



Duke University
Durham, North Carolina
DukeEngage Carbon Offsets Pilot Project at Duke University

SCHOOL

Duke University; Private 4-year institution; 13,088 students (6,244 undergraduates and 6,844 graduate and professional students); Durham, North Carolina

ABSTRACT

In May 2010, DukeEngage collaborated with the Duke Carbon Offsets Initiative and Sustainable Duke to offer the students, faculty and staff of DukeEngage the opportunity to go “carbon neutral” with their travel. The carbon offsets pilot program provided DukeEngage participants with an immediate and tangible means to minimize their carbon footprint through the purchase of a share of a North Carolina-based project for reducing greenhouse gas emissions. Twenty-three DukeEngage participants offset their travel; raising over \$650 to reduce 66.69 tons of carbon dioxide equivalent (CO₂e) emissions on a North Carolina advanced swine waste management offset project.

GOALS AND OUTCOMES

Goals

The project set out to achieve three main goals, including:

1. Provide immediate and tangible means to minimize the carbon footprint of DukeEngage participants by supporting North Carolina-based projects to reduce greenhouse gas emissions and other pollutants;
2. Provide knowledge and education to Duke University students, faculty and staff on Duke University’s climate neutrality commitment and the need to address climate change;
3. Pilot a program for Duke University students, faculty and staff to purchase carbon offsets from projects initiated by the University’s newly established Duke Carbon Offsets Initiative with the aim of scaling up the program to other University departments.

In the next 2 to 3 years, we will seek to continue to increase awareness about the University’s climate neutrality commitment and to scale up the program of offering carbon offsets to other departments within the University.

Accomplishments and Outcomes

The project has achieved the three main goals of the program as follows:

1. ***Provided immediate and tangible means to reduce DukeEngage participants’ carbon footprint:*** To date, 23 of the 341 DukeEngage participants have chosen to offset the greenhouse gases emitted from their air and car travel to their DukeEngage service sites. Of the 23 pilot project participants, 20 were Duke students and 3 were Duke staff; 15 participants offset 100 percent of their greenhouse gas (GHG) emissions, while 8 offset some portion of the greenhouse gases owing to their travel.

The pilot project will support the reduction of approximately 67 tons of CO₂e, which will occur through the installation of an innovative swine waste management system on a North Carolina swine farm or farms. The offsets were offered at a price of \$10/ton. Sales totaled over \$650.00; the average

price paid to offset GHG emissions from travel by participants was \$29.69 and the mean was \$25.67. The offsets result from replacing traditional lagoon-and-sprayfield waste management systems with innovative waste management systems that capture or avoid methane emissions (a GHG 21 times more potent than CO₂). These systems are supported as a source of offsets because they also stop discharges of waste into surface and groundwaters, substantially eliminate emissions of ammonia, heavy metals, nutrients, and pathogens, and significantly lessen odors from participating swine operations.

2. ***Increased knowledge and educated Duke University students, faculty and staff about Duke's climate neutrality commitment and the need to address climate change:*** In order to increase awareness around the idea of reducing the environmental footprint of DukeEngage programs, Sustainable Duke hosted two informational sessions at the May 2010 DukeEngage Academy. The sessions focused on “going green” while participating in DukeEngage, i.e., reducing your environmental footprint on location and getting engaged in environmental issues at the site. These sessions also highlighted and explained the opportunity for participants to offset the emissions created by their travel to and from their site location. Sale and promotion of offsets during the Academy also increased opportunities to educate students, faculty and staff about the importance of their support of the pilot project.
3. ***Facilitated the expansion of offsets offerings to other Duke University departments:*** The Duke Carbon Offsets Initiative applied the emissions reduction methodology developed for the DukeEngage pilot project to assist the Fisheries Leadership & Sustainability Forum (the “Fisheries Forum”) in meeting its internal and immediate climate neutrality goals. The Fisheries Forum – a partnership between four academic and policy institutions that provides support to fishery managers – developed a Carbon Offset Policy that outlined the motivation and methodology for neutralizing all travel activity to educational workshops and biannual forums that is reimbursed through Duke University. The Duke Carbon Offsets Initiative has not only helped with providing the emissions reductions methodology, but it has also committed to providing high integrity carbon offsets from advanced swine waste management systems in North Carolina. As a result of the DukeEngage pilot, the Initiative also has been asked to work with Duke University's Nicholas Institute for Environmental Policy Solutions to calculate its carbon footprint and supply enough offsets to neutralize the organization's emissions.

Challenges and Responses

Some challenges and obstacles were encountered during the DukeEngage Carbon Offset Pilot Project. The immediate and long-term responses are explained in detail below.

1. ***Lack of Familiarity with the Concept of Offsets:*** It came as a surprise that much of the student population was not familiar with the concept of a carbon offset, nor the “carbon market.” During the DukeEngage Academy, several students approached Duke Carbon Offsets Initiative staff to ask about carbon offsets and Duke University's carbon offset projects. It was evident that students were unfamiliar with the concept of carbon offsets and that they had not read the material on the pilot project that was distributed prior to the DukeEngage Academy.

In the future, it will be important to set aside time during the DukeEngage Academy for a staff member to speak to all of the participants to explain what a carbon offset is, why offsets are important, why it is important that they take responsibility for their emissions, the specifics of the project that their payment will support, and the logistics of purchasing an offset either that day or after. Offsets Initiative staff are working with DukeEngage staff to offer further opportunities to encourage participation beyond the Academy event.

2. **Price of the Offsets:** The price to offset greenhouse gas emissions from air or car travel was calculated by applying an emissions factor and radiative forcing index to the total miles traveled. Therefore, price was correlated with miles traveled (i.e., the cost to neutralize travel to Seattle, Washington, cost approximately \$28, to Antigua, Guatemala, it cost approximately \$42, and to Beijing, China, it cost approximately \$120). These costs varied by departure location as well as by the route of the flight. We found that many participants (41%) were willing to spend between \$20 to \$30 to offset a portion or all of their travel. The most a participant paid was \$62.38 to offset 100 percent of his trip to Urubamba, Peru.

We think it is important to show the correlation between impact of travel on climate change and cost to neutralize one's carbon footprint. However, participation rates may increase if we lower the cost per offset, make the price uniform across the program or by site destination, or if we can better educate DukeEngage students, faculty and staff about the significance of their purchase, perhaps in partnership with site leaders.

3. **The Group Mentality:** One of the successful aspects of this pilot project that we would like to expand upon in the future is friendly competition between site groups. We found that students and their staff leaders were very excited about the idea of their location competing against other locations to determine who could offset the largest percentage of their transportation emissions. Combined with better understanding of what an offset is, we feel there could be a significant competitive impetus to encourage students to take part in the program along with their peers.

Campus Climate Action: Your School's Carbon Footprint

This project represents an outgrowth of Duke University's commitment to reducing greenhouse gas (GHG) emissions and internal demand for offsets. Over the past several years, the University has worked to develop a Climate Action Plan (CAP) that sets it on a path to achieve climate neutrality by 2024, in keeping with its pledge under the American College and University Presidents' Climate Commitment. The CAP includes aggressive measures to reduce on-campus emissions. However, even with these measures, the University will not be able to achieve climate neutrality without looking outside the University. Thus, in June 2009, the University established the Duke Carbon Offsets Initiative to facilitate and catalyze high quality local and regional carbon offset projects to meet that portion of Duke's GHG reductions that it cannot achieve on-campus.

At the same time as the larger, long-term effort got underway, a variety of groups from within the University community had been contemplating how they could immediately reduce their GHG emissions, including through the purchase of offsets. This project provided a model for internal University groups to directly reduce emission of greenhouse gases by purchasing carbon offsets from local, high integrity projects, the purchase of which was facilitated by the Offsets Initiative.

Commentary and Reflection

The pilot provided a great deal of information about the level of interest in and knowledge about carbon offsets within the university community, and particularly within the student community, and with that information opportunities for improvement around offering offsets to students. Notably, faculty and staff were better versed on offsets and climate issues. Specific recommendations to other campuses include the following:

- **Participant Education:** The concept of a carbon offset must be defined for the students and the project must be explained clearly and prominently both during the main event and pre-event activities.

Site leaders should be encouraged to take an active role in the promotion of offsetting and education of the students on the project.

- **Competitive Format:** Students responded well to the competition between groups for the highest percentage of participation. Project leaders should encourage friendly competition.
- **Averaged Costs:** Students were unwilling to pay high prices to offset their travel. In order to minimize this, an average cost for each trip could be determined using the average of all emissions for the site or a flat carbon offset price could be charged to all participants in the DukeEngage program.
- **Start Early:** Starting early in the program year (e.g., when students are accepted into the DukeEngage program or as part of the DukeEngage application process) allows ample time to education students, staff and faculty about the project.
- **Incentives:** In many successful campus projects, students come away with a physical representation of their action. In the case of purchasing offsets, there is no immediate physical demonstration of the purchase. Therefore, students seemed to lack an incentive to buy offsets. Suggestions might include a t-shirt, immediately printable certificate, or some type of tangible return on their investment or perquisite.

ENGAGEMENT AND SUPPORT

Leaders and Supporters

DukeEngage initiated the pilot project in early 2010. Elaine Madison, Associate Director for Programs and Director, and Sarah Trent, Assistant Director for Programs, were particularly central in assisting with the strategic development of the pilot project from within DukeEngage.

Tatjana Vujic, Director of the Initiative, and Heather Hosterman, Research Analyst for the Initiative, developed the model for the pilot project, provided the methodology for calculating greenhouse gas reductions from transportation, and publicized the project. The Initiative staff also developed web content to facilitate the offsets purchase transaction, and worked with the Duke FLEX card program to allow for the purchase of offsets through the University's FLEX card system. Initiative staff are in the process of purchasing carbon offsets from a North Carolina advanced swine waste management system to deliver to DukeEngage participants.

Tavey Capps, Director of Sustainable Duke, and Casey Roe, Outreach Coordinator of Sustainable Duke, assisted with strategic development of the pilot project and led efforts to "green" the May 2010 DukeEngage Academy. Casey Roe also organized the two informational sessions focused on "going green" while participating in DukeEngage at the Academy. Sustainable Duke staff were instrumental in connecting Initiative staff with key personnel at the University, such as the Duke Card office, and with uploading web content.

Funding and Resources

The major cost of the project involves the purchase of offsets to create a pool of offsets for internal purchase. The Office of the Executive Vice President has committed \$10,000 for such a purchase, which will support the purchase of approximately 1,000 offsets from a project or projects currently underway in North Carolina. Other costs include a charge of approximately 3 percent on every purchase of offsets made through the FLEX card site. Staff time is not included in the costs of the project.

Education and Community Outreach

The project was publicized through a variety of media. On Monday, April 19, 2010, DukeToday, Duke University's daily online newspaper, published a story about the project, entitled *Carbon Offsets Project to Reduce DukeEngage Footprint*. A website was designed specifically to publicize and explain the

project, and included an introductory page about the pilot, a page describing the projects that payments would support, a page describing the emissions calculations and standards, and the secured-access Duke FLEX card page where DukeEngage participants could purchase offsets. Please see http://www.duke.edu/web/ESC/carbon_offsets/DukeEngage.html. Notably, travel miles were calculated for each student so that each student would know his or her emissions impact and the cost to offset those emissions at intervals of 25, 50, 75, and 100 percent.

In addition, DukeEngage publicized and promoted the opportunity to purchase offsets through mailings and emails that went out to DukeEngage participants towards the end of April 2010 to provide more personalized information about the carbon offset pilot project. The Offsets Initiative and DukeEngage staff also recruited site leaders to encourage participation by site destination. Promotion of the pilot project culminated at the annual DukeEngage Academy held on May 10th and May 11th, 2010, where staff members from the Duke Carbon Offsets Initiative and Sustainable Duke spent both days with a very visible table location at all meal times and breaks and interacted with students and site leaders throughout the day to encourage them to purchase offsets.

National Wildlife Federation's Campus Ecology Program

The National Wildlife Federation's Campus Ecology Program played a role in our success by providing information and resources. The blog and newsletter allowed us to track climate action planning and carbon offsetting projects at other universities. By searching through the case studies on the Campus Ecology website, we were able to determine that this was a fairly unique project that our school could pilot and use as a model for other institutions. Ultimately, we hope to use the forum of the NWF Campus Ecology page as a way to share our experience and lessons learned with other schools, who may be interested in offering high-quality carbon offsets internally to departments and in offsetting student travel from studying abroad, thereby encouraging these types of projects at other institutions.

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MORE ABOUT YOUR SCHOOL

Campus Sustainability History

Duke University has countless sustainability efforts taking place in the areas of energy, buildings, transportation, land use, dining, purchasing, waste and water. Our overarching commitment is to achieve carbon neutrality by 2024. Our sustainability office is made up of four staff, including two who work for the Duke Carbon Offsets Initiative, as well as 15-20 student employees each year. Additionally, there are

five other staff members who focus on sustainability efforts, but are housed within other departments across campus (transportation, energy, dining, recycling, and purchasing). Please visit the Sustainable Duke website for detailed explanations of many of our efforts at <http://sustainability.duke.edu>.

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