

Parkland College Climate Plan

Sustainable Campus Committee



Climate Plan

February 15, 2012

Forward from Parkland College President Dr. Thomas Ramage:

I am pleased to offer an introduction to Parkland College's Climate Plan.

In just a short period of time, our college has moved in significant directions with respect to sustainable practices, design, and awareness. I commend the Sustainable Campus Committee at Parkland College for leading the effort to help faculty, staff, students, and our district communities understand our shared responsibility for the manner in which we treat the environment.

The Sustainable Campus Committee has worked hard to create a climate plan that makes sense for this institution and that capitalizes on fortunate timing as we build new campus facilities over the coming years that embrace sustainable practices from their inception.

This plan moves us decidedly in a direction that aims to ensure that natural systems are healthy, diverse, and resilient in the face of changing climate while honoring the faith that our stakeholders have placed in us to be responsible stewards of public resources.

I am taking this opportunity to invite you to not only read this plan, but to find ways that you might contribute to its success as we engage our community in learning. We look forward to benefiting from what our college and the communities it serves will accomplish together.



Table of Contents

Introduction	Page 3
A Climate-Neutral Campus.....	Page 4
Goals and Timeline	Page 5
Emissions Baseline Data.....	Page 6
Areas of Emission Reduction.....	Page 7
Summary	Page 14
References and sources.....	Page 15

The Parkland College Climate Plan was a project of the Sustainable Campus Committee. The plan was devised and written by Gregory Walburg and Joshua Birky, with contributions from Michael Retzer and Hilary Valentine.

Introduction

The growing awareness of the threats posed by climate change to our environment led a group of U.S. colleges and universities to join together to act on the issue. This joint effort is important not only because higher learning institutions are themselves significant contributors of greenhouse gas emissions (GHG), but also due to the important educational role colleges and universities play in raising awareness of climate issues.

Parkland College joined this national movement by signing the Presidents' Climate Commitment in 2009 (<http://presidentsclimatecommitment.org/about/commitment>). This commitment serves as a public proclamation of Parkland's intent to respond to climate change as an institution. It also creates another avenue to fulfill its mission of "engaging the community in learning" by being a leading force in sustainable education and practices.

The following Climate Plan, required by the Presidents' Climate Commitment, puts in place a time frame for Parkland to reach carbon neutrality, with some intermediate goals set out to serve as a way to measure progress toward the ultimate goal. The plan also describes specific actions for the college to take in working towards that goal.

The climate plan is intended to be an open-ended document. The expectation is that the plan will become continuously evolving and regularly amended. This document will be a publicly available reported summary of Parkland's efforts to bring the college to climate neutrality.



A climate-neutral campus

Atmospheric carbon dioxide (CO₂) levels have increased by one-third in the past century, from 280 parts per million (ppm) to 395 ppm (as of 2011). These increased CO₂ levels have been linked to climate change; reducing global greenhouse gas emissions is seen as necessary to stabilize the climate of the earth.

The potential for deleterious effects of climate change on the earth have been well documented (<http://www.ipcc.ch/>); however, the negative effects of energy production on the U.S. are underappreciated. As an example, the research conducted for the U.S. EPA estimates that 10,000 deaths annually result from the fine particulates released from the combustion of coal to produce power (<http://www.abtassociates.com/reports/particulate-related.pdf>).

The Presidents' Climate Commitment requires each signatory institution to submit a plan describing how that school will reach climate neutrality as soon as possible. The goal of a climate-neutral campus is challenging and rewarding—challenging, since many of our standard practices lead to increased greenhouse gas emissions; and rewarding, since once enacted, these practices will result in a cleaner, more sustainable future.

Because the energy consumed by Parkland College produces significant quantities of CO₂ (23,733.3 metric tons in 2010), it will take concerted efforts by the college community to bring about the reductions in greenhouse gas emissions described in this plan. With current fuel sources in use for energy production, there is now a direct link between energy use and greenhouse gas production. The effort to yield a climate-neutral campus will by necessity involve both reductions in energy use and a move to replace current energy sources with those that produce no greenhouse gas emissions.

This first version of Parkland's climate plan focuses mainly on ways to reduce energy use. Although this plan states goals for the use of clean energy, specific renewable practices are not completely spelled out since this is a rapidly developing area which will have many more options and will become more cost effective in the future.

Goals and timeline

% of Carbon Emissions Compared to 2010 levels	
2010	100%
2020	90%
2025	85%
2030	75%
2035	65%
2040	55%
2045	40%
2050	25%
2055	10%
2060	0%

Figure 1.

Greenhouse gas reduction goals at Parkland College over a 50-year period, beginning in 2010.

The plan calls for Parkland College to be climate neutral by year 2060; all energy used by that point should be from a clean source, such that no GHG emissions will result from the production of that energy. The goals for campus emissions reductions shown in Figure 1 represent an aggressive yet achievable set of stepwise reductions to be evaluated at five-year intervals. The sliding scale of reductions, with greater increases over time, is reflective of the idea that many more approaches and technologies will emerge to mitigate climate change. These new methods will make reductions both more feasible and more cost effective for Parkland College.

The mechanisms employed to reduce emissions will involve an array of approaches. Perhaps the key component of the whole will be the result of education around climate change and the resulting behavioral shifts to follow.

The other significant part of the plan is that there must be continuous commitment and support at all levels to work to reach these goals. The commitment of all parties, including students, faculty, staff, and administration is needed. The commitment of Parkland's administration is of particular importance as their strong support, including significant financial support, is essential to successful implementation of the plan.

What remains is a need to put in place the mechanisms to both enact and verify these actions. This is a component of the climate plan which is still under development and will be addressed in future versions of the plan.

Baseline greenhouse gas emissions for the campus

Parkland's Climate Action Plan offers a route towards climate neutrality by setting broad goals/milestones, and introducing strategies to reach these goals. Progress towards these milestones will be determined by comparison to baseline emissions data calculated in 2009-2010. Greenhouse gas emissions data will be collected in alternate years going forward; the results will be the basis for our evaluating our progress toward our goal.

The following is an overview of the baseline emissions data that were collected in 2009-2010.

The emissions are divided into three categories, referred to as Scopes 1, 2, and 3.

Scope 1 covers emissions produced by institution-owned processes, such as on-site energy production, cogeneration for heating, and agriculture. College vehicle fleet fuel usage and chemical use is also included in Scope 1.

Scope 2 includes emissions that are produced off site, including chilled water, steam, and electricity.

Scope 3 includes commuting information and college-financed travel. It also includes paper consumption and both liquid and solid waste. Finally, Scope 3 allows input of any offsets, such as composting, forest preservation, and purchased offsets.

The online greenhouse gas emissions calculator from Clean Air-Cool Planet (CA-CP) <http://www.cleanair-coolplanet.org/toolkit/inv-calculator.php> was used to determine total campus emissions. Reporting data were gathered from various campus sources (<http://rs.acupcc.org/ghg/1166/>).

The resulting data from the CA-CP calculator were sorted by both scope and category. The output from each section is grouped by the type of GHG emitted. The greenhouse gases covered are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The three gases are given by the weight of their production in kilograms (kg). All greenhouse gases are then reported as CO₂ equivalents to simplify comparisons; each scope is expressed in metric tonne equivalents of CO₂ (MT eCO₂).

The resultant quantities of emissions in metric ton by scope are: Scope 1 - 2.6 MT eCO₂; Scope 2 - 12,769.3 MT eCO₂; Scope 3 - 10,961.4 MT eCO₂. The three categories combine for a net amount of 23,733.3 metric tons produced in 2010. This value will be used as the baseline for future comparisons.

The report and data set are available to view here:
<http://rs.acupcc.org/ghg/1166/>

Areas of emissions reduction

This section provides a sample of GHG reduction in a variety of areas that will be central in reaching Parkland's goals for reduced GHG emissions. The actions we propose are divided into the following categories, which are derived from the Association for the Advancement of Sustainability in Higher Education (AASHE) sustainability criteria, <https://stars.aashe.org/>. The following are the categories which will be discussed in this section:

1. Education
2. Buildings
3. Grounds
4. Transportation
5. Materials use, waste, and recycling
6. Clean energy

Several actions have been listed for each category; for each action, the time scale of implementation, emissions reductions, economic savings, and responsible party have been provided in tables under the six subsections below.

It is important to understand that these actions represent only a first step in the process of developing a complete set of actions and protocols to reduce GHG emissions. It is also important to note that it will be necessary to develop assessment techniques to ensure that the initiatives are measured to demonstrate that the emission reduction goals are met.

As mentioned, the following charts contain information on the time of implementation (time scale) for each initiative. The three time stages that these initiatives will be implemented in are as follows:

- 1. Short-term actions.** These will comprise policies and goals we can and will implement immediately. These would fall into the 0–5 year time frame.
- 2. Medium-term actions.** Steps we expect to take and will work towards implementing in the 5–20 year time frame.
- 3. Long-term actions.** From 20 years out to year 2060, our goal for reaching a climate-neutral campus.

1. Education

Sustainability reflects one of the most fundamental human desires, supported by virtually all philosophies and religions: to create a better future world. It provides guidance for long-term, strategic decision-making. Sustainability emphasizes the integrated nature of human activities and therefore the importance of comprehensive planning that coordinates between sectors, jurisdictions, and groups. Education for sustainability requires an understanding of the interdependence and interconnections of humans and the environment.

Parkland College is making efforts to introduce concepts of sustainability into the curriculum. Individual faculty members are incorporating concepts and themes. There have been multiple efforts by the Sustainable Campus Committee to educate the college community through presentations at the Center for Excellence in Teaching and Learning, Earth Week activities, and in presentations to the Board of Trustees. A need still exists to develop a general curriculum to expose all students to sustainability concepts.

Success in implementing the climate plan is largely dependent on raising the awareness of the college community of the need to act on climate issues and the methods to do that. Hence, education is placed first on the list of actions.

An education-related activity of particular importance is the creation of the position of sustainability coordinator. The importance of the role of that the campus sustainability coordinator plays in all campus sustainability actions, but in particular in ensuring the successful implementation of a climate action plan, cannot be overstated. The complexity and the perseverance necessary lead us to call for that position in our plan. The sustainability coordinator for the Parkland Campus will play important roles in all six areas being discussed in this plan: education, buildings, grounds, transportation, materials use and waste and recycling, and clean energy. This professional can take active roles in any of these areas including grant writing, project oversight, working with the Sustainable Campus Committee, and serving as a spokesperson. The sustainability coordinator can also serve as liaison with other local and regional groups such as the Illinois Green Economy Network, Illinois Green Business Association, and the Champaign Urbana Mass Transit District.

Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Create EDU classes on integrating sustainability into college curriculum	short	Students, staff, and faculty with more education concerning sustainability and GHG emissions will make wiser choices that will both reduce the amount of emissions produced and increase economic savings.		Faculty/Center For Excellence
Create campus out-reach initiatives	Short			Sustainability committee
Create sustainability coordinator position	Short			Administration

Table 1.

Proposed education actions for the campus to implement to reduce GHG emissions.



2. Buildings

Activities related to buildings include projects which affect the physical indoor facilities at Parkland or those that affect the construction and upkeep of these facilities. Buildings consume some 40% of total U.S. energy; the plan calls for buildings to become more energy efficient over time, using the Architecture 2030 Challenge as a model. (http://architecture2030.org/2030_challenge/the_2030_challenge)

LEED guidelines can also serve as valuable tools to help increase the sustainability of the function of Parkland's buildings.

The site placement of campus facilities is also a consideration in creating a more efficient infrastructure. Off-campus facilities that require commuting and thus greater energy consumption should be carefully considered.



Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Install CPU energy saving software	short	Reduced energy use for campus computers	Reduced energy use for campus computers	Campus Tech
Install motion sensors	Short	Reduced energy use in unused rooms	Reduced energy use in unused rooms	Physical Plant
Plan new construction to meet "green" architecture standards	Medium	Reduced energy in all aspects of building – HVAC, lights, etc.	Public/Private incentives for construction Long-term energy savings	Physical Plant
Implement portions of LEED EBOM to improve existing building performance	Medium	Reduced energy in all aspects of building – HVAC, lights, etc.	Public/Private incentives for construction Long-term energy savings	Physical Plant

3. Grounds

This section contains actions and goals which pertain to the management of the external facilities and land areas of the college.

Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Reduce outdoor light usage – (install motion sensors and LED lights)	Short	Reduces the amount of light energy used	Reduces the amount of energy purchased to light outside areas	Physical Plant
Maintain current, and develop new, low-mow areas on campus	Short	Reduces emissions from mowers Increases carbon sequestration	Lower costs for gasoline purchase Lower personnel costs	Physical Plant
Plant more trees and prairie grasses	Short	Provides cooling through shading near windows Increases carbon sequestration	Lower cooling costs during the summer	Physical Plant

4. Transportation

A commuter campus such as Parkland has a large share of its emissions as a result of transportation. Our current transportation system, consisting of mainly single occupant automobiles with low fuel efficiencies offers great opportunities for improvements. Parkland can work to reduce transportation GHG emissions through such actions as providing preferred parking for carpoolers and establishing carpooling mechanisms.

The GHG emissions data for 2010 (see above, page 5) indicate that the transportation component represents some 40-50% of total Parkland emissions. Since this sector contributes such a large portion of all emissions, efforts to reduce emissions from this source can provide significant reductions. However, this is also an area over which the college has little direct control. The educational component can be important in motivating behavior change in this area, as well as working with the City of Champaign to develop safe bicycle and pedestrian routes to campus and with C-U MTD to increase ridership.

Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Increase car pooling through incentive and scheduling programs	Short	Reduced automobile emissions	Reduced cost of parking lot maintenance	Administration and Sustainability Committee
Increase bicycling by installing shower/ changing rooms, creating bike maps, and increasing bike parking	Short	Reduced automobile emissions	Reduced cost of parking lot maintenance	Administration and Physical Plant
Encourage increased use of C-U MTD	Short	Reduced automobile emissions	Less parking lot maintenance required	Administration and Sustainability Committee
Promote use of electric/ hybrid vehicles on and to campus	Short	Reduced automobile emissions	Less fuel cost for college vehicles	Administration and Sustainability Committee

5. Materials use, waste, and recycling

Actions in this category will focus on reducing waste and increasing efficiency of processes.

Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Set energy saving settings on all devices before installation	Short	Use less energy	Cost less for college to purchase Use less energy	Campus Tech.
Install software to power down computers in off hours	Short	Use less energy	Grants Rebates Use less energy	Campus Tech.
Purchase Energy Star® products; required as part of President's Climate Commitment	Short	Reduced energy use	Cost savings from energy efficiency	Purchasing

6 . Clean Energy

Clean energy is defined as producing no greenhouse gas emissions during power production. Renewable energy is defined as any energy resource that is naturally regenerated over a short time scale and derived directly from the sun (such as thermal, photochemical, and photoelectric), indirectly from the sun (such as wind, hydropower, and photosynthetic energy stored in biomass), or from other natural movements and mechanisms of the environment (such as geothermal and tidal energy). Renewable energy does not include energy resources derived from fossil fuels, waste products from fossil sources, or waste products from inorganic sources.

Parkland College will commit to have 10% of its power derive from clean, renewable sources by 2025.

Activity	Time Scale	Emissions Savings	Economic Savings	Responsible Party
Purchase energy from regional wind farms	Short	Reduces the amount of energy obtained from fossil fuels	Rebates Grants Tax Credits	Administration
Install solar panels	Short	Reduces the amount of energy obtained from fossil fuels		Physical Plant

Summary

This plan represents a beginning of the efforts necessary to yield a climate neutral campus. Following up on the actions described in the plan will require concerted effort and substantial commitment by the college in both time and financial resources. Regular examination of how goals are being met will be the test of the efficacy of the plan and the depth of the commitment of the college to the overall goal.

The president's climate commitment mandates biannual GHG emissions measurements; the results will allow the campus to track the outcomes of GHG reduction initiatives. The president's commitment also requires a biannual report which is an update of progress towards the goals outlined in this plan.

It is clear that certain steps must take place for Parkland to achieve the ambitious but necessary goal of creating a climate-neutral campus. The following list summarizes some of the key activities that Parkland must undertake in order to insure the success of this plan.

Parkland College must:

1. Educate and inform the entire college community around issues regarding global climate change to establish the institutional attitude for change starting with faculty and staff.
2. Establish clear, specific goals and institutional mechanisms for ensuring that the specified carbon reduction goals are met.
3. Put in place a continuous source of funds dedicated to this necessary task.
4. Ensure that all buildings are constructed to the highest possible level of energy efficiency.
5. Work to make all campus practices as energy efficient as reasonably possible.
6. Establish energy efficiency and energy awareness as a college priority.
7. Hire a sustainability coordinator; the GHG reduction goals are unlikely to be met without a dedicated person with GHG reduction as part of their official responsibilities.
8. Work with off-campus partners to help the college achieve its goals.

References and sources

The Intergovernmental Panel on Climate Change (IPCC) is the leading international scientific body for the assessment of climate change.

<http://www.ipcc.ch/>

Climate Action Planning: A Review of Best Practices, Key Elements, and Common Climate Strategies for Signatories to the American College & University Presidents' Climate Commitment.

http://www.presidentsclimatecommitment.org/files/documents/best_practices_cap.pdf

The American College and University Presidents' Climate Commitment Website, *ACUPCC*. The main website contains a host of information, including links to useful resources, a monthly online newsletter, and reference documents such as previously submitted CAPs.

www.presidentsclimatecommitment.org

Climate Action Planning Wiki, *Association for the Advancement of Sustainability in Higher Education (AASHE)*. This wiki is a comprehensive how-to guide for your climate action planning. Interactive and collaborative, it also allows the user to provide feedback and advice for other schools going through the process.

www.aashe.org/wiki/climate-planning-guide

Climate Counts is a collaborative effort to bring consumers and companies together in the fight against global climate change.

<http://www.climatecounts.org>

The Center for Climate and Energy Solutions is an independent, nonpartisan, nonprofit organization working to advance strong policy and action to address the twin challenges of energy and climate change.

<http://www.pewclimate.org/>

350.org is a global grassroots movement to solve the climate crisis and push for policies that will put the world on track to get to a CO₂ level of 350 ppm.

<http://www.350.org/>





Campus Sustainability