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I) Introduction

In October 2008, St. Louis Community College at Florissant Valley signed the American College and University Presidents Climate Commitment (ACUPCC), a voluntary agreement for higher education institutions to reduce the impacts of climate change and work toward “climate neutrality”. President Marcia Pfeiffer assigned the task of meeting the requirements of this agreement to the STLCC at Florissant Valley Sustainability Committee.

The terms of the agreement are:

1) Completing a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting and air travel) and updating the inventory every other year thereafter.

2) Developing an institutional action plan for becoming climate neutral, which will include:
   a) A target date for achieving climate neutrality as soon as possible.
   b) Interim targets for goals and actions that will lead to climate neutrality.
   c) Actions to make climate neutrality and sustainability a part of the curriculum and to provide other educational experiences for all students.
   d) Actions to expand research or other efforts necessary to achieve climate neutrality.
   e) Mechanisms for tracking progress and actions.

3) Immediately initiating at least two “Tangible Actions” to reduce greenhouse gasses while a more comprehensive plan is being developed.

4) Making the inventory, action plan and periodic progress reports publicly available by posting them on the college’s web site, and by submitting them to the Association for the Advancement of Sustainability in Higher Education (AASHE) for posting and dissemination on their national website.
Using the Clean Air Cool Planet carbon calculator, our GHG inventory measured carbon emissions for the fiscal year 2008-2009 and was submitted on May 11, 2010. In addition to completing this inventory, the college has chosen the “Tangible Actions” of participating annually in Recyclemania starting in January 2011, and adopting LEED certification guidelines for all new construction.

Recognizing that climate change is a serious problem that must be addressed, St. Louis Community College at Florissant Valley is committed to implementing new policies and procedures that will reduce our carbon footprint. Furthermore, the college is committed to partnering with local environmental organizations to promote a healthier community, and to continue developing our green curriculum so that students become more responsible stewards of our environment while acquiring the skills needed to participate in a modern economy.

II) Greenhouse Gas Emissions Inventory

On May 11, 2010, St. Louis Community College at Florissant Valley submitted a comprehensive greenhouse gas inventory based on our emissions from fiscal year 2008-2009. After entering the data into the Clean Air Cool Planet Campus Carbon Calculator, we found that STLCC at Florissant Valley generates approximately 22,856 metric tons of carbon dioxide equivalents per year, broken down as follows:

Scope 1, Direct Emissions:

Direct emissions are from sources that are owned and / or controlled by the college. This includes combustion of fossil fuels in college-owned facilities or vehicles, fugitive emissions from refrigeration, and emissions from on-campus agriculture or livestock husbandry. (Please see the table on the following page.)
<table>
<thead>
<tr>
<th>Source</th>
<th>Tons per Year</th>
<th>Unit(s) of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary Combustion</td>
<td>0</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td>Mobile Combustion</td>
<td>15.6</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td>Fugitive Emissions</td>
<td>0</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15.6</strong></td>
<td><strong>Metric tons of CO2e</strong></td>
</tr>
</tbody>
</table>

**Scope 2, Indirect Emissions:**

Indirect emissions from sources that are neither owned nor operated by the college but whose products are directly linked to on-campus energy consumption. These include purchased energy: electricity, steam, and chilled water.

<table>
<thead>
<tr>
<th>Source</th>
<th>Tons per Year</th>
<th>Unit(s) of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchased Electricity</td>
<td>7,045</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,045</strong></td>
<td><strong>Metric tons of CO2e</strong></td>
</tr>
</tbody>
</table>

**Scope 3, Other Emissions:**

Other emissions attributed to the college, include emissions from sources that are neither owned nor operated by the college but are directly financed (e.g. commercial air travel paid for by the institution) and / or linked to the campus via influence or encouragement (e.g. air travel for study abroad programs, regular faculty, staff, and student commuting).

<table>
<thead>
<tr>
<th>Source</th>
<th>Tons per Year</th>
<th>Unit(s) of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuting</td>
<td>15,771</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td>Air Travel</td>
<td>24</td>
<td>Metric tons of CO2e</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,795</strong></td>
<td><strong>Metric tons of CO2e</strong></td>
</tr>
</tbody>
</table>
The following pie chart shows the percentage amounts of scope one, two and three emissions for our base line data year (2008-2009).

**Scope 1 emissions** were 15.6 metric tons of CO2 equivalents (less than 1% of total emissions).

**Scope 2 emissions** were 7,045 metric tons of CO2 equivalents (31% of total emissions).

**Scope 3 emissions** were 15,795 tons of CO2 equivalents (69% of total emissions).

As with most community colleges, our emissions are heavily weighted toward Scope 3 sources due to faculty and student commuting. Consequently, achieving carbon neutrality will depend upon working with faculty members and students to consider low-carbon modes of transportation and carpooling.

The second largest contributor to our carbon emissions comes from the consumption of energy used to generate campus lighting, heating and cooling. As opposed to changing commuting habits, adopting policies to lower our energy consumption will be relatively easy.

Finally, of all the activities that can lower our carbon footprint, recycling and minimizing consumption are where we can make the most progress. For this reason, our carbon lowering efforts will initially concentrate on this area.
III) Carbon Emissions Reductions Targets and Dates

By implementing the mitigation strategies outlined in this action plan, STLCC at Florissant Valley will reduce its greenhouse gas emissions by ten percent every five years. This will lead to a more than fifty percent reduction in emissions by 2050.

IV) Mitigation efforts

A) Transportation

Students at our school face a series of challenges outside of the classroom, such as employment and a need for childcare. In addition, students have course schedules that often require them to be on campus at different times. Because of these challenges the typical student finds it most convenient to commute to school individually.

The college has taken various actions to address this reality. In August 2007, the college worked with St. Louis Metro to extend the local bus route onto campus, and has changed the 5 day/week class cycle to a 4 day/week class cycle. We have also partnered with RideFinders to help encourage carpooling. Ridefinders is a federally funded program that serves the seven surrounding counties and the city of St. Louis by providing a free ride matching service. This service helps commuters find other commuters to share rides to campus instead of driving alone. Ridefinders frequently visits our campus to promote their program.

Future efforts to mitigate our impact on the environment due to commuting pressures will include working with the surrounding communities to find ways to encourage biking and walking to campus. The installation of bike paths and bike racks will help with this effort. We are also looking into possibly creating convenient parking areas for students and staff who commute to school in hybrid or electric vehicles. In an effort to promote public transportation,
the college is looking into the feasibility of providing free bus passes to students who already use public transportation, or would otherwise drive to school.

Another college activity that contributes to our carbon footprint is air travel. We have determined that this activity accounts for approximately 24 metric tons of carbon being emitted into the atmosphere each year. We are currently looking into ways that our administration and faculty, who travel on college business, can purchase carbon offsets for these emissions.

Finally, our campus police department currently uses an electric vehicle for traveling on campus and is in the process of purchasing a second one. The police department also uses bicycles to patrol the campus. The gradual replacement of our current fleet of vehicles with electric and hybrid models will further lower our carbon footprint.

B) Purchased Energy

While reducing our carbon emissions from transportation primarily depends upon changing habits, reducing our carbon emissions from energy usage can be accomplished by changing habits and by changing policies. St. Louis Community College at Florissant Valley has done both.
Motion sensors have been installed in each classroom so that energy won’t be used to light these rooms when not in use. To reduce the energy used for lighting these rooms when in use, excess fluorescent bulbs have been removed from each bank of lights. This action has resulted in the removal of hundreds of bulbs from across the campus and district. We are also looking into the feasibility of installing motion sensors into hallways, restrooms and faculty offices. Making this change will further reduce our carbon emissions.

In an attempt to change behavior, “Turn off the Lights” stickers have been placed on all wall plates. In addition, public awareness campaigns have been conducted to encourage faculty, staff and students to turn off their computers and monitors at the end of the workday. It was found that phantom energy drain resulting from monitors and computers being left on overnight (eight hours) costs seven cents a night per computer. By turning off all of our college’s 1,650 computers, our campus will save approximately 115 dollars per night.

While our efforts are expected to make discernable progress in emissions reduction, true carbon neutrality would require technology that eliminates the use of fossil fuels for power generation. With this in mind, St. Louis Community College at Florissant Valley has asked Kineta Energy to conduct a study to determine if our campus is compatible for the installation of alternative sources of energy such as wind and solar. Kineta Energy, LLC serves as a renewable energy consulting, project management and development firm based in St. Louis, Missouri.
C) Consumption Minimization and Recycling

As with most large institutions, a considerable amount of waste is produced on our campus each day. By effectively minimizing the waste we produce and by diverting recyclables from landfills to recycling bins, we will dramatically reduce our impact on the environment. Waste minimization and recycling are not only the most promising actions that can be taken; they are also the most convenient. No major policy initiatives need to be implemented nor do any large renovations need to be completed to increase our recycling rates. We simply need to raise awareness about this issue and make it more convenient across our campus.

To increase the recycling rates of bottles, cans and paper we have installed visible recycling stations throughout our academic buildings, in our dining areas and on our campus grounds. To raise the awareness of the importance of recycling, we are currently participating in Recyclemania. An exciting offshoot of our participation in Recyclemania has been the creation of an ecology club. In addition to overseeing our participation in Recyclemania, the ecology club has future plans to engage with the community and to explore and enjoy the outdoors.

In an effort to reduce the amount of paper we use, our college has partnered with IKON document services. This partnership has resulted in the conversion of many documents from paper to electronic forms, the removal of nonessential desktop printers, effective placement of walk-up copiers, and the use of software that directs printing to the most economic and energy efficient copiers. It is estimated that this partnership will save our college $800,000 over five years.
Finally, a very welcomed change recently occurred on our campus when our dining services transitioned from using Styrofoam products for serving food to paper and compostable products. We will continue to work with our dining services to reduce waste via composting, encourage the use of reusable coffee mugs, and to consider using locally grown produce.

V) Academic Curriculum Development

Understanding the need to incorporate sustainability concepts into our curriculum, our college is in the process of developing two new certificate programs and is starting a process that will help instructors integrate green lessons into courses they already teach.

Starting in the 2011 fall semester, St. Louis Community College at Florissant Valley will offer a Sustainable Design Technology Certification Program and a Sustainable Energy Technology Certification Program. The former will focus on sustainable construction techniques while the later will focus on sustainable energy technology. Both of these programs will be housed in our Engineering and Technology Department in conjunction with the college’s Workforce and Community Development Division. As an aside, the Workforce and Community Development Division is housed in a recently purchased commercial building that was rehabbed as opposed to completely demolished and rebuilt from scratch.

The Engineering & Technology Department will acquire photo voltaic panels to teach the installation of grid-tied solar panels and to teach students how to make meaningful analysis of data collected from these panels. Also, the department is installing an energy monitoring system on the electrical panel that services the Engineering Building. This will provide a hands-on opportunity for students to learn about reading, understanding and using this data to improve energy efficiency.
A sustainable construction course that we currently offer covers a wide range of green construction methods, environmental issues related to construction and deconstruction, and the relative strengths and weaknesses of several common rating systems like LEED and Green Globes.

Finally, in an effort to encourage instructors outside of the engineering department to integrate green concepts into their courses, “Greening the Curriculum” sessions are held twice a semester. These sessions provide a forum where instructors, who currently incorporate green concepts into their discipline, share these ideas with the rest of the faculty.

IV) Community Outreach

Being a community college, we have both a unique opportunity and a special obligation to work with the surrounding towns and area high schools. This holds true for both academic and environmental issues.

One of our most visible outreach programs is our Mobile Tech Center. This 36-foot mobile classroom, fitted with current equipment and technology, is used to visit schools, businesses and community events. With the goal of encouraging students to consider a career in one of the environmental sciences, we use this center to educate students on the science behind and the effects of global warming.

Other outreach activities include a green fair that we hold on campus each spring. This fair brings a wide range of local green organizations, including Habitat for Humanity, The Sierra Club and local farmers’ markets onto campus.
St. Louis Community College at Florissant Valley also serves as a drop off location for the City of Florissant’s annual electronic recycling event (five years running), and the biannual St Louis County Health Department’s household hazardous waste collection program. A grant from the Solid Waste Management District for St. Louis-Jefferson County allows us to collect televisions and computer monitors free of charge. This partnership has diverted over 60 tons of electronic waste from landfills over the past three years. To increase recycling rates, the college plans on advertising these events to local businesses, churches and other school partners.

Notes:

1) The definitions of emission types on pages 3 and 4 were taken from Clean Air Cool Planet, Carbon Calculator User’s Guide.

2) The terms of the American College and University Presidents Climate Commitment on page 2 were taken from ACUPCC Implementation Liaison Handbook.