The Sustainable Campus Program (SCP) is a student fee-funded and student-led initiative charged with reducing the Auraria Campus’s impact on the environment.

By ensuring the campus is sustainable, the SCP helps reduce costs and improve campus life for all students, faculty, and staff of the Auraria Campus constituent institutions: Community College of Denver, Metropolitan State University of Denver, and University of Colorado Denver.

In 2011, students from all three institutions approved a referendum to collect a fee of $5 per student per semester for spring 2012 to 2016 with the purpose of supporting SCP funding, operations, and staffing. Every year, the SCP sets forth goals and allocates money across seven program categories:

- Energy Efficiency
- Renewable Energy
- Alternative Transportation
- Water Conservation
- Recycling and Waste Diversion
- Food and Gardens
- Education and Outreach

The 2013-2014 SCP program fundamentally influenced campus operations, building, infrastructure, and student engagement. With over $580,000 in approved projects, the SCP continues to make a positive impact on the Auraria Campus.

To view a real-time, interactive online dashboard showing campus energy usage and green features, visit frisco.ahec.edu.
**Intent:** Reduce campus consumption of fossil fuels associated with heating, cooling, and lighting of shared buildings

Over a third of all money collected by the SCP is reserved for energy efficiency projects on campus. These projects tend to be the most cost effective in reducing environmental impact and promoting long-term financial savings.
King Center Retrocommissioning

Based on 10 energy audits performed in the 2013-2014 academic year, the King Center was identified as a prime candidate for a retrocommissioning—a process best described as a building’s “energy usage tune-up.” With a $25,000 rebate from Xcel Energy, the SCP sponsored the remaining 50 percent of the total cost to identify and implement energy conservation opportunities. **Amount approved: $35,000**

**Projected Campus Savings:**
Nearly $54,000 per year

**Environmental Impact:**
Diversion of over 700 metric tons of CO2 from the atmosphere
Plaza Building Lighting Retrofit

This year, a major lighting retrofit project was completed for the Plaza Building, following SCP-funded energy audits performed during the previous academic year. **Amount approved: $135,000**

**Project Highlights**

- Addition of occupancy sensors to all classrooms and offices (excluding the Health Center)
- Replacement of existing lighting fixtures with energy-efficient alternatives
- Addition of LED lamps in auditoriums and elevators

**Projected Campus Savings:**
Over $27,000 per year

**Environmental Impact:**
Diversion of over 300 metric tons of CO2 from the atmosphere

LED Lighting Projects

The SCP funded many LED lighting projects this year due to the advancements in LED technology and the decrease in LED costs. **Amount approved: $75,550**

**Project Highlights**

- Decreased energy use of select campus parking lot lights by 75%
- Installation of new lamps and occupancy sensors in Tivoli conference rooms
- LED installations in campus pedestrian walkway lamps

**Projected Campus Savings:**
Roughly 170,000 kWh saved ($14,000 per year)

**Environmental Impact:**
Diversion of 117 metric tons of CO2 from the atmosphere
Auraria Library Computers

CU Denver applied for and received funding from the SCP to purchase and install energy-saving software on all of the Auraria Library’s computer workstations. The software not only conserves energy during the hours in which the Library is closed, it also conserves energy during the day when the machines are not in use.

Amount approved: $2,700

All environmental and financial savings are documented within the software and displayed on the Auraria Library’s Discovery Wall in real time.

Projected Campus Savings: $10,500 per year in energy costs

Environmental Impact: Diversion of over 84 metric tons of CO2 from the atmosphere

North Chiller Variable Frequency Drives (VFD)

This project will modernize, improve energy performance, and increase the lifespan of the central campus cooling system through the installation of VFDs. With a potential $45,000 rebate from Xcel, the anticipated project completion date is in academic year 2015.

Amount approved: $218,888

Projected Campus Savings: $30,000 per year in energy costs

Environmental Impact: Diversion of over 200 metric tons of CO2 from the atmosphere

Energy Efficiency
Intent: Generate on-site energy from clean, renewable energy sources

Renewable energy is the second largest SCP program area with 20 percent of all collected funds being allocated to these projects. Promoting this technology is instrumental in driving long-term change toward cleaner energy sources and serving as an applied educational opportunity for new clean technology.
Arts Building Solar PV Panel Project – Phase Two

In 2011, the SCP installed 45kW of solar PV panels on top of the Arts Building. That project included room for a Phase Two expansion, which was completed this year. The solar PV system now stands to generate roughly 110,000 kWh of “clean” electricity annually from the sun, which is equivalent to the following:

- Planting 1,945 tree seedlings, each grown for 10 years
- Removing 81 metric tons of CO2 from the atmosphere annually
- Diverting 81,472 pounds of coal from the power plant each year

Amount approved: $165,000

Arts Building Real-Time Energy Display

To promote the solar PV panel project, a new touch screen is being installed at the Arts Building. The display will show real-time Arts Building energy production and educate occupants about solar technology. The touch screen will also display the more expansive campus energy dashboard that was funded the prior year.

Amount approved: $12,000

To view the energy dashboard, visit frisco.ahec.edu.
**Intent:** Reduce the number of single-occupant vehicle trips to campus

The Auraria Campus is a commuter campus, with most of its student population living off-site. This program area promotes alternative transportation options, including public transit, carpool participation, car shares, and bike use to promote healthy living, decrease greenhouse gas emissions, and reduce campus traffic congestion.
Denver B-Cycle Station

In an effort to promote alternative means of transportation to and from the Auraria Campus, the SCP approved a proposal to fund a B-Cycle station at 9th and Curtis Streets. The station is solar-powered and hosts 10 bicycles that can be dropped off at any of the 53 other stations across Denver. **Amount approved: $52,000**
**Intent:** Reduce the consumption and associated environmental footprint of water usage

The SCP recognizes that the Auraria Campus is located in a semi-arid desert where water can be scarce in times of drought. This program category leverages a modest five percent of all SCP funding by partnering with other organizations to receive water conservation grants. Projects are funded for both interior and exterior water conservation projects.
Plumbing Fixture – Phase Two

In 2010, the SCP partnered with Denver Water to replace many campus urinals, toilets, and faucets with high-efficiency plumbing fixtures. These new fixtures save millions of gallons of water annually. However, several buildings were excluded from the original project.

Phase Two will update the most heavily used restrooms (i.e., on the first floor) in buildings, including the Administration Building, North Classroom, and King Center, in addition to several smaller facilities across campus.

This project was approved pending the successful receipt of grant funding from Denver Water for irrigation projects, which was confirmed for $60,000 in summer 2014. Both projects should be complete by the end of the fall 2014 semester. **Amount approved: $50,885**
**Recycling and Waste Diversion**

**Intent:** Reduce the amount of waste that the campus sends to the landfill

The SCP gave life to the Auraria Campus’s inaugural recycling program in 2009. With most of the infrastructure already in place, the five percent of funds currently allocated to this program category typically go toward improvements in signage and the purchase of additional receptacles. This program also promotes ongoing education and outreach across campus for recycling and composting services.
2013-2014 Recycling Improvements Proposal

This proposal funded a significant amount of improvements to the Auraria Campus recycling program, including new interior and exterior recycling receptacles, updated signage, and various waste diversion infrastructure improvements.

Amount approved: $38,000
**Intent:** Reduce the environmental footprint associated with traditional landscaping and agriculture

The SCP understands the importance of promoting sustainable food systems and gardens on campus. Five percent of all funding is allocated toward efforts in this program category, including projects in sustainable urban horticulture.
**Auraria Shade Garden**

The SCP partnered with the Urban Horticulture Club to fund a shade garden landscaping project for the Plaza Building. Volunteers removed dead and unattractive plants, replacing them with drought-tolerant plants that thrive in shaded areas. The project also included implementation of a high-efficiency irrigation system.

This is the sister project to the previous year’s “Water Wise” garden located at 10th and Curtis Streets, just outside of the Auraria Library. **Amount approved: $2,600**

**“Connect Auraria” Community Garden**

The SCP has been working diligently with members of the campus community and Denver Urban Gardens to create a proposal for the “Connect Auraria” community garden during the fall semester of 2014. The garden will provide fresh, seasonal produce in Auraria’s urban environment, and will serve as an instructional tool for botany, environmental science, and chemistry courses.
Education
and Outreach

**Intent:** Spread the word about the responsible and efficient use of natural resources

Five percent of all SCP funding is allocated to the hands-on engagement of students, faculty, and staff. The SCP operates education and outreach projects to connect campus community members with the SCP, promote awareness of campus sustainability issues and initiatives, and educate people about how they can make an impact.
2014 Earth Month Campaign

To support education and outreach efforts, funding was allocated to hire a part-time SCP intern. The 2014 spring semester was the first for this position and proved to be successful. The intern supported the SCP with organizing a robust Earth Month campaign that included many events, such as on-campus electronics recycling pick-up days and the annual Sustainability Fair.

Amount approved: $15,000

Urban Art Fund Grant

In a partnership with the City and County of Denver’s Urban Art Fund and the Auraria Higher Education Center (AHEC), the SCP successfully received grant funding to commission a mural at the 5th Street Hub. The mural is sustainability-themed and serves as a billboard for the tri-institutional sustainability programs located in the building. Amount approved: $1,250

MSU Denver Industrial Engineering Three-Bin Waste System

The SCP funded a class project to design and fabricate a custom three-bin waste, recycling, and compost system for campus events. Not only did this project directly engage students in an academic setting, it also produced a tangible waste diversion system that will be utilized year-round for campus events. Amount approved: $6,000

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Amount approved: $15,000
An Overview of the Sustainable Campus Program

The SCP receives oversight from the Sustainability Officer for the Auraria Campus. Each year the SCP chair, a representative from the Student Advisory Committee to the Board (SACAB), appoints two students from each institution to serve as voting members of the SCP.

In addition to these positions, all meetings are open to the public.

Front Row – Left to right: Megan Frewaldt, CU Denver ex officio; Athena Damianos, CU Denver student representative; Kyra deGruy, SCP Chairperson; Hannah Goulding, MSU Denver student representative; Kathryn Mahoney, CCD ex officio

Back Row – Left to right: B.J. Laymon, MSU Denver ex officio; Andrew Lundquist, CU Denver student representative; Loki Jones, Sustainability Outreach Intern; Joseph Sawaged, CCD student representative; Jerry Mason, AHEC SCP Advisor; Clayton Bryant, MSU Denver student representative; Jon Bortles, former SCP Director
Glossary of Terms

**Terms**

- **CO2** – Carbon dioxide is a greenhouse gas that traps heat inside the Earth’s atmosphere.
- **Energy audits** – An engineering analysis of buildings that identifies energy-saving projects.
- **EPA** – Environmental Protection Agency.
- **High-efficiency** – A task, such as lighting or cooling, that uses less energy than a traditional system.
- **KWh** – Kilowatt-hour is 1,000 watts of electricity being used in an hour of time.
- **LED** – Light emitting diode, a highly efficient form of lighting.
- **MTCO2e** – Metric tons of carbon dioxide equivalent.
- **Occupancy sensor** – A sensor that turns off lights when an area is vacant.
- **Retrofit** – Alteration of existing building equipment to conserve energy.
- **Retrocommissioning** – An in-depth engineering analysis of building systems with the intent of saving energy through optimizing performance.
- **Solar PV panel** – A solar photovoltaic (PV) panel converts sunrays into electrical current.
- **VFD** – A variable frequency drive allows motors to be throttled up and down based on demand, which saves energy compared to standard on/off operation.
## CO2 Equivalencies

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<th>Metric tons</th>
<th>Annual greenhouse gas emissions from</th>
<th>Annual Co2 emissions from</th>
<th>Annual amount of carbon removed from the atmosphere by</th>
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<td>200</td>
<td>42.1 passenger vehicles</td>
<td>2.6 tanker trucks’ worth of gasoline</td>
<td>164 acres of U.S. forests</td>
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<tr>
<td>300</td>
<td>63.2 passenger vehicles</td>
<td>4 tanker trucks’ worth of gasoline</td>
<td>246 acres of U.S. forests</td>
</tr>
<tr>
<td>700</td>
<td>147 passenger vehicles</td>
<td>9.3 tanker trucks’ worth of gasoline</td>
<td>574 acres of U.S. forests</td>
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For more examples, visit [www.epa.gov/cleanenergy/energy-resources/calculator.html](http://www.epa.gov/cleanenergy/energy-resources/calculator.html).