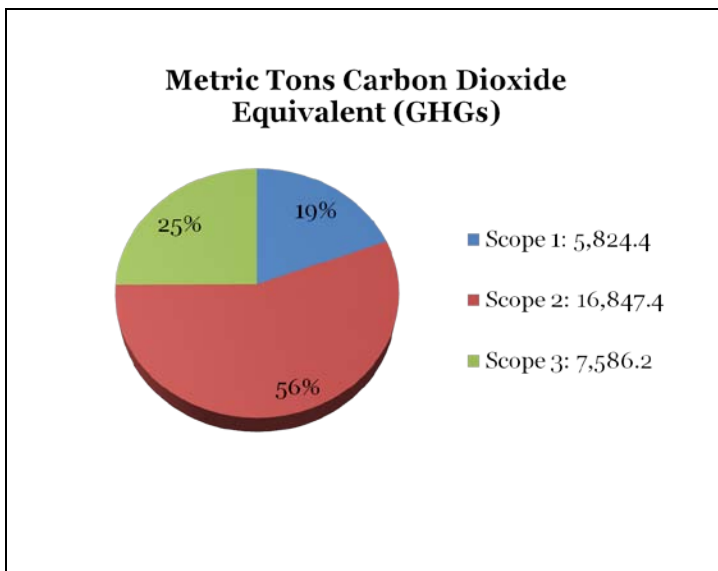
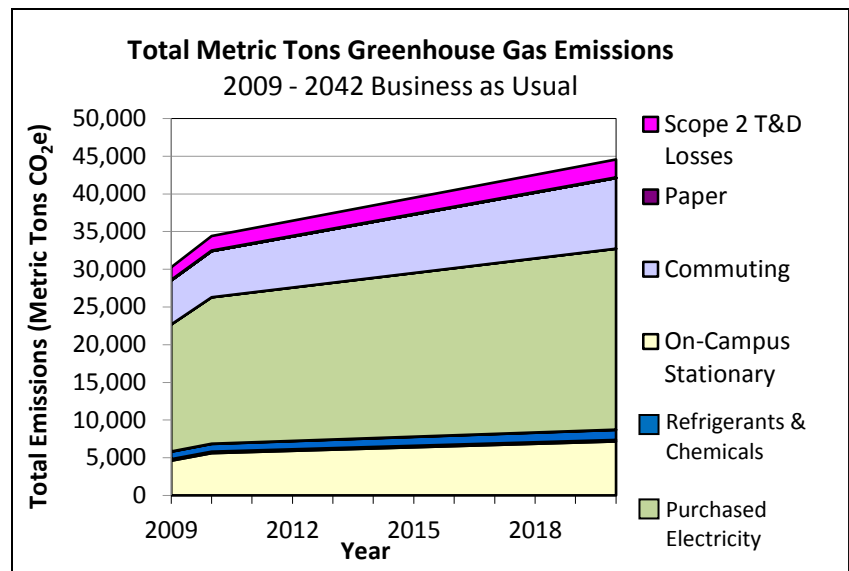


Figure 1.2: Projection



III. Greenhouse Gas Emissions Mitigation Strategies

GHG Emissions Mitigation Strategies	Implementation Time Frame	CO2 Reduction Target - %	CO2 Reduction Target - From GHG Baseline (30,258.1 MTCO2e)
Strategy 1 - Building Energy Efficiency and Conservation			
1.1 Space Utilization	short-term	60%	18,154.86 MTCO2e
1.2 Energy Awareness and Behavior Change	short-term		
1.3 Building Retro-Commissioning	short-term		
1.4 Lighting Upgrades	short-term		
1.5 Information Technology	mid-term		
1.6 HVAC Infrastructure Improvements	mid-term		
1.7 Improve Building Envelope	mid-term		
1.8 Energy Performance Contracting	long-term		
1.9 Green Building Standards	long-term		
Strategy 2 - Renewable Energy			
2.1 Build Renewable Energy Capacity	short-term	35%	10,590.335 MTCO2e
2.2 Central Plant	long-term		
2.3 Solar	long-term		
2.4 Wind	long-term		
2.5 Solar Thermal Heating	short-term		
2.6 Geothermal Heating and Cooling	long-term		
2.7 Purchase Clean Energy	mid-term		
Strategy 3 - Alternative Transportation			
3.1 Public Transit Incentives	mid-term	3%	907.743 MTCO2e
3.2 Improve accessibility	mid-term		
3.3 Improving Fleet Efficiency	mid-term		
Strategy 4 - Campus Grounds			
4.1 Reduced maintenance and water use	mid-term	1%	302.581 MTCO2e
Strategy 5 - Recycling and Waste Reduction			
5.1 Waste Reduction Policies and Programs	short-term	1%	302.581 MTCO2e
5.2 Construction and Demolition material diversion	mid-term		

A. Strategy 01: Building Energy Efficiency and Conservation

- 1.1 Improve energy conservation through maximization of space use
- 1.2 Build awareness of energy consumption and behavior change of campus occupants
- 1.3 Perform regular building monitoring and maintenance including building retro-commissioning
- 1.4 Upgrade all lighting systems across campus buildings and grounds through use of occupancy and daylight sensors, LED and other high-efficiency lighting technologies
- 1.5 Implement energy-saving technologies across campus Information Technology systems
- 1.6 Maximize efficiency of building heat, ventilation and air conditioning infrastructure
- 1.7 Improve energy efficiency of building envelope through phased retrofits of building walls, roofs and windows
- 1.8 Conduct a study including identification of providers and cost comparison data for long-term energy performance contracting
- 1.9 Follow Green Building Guidelines as written in compliance with the ACUPCC and Illinois Public Act 096-0073, requiring all new State-funded building and renovation projects be a minimum of LEED Silver Certified or equivalent. Consider LEED for Operations and Maintenance of Existing Buildings standard where appropriate.

B. Strategy 02: Renewable Energy

- 2.1 Build renewable energy capacity through exploration of new technologies, feasibility analyses, and small-scale demonstration applications for use in classrooms and community trainings
- 2.2 Centralize heating and air conditioning control through use of a Central Plant involving cogeneration from multiple alternative energy sources
- 2.3 Introduce application of solar photovoltaic arrays
- 2.4 Utilize wind electricity production
- 2.5 Increase solar thermal space and potable water heating
- 2.6 Integrate geothermal heat and cooling sources
- 2.7 Investigate purchase of energy generated from clean, renewable sources

C. Strategy 03: Alternative Transportation:

- 3.1 Increase awareness of alternative transportation options including rewards and incentives for college faculty, staff and students to utilize public transport, car sharing programs and low-emission vehicles
- 3.2 Improve accessibility and safety for pedestrian traffic, bicycles and public transportation options through enhancement of on-campus facilities and collaboration with community transportation and municipal entities
- 3.3 Purchasing of fuel efficient and alternative fuel vehicles for campus fleet

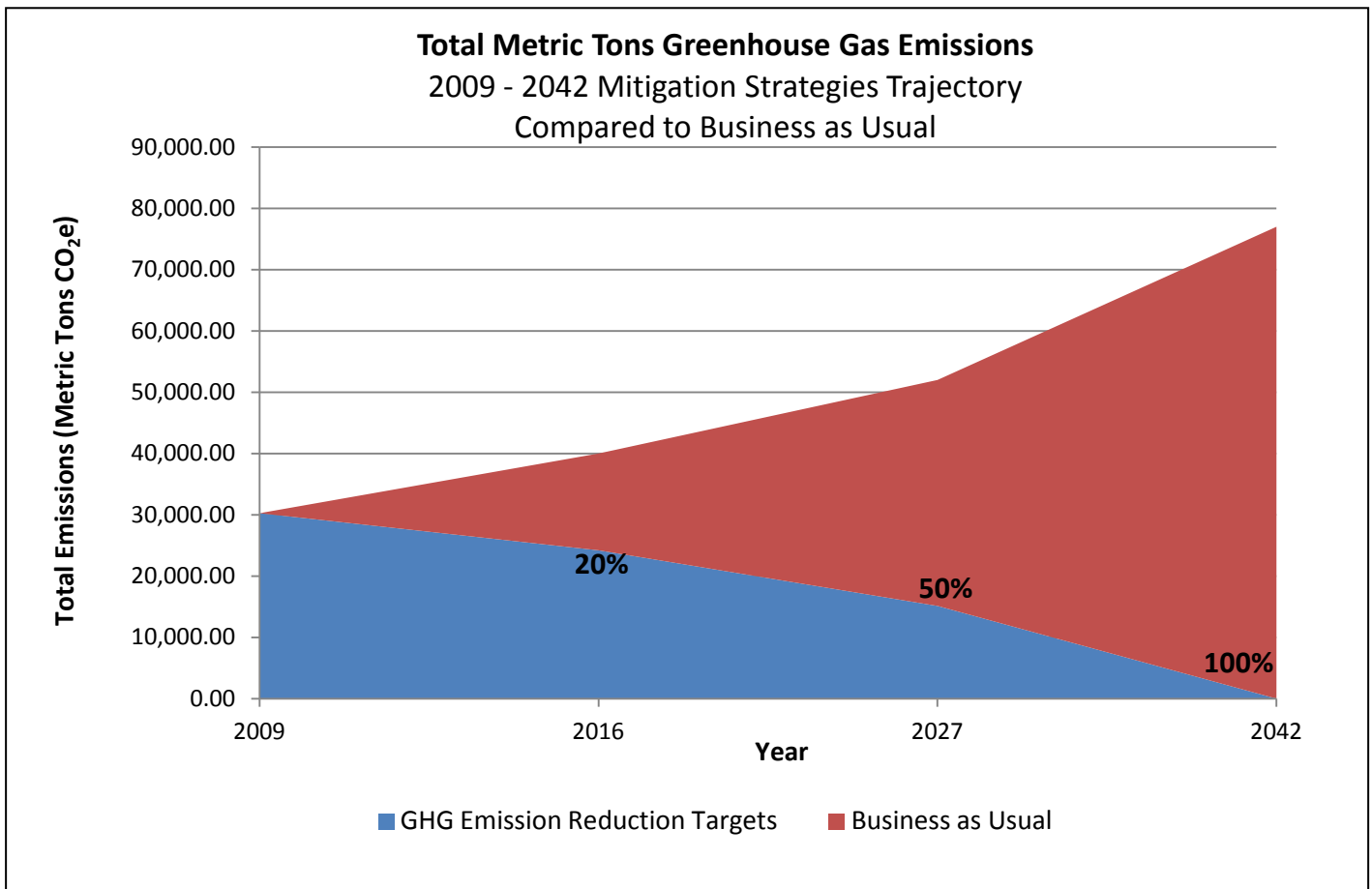
D. Strategy 04: Campus Grounds:

- 4.1 Improve coordination and management of campus grounds including implementation of best management practices for stormwater retention, energy efficiency and sustainable landscaping

E. Strategy 05: Recycling and Waste Reduction:

- 5.1 Maximize waste diversion and resource recovery across campus by individuals and through institution-wide policies and programs
- 5.2 Implement guidelines for reuse and recycling of construction and demolition materials

Figure 2.0: Emissions Trajectory



IV. Curriculum, Research, and Community Engagement

The College of Lake County is extremely committed to integrating sustainability into our curriculum, student experiences, job training programs, and the Lake County community. The CLC Sustainability Plan provides action items under the following priorities:

A. Greening Our Curriculum:

Establishment and integration of Student Learning Objectives in Sustainability (*see Sustainability Plan for list of Objectives*) into for-credit curriculum offered by the institution

1. Student Engagement

Provide unique opportunities for CLC students to influence, participate, and learn from sustainability efforts on campus and in the community

2. Workforce & Professional Development

Facilitate incorporation of new market trends in sustainability and green job training into workforce and professional educational opportunities and assistance offered by the institution

B. Greening Our Community:

The College of Lake County seeks to engage and convene a wide spectrum of stakeholders to foster collaborative initiatives, share best practices and build public awareness of sustainability and green economic development efforts on campus and throughout the community

1. Events and Outreach

Disseminate reliable, current information and resources on sustainability to the public

2. Collaboration

Seek to partner and create connections between varying entities to accelerate and grow social, economic and environmental goals and accomplishments across the community

3. Green Economy

Serve as a driver for economic resilience through support of informed and integrated sustainable economic development

V. Implementation Structure

The college plans to implement our mitigation strategies over the next thirty years exponentially, as new technologies and resources become available. The college Sustainability Center will coordinate these efforts through our Environmental Action Committee, and other campus departments. The Sustainability Plan will be updated every three years, to reflect progress toward our sustainability and climate action goals. A variety of funding strategies will be utilized such as capture and reinvestment of cost-savings resulting from sustainability programming.

GHG Emissions Mitigation Strategies	Emissions Reduction Potential	Upfront Cost Level (High, Mid, Low)	CO2 Reduction Target - %	CO2 Reduction Target - From GHG Baseline (30,258.1 MTCO2e)
Short - Term (2012 - 2016)				
1.1 Space Utilization	5.0%	Low	20%	6,051.62 MTCO2e
1.2 Energy Awareness and Behavior Change	10.0%	Low		
1.3 Building Retro-Commissioning	10.0%	Mid		
1.4 Lighting Upgrades	10.0%	Mid		
2.1 Build Renewable Energy Capacity	0.0%	Low		
2.5 Solar Thermal Heating	5.0%	Mid		
5.1 Waste Reduction Policies and Programs	2.0%	Low		
Mid - Term (2017 - 2027)				
1.5 Information Technology	15.0%	Mid	30%	9,077.43 MTCO2e
1.6 HVAC Infrastructure Improvements	20.0%	High		
1.7 Improve Building Envelope	10.0%	Mid		
1.9 Green Building Standards	30.0%	High		
2.7 Purchase Clean Energy	15.0%	Mid		
3.1 Public Transit Incentives	3.0%	Low		
3.2 Improve accessibility	5.0%	Mid		
3.3 Improving Fleet Efficiency	2.0%	Mid		
4.1 Reduced maintenance and water use	5.0%	Mid		
5.2 Construction and Demolition material diversion	5.0%	Low		
Long - Term (2027 - 2042)				
1.8 Energy Performance Contracting	30.0%	High	50%	15,129.05 MTCO2e
2.2 Central Plant	35.0%	High		
2.3 Solar	35.0%	High		
2.4 Wind	35.0%	High		
2.6 Geothermal Heating and Cooling	25.0%	Mid		