



Sustainability Report 2012-2013

Colby College
Office of Sustainability

October 2013

A. Colby College Reaches Carbon Neutrality

In widely reported news, Colby College worked tirelessly to reach campus carbon neutrality. Colby has completed a number of large-scale projects in order to reduce its emissions, the largest of which is the completion of the biomass cogeneration plant in 2012. With one year of continuous operation from 2012-2013, Colby's emissions were reduced by 24 percent, or 2,662 metric tons of carbon dioxide equivalent (MTCDE). In April 2013, the campus reached carbon neutrality and as a result, Colby became the largest college in the country to reach carbon neutrality, and the first college in the NESCAC. The press release can be found [here](#).

Colby uses the greenhouse gas calculator created by Clean-Air Cool Planet to calculate its annual emissions. By utilizing this calculator, the College accounts for a number of scope 3 emissions including commuting, College funded travel, solid waste and waste water. A large portion, roughly 50 percent, of the purchase of carbon offsets to reach carbon neutrality was used to account for the scope 3 emissions. More information can be found in the carbon offset portion of this report.

Moving forward, the College is prioritizing energy reduction measures to further decrease its greenhouse gas and energy consumption impact. As the academic year progresses, these goals and strategies will be defined in order to further Colby's environmental progress.

B. Sustainability Coordinator Hire

In May 2013, Colby College hired its first Sustainability Coordinator and created the Office of Sustainability. Its coordinator, Kevin Bright comes from Harvard University where he worked in their Office for Sustainability and Green Building Services department for five years. At the Harvard office, he focused on a number of tasks including: (1) LEED certifications for new construction, commercial interiors and existing buildings; (2) energy audits for campus buildings; (3) sustainable design consulting; (4) commissioning for renovation projects; and (5) assisting in the development and implementation of the University's sustainability goals which include their greenhouse reduction gas goal and green building standards. Kevin also volunteers with the USGBC's Energy and Atmosphere Technical Advisory Group, a team of building experts who provide technical expertise to the USGBC for credit interpretation requests, and helps form the new rating system, LEED version 4, which will be released in October.

C. STARS Assessment Results

In April 2013, Colby College submitted its first Sustainability Tracking, Assessment and Rating System (STARS) certification with the Association for the Advancement of Sustainability in Higher Education (AASHE). The College earned a Silver certification through the self-reporting framework using version 1.1 of the rating system and joins 271 other Universities and Colleges across the country who have earned a rating. Colby is joined by NESCAC peers Bowdoin, Williams and Tufts with a Silver certification level. Middlebury College has a Gold rating.

The College is currently evaluating the latest version of the STARS rating system (version 2) and is planning to submit an updated application in 2014.

D. ES Program Updates

Environmental Studies faculty and students engaged in a variety of sustainability initiatives during the past year. Professors Denise Bruesewitz, Philip Nyhus, and Russ Cole continued their NSF-funded research collaboration with other Colby faculty investigating the impacts of development in the Belgrade Lakes watershed. Professor Bruesewitz worked with Professor Whitney King, Department of Chemistry, to deploy *Goldie*, the Great Pond monitoring buoy. The buoy is designed to help us understand changes in Great Pond in response to human activities. *Goldie* will also help give Colby representation in national and international projects emphasizing sustainable use of freshwater resources through the Global Lakes Ecological Observatory Network (GLEON).

Professor Loren McClenachan and her students continued to quantify long-term changes in marine populations around the world and evaluate strategies for their sustainable management. Their innovative use of restaurant menus in assessing trends in reef fish populations in Hawaii and their reconstruction of past fish catches in Florida and Hawaii to study the effectiveness of management systems have gained national attention.

Professor Travis Reynolds and his capstone students continued to work with environmental organizations and universities in East Africa to investigate environmental challenges. In January 2013 with support from the Environmental Studies Program and the Goldfarb Center for Public Affairs and Civic Engagement, Professor Reynolds and students Lydia Ball '13, Kate Hamre '13, and Sally Holmes '13 conducted research on "church forests" in Ethiopia and helped implement a workshop where more than 150 Ethiopian Orthodox priests came together to discuss the ecological benefits of forests surrounding churches and strategies for community-based conservation.

The Environmental Studies Program also hosted two conferences in spring 2013 with regional and national sustainability implications: *Students as Catalysts for Large Landscape Conservation* on March 1 and *Changing Oceans and the Future of the Gulf of Maine: Solutions, Successes, and Sustainability* on March 8. These conferences engaged Colby students and faculty with regional and national environmental leaders on important environmental challenges.

E. EnviroCo Update

This past year marked a number of important accomplishments for the student Environmental Coalition (EnviroCo) group, one of Colby's largest environmental clubs. After reorganizing their group structure, they set to work to encourage environmental discussion among Colby's students, implement projects to reduce resource consumption and beautify the campus, and engage in community environmentalism efforts. In terms of campus events, the group had a strong presence during October, a widely recognized Sustainability Month across campuses and countries. EnviroCo students organized an art show, assisted Dining Services with Food Day, and scheduled a trash pick-up event.

During the year, EnviroCo initiated projects to help reduce campus resource consumption. First, they assisted the Physical Plant Department (PPD) in installing engraved light switches across campus which reminded occupants to shut the lights off when they left. In another collaboration with PPD, a student composting bin program was created in order to allow students to compost in their residence halls.

EnviroCo students also participated in a Sustain Mid-Maine sustainability conference, and attended a conference sponsored by 350.org focusing on climate change and divestment. This upcoming year, the group is making plans to focus on waste reduction, food scarcity, and campus pesticide use.

F. Carbon Offset Details

In April 2013, Colby College reached carbon neutrality two years ahead of schedule. After implementing a number of efficiency and carbon offset projects, most notably the completion of the biomass heating plant in 2011, the College's emissions totaled 8,484 MTCDE. More information regarding the breakdown of Colby's emissions can be found in section H. The College solicited proposals to a variety of vendors in order to identify offset projects that were local to the United States, and ideally local to New England or Maine, attained third party certification, and priced competitively.

Based on the criteria outlined above, Colby purchased carbon offsets from the following three locations:

1. Presque Isle, Maine – Municipal Landfill Methane Reduction project
2. Windsor, Connecticut – Windsor Bloomfield Landfill Methane Reduction
3. Elsie, Michigan – Green Meadow Farms Biomethane Capture and Use

The College will continue to identify, prioritize, and invest in carbon offsets in order to maintain its carbon neutral distinction. At the same time, the College will continue to implement energy conservation projects, enhance recycling and composting efforts, and explore other greenhouse gas reduction projects on campus.

G. Campus Greenhouse Gas Progress

As of April 2013, Colby College is carbon neutral. The graph below shows Colby's greenhouse gas (GHG) reduction progress since 2002. Major GHG reductions have resulted from the purchase of renewable energy credits (RECs) in 2002, the opening of the biomass plant in 2011, and the purchase of carbon offsets in 2013. There were also several energy conservation projects along the way which contributed to further reductions. More information on Colby's energy reductions is included in the next section.

In 2012, Colby's emissions were at 11,146 MTCDE. In 2013, this total was reduced to 8,484 MTCDE, a 24 percent reduction. This reduction is the result of switching from oil to wood chips at the biomass plant and campus energy reductions. Further GHG reductions are expected in 2014, as the College continues to implement more energy conservation measures, update facilities, and improve the operating efficiency of the biomass plant.

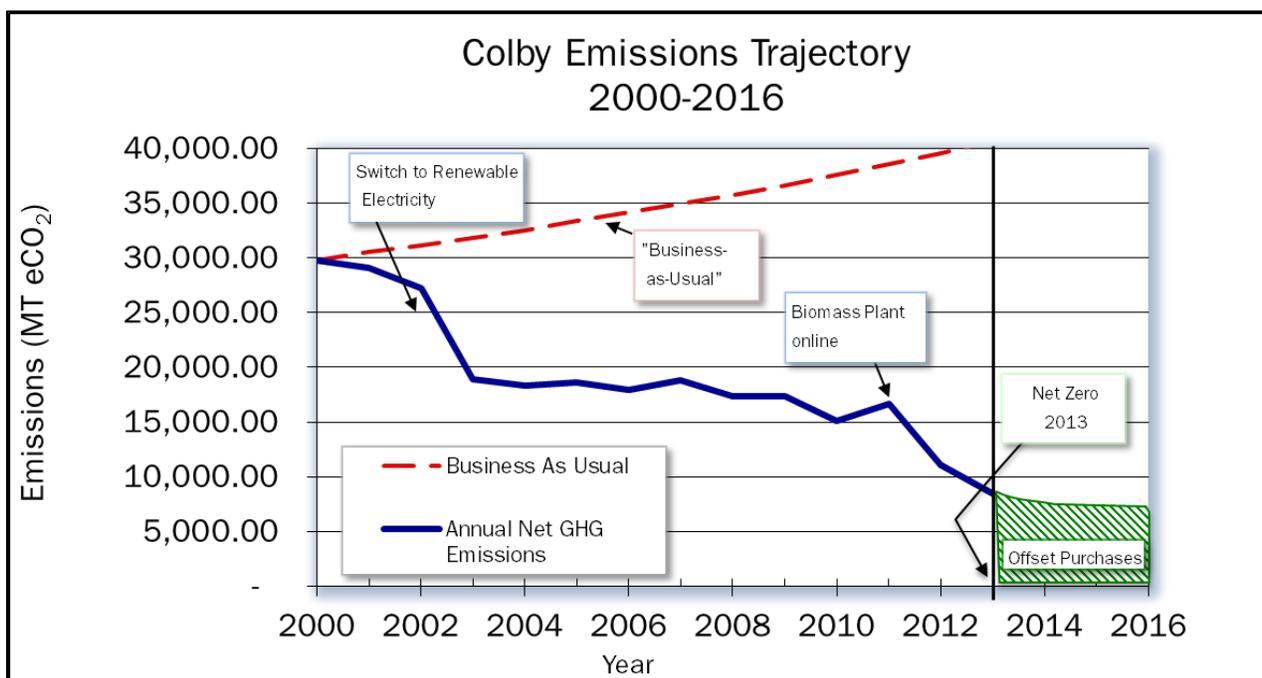


Figure 1: Colby College GHG Emissions progress since 2002

The remaining 8,484 MTCDE from 2013 were balanced through the purchase of carbon offsets as designated by the green hatching in Figure 1. In doing so, Colby is the fourth college in the United States and the first member of the NESCAC to reach carbon neutrality. Section F of this report describes the three carbon offset projects in greater detail.

H. 2013 Greenhouse Gas Emissions Breakdown

Figure 2 depicts the proportion of remaining GHG emissions from the 2012-2013 inventory. Heating fuels comprise the largest amount of emissions, at approximately 52 percent. College related travel comprises 27 percent of the remaining emissions. Air travel is the largest contributor to this piece, and equals close to 2,200 MTCDE of the 8,484 MTCDE total. Finally, commuting is the third largest piece of the College's emissions and comprises 17 percent of the total. A commuter survey in the fall of 2013 will help identify and prioritize commuter greenhouse gas reduction projects moving forward.

Moving forward, the College will seek to further reduce emissions by optimizing the performance of the steam plant, pushing for efficiency measures in new and existing facilities, and exploring methods to reduce scope 3 emissions.

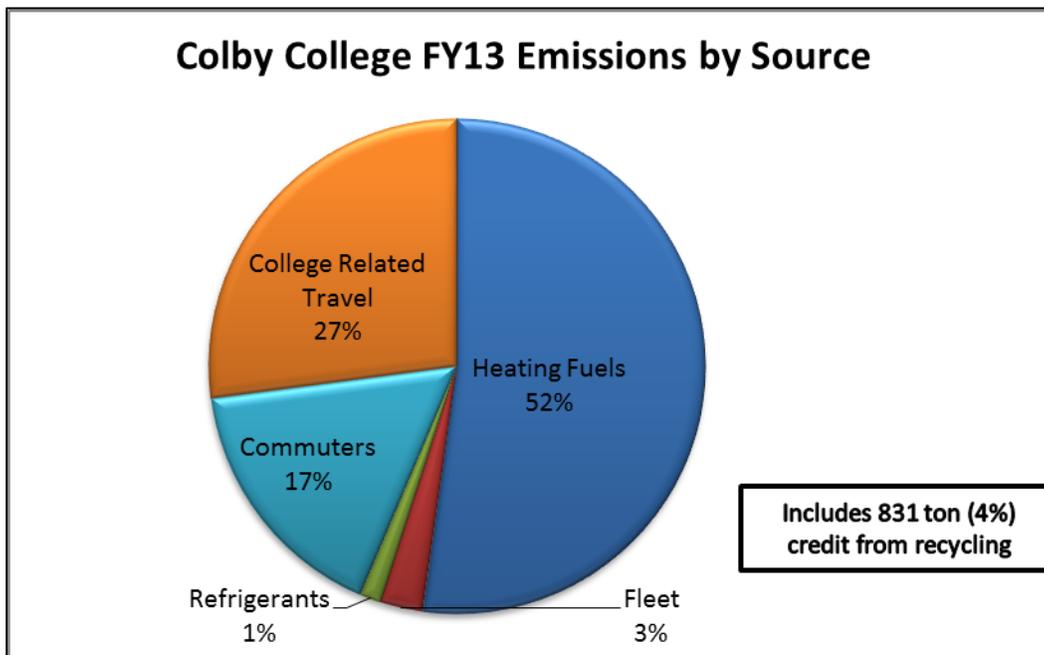


Figure 2: Colby College GHG emissions breakdown for FY2013

I. 2013 Energy Consumption Breakdown

Since 2002, Colby College has realized a substantial reduction in its energy consumption. Figure 3 shows the energy use per square foot from 2002 through 2013. The energy data have been corrected for heating degree days in order to better compare data from one year to the next and more accurately display trends.

Since 2002, the College has realized a 12 percent reduction in its energy consumption per square foot. In 2003-04, the College consumed less energy per square foot than at any other time in the past 12 years. From that point, consumption increased for a number of years as new buildings came online, only to slowly decrease between 2009 through 2012 and settle at its current level.

Despite campus growth since 2002, the College is also consuming less amounts of energy in 2013, from a gross energy consumption standpoint (total Btu's). A combination of conservation efforts, updating existing facilities, and installing efficient equipment have helped realize this accomplishment. Moving forward, the College will

continue to upgrade existing facilities with energy efficiency in mind in order to restrain campus energy consumption.

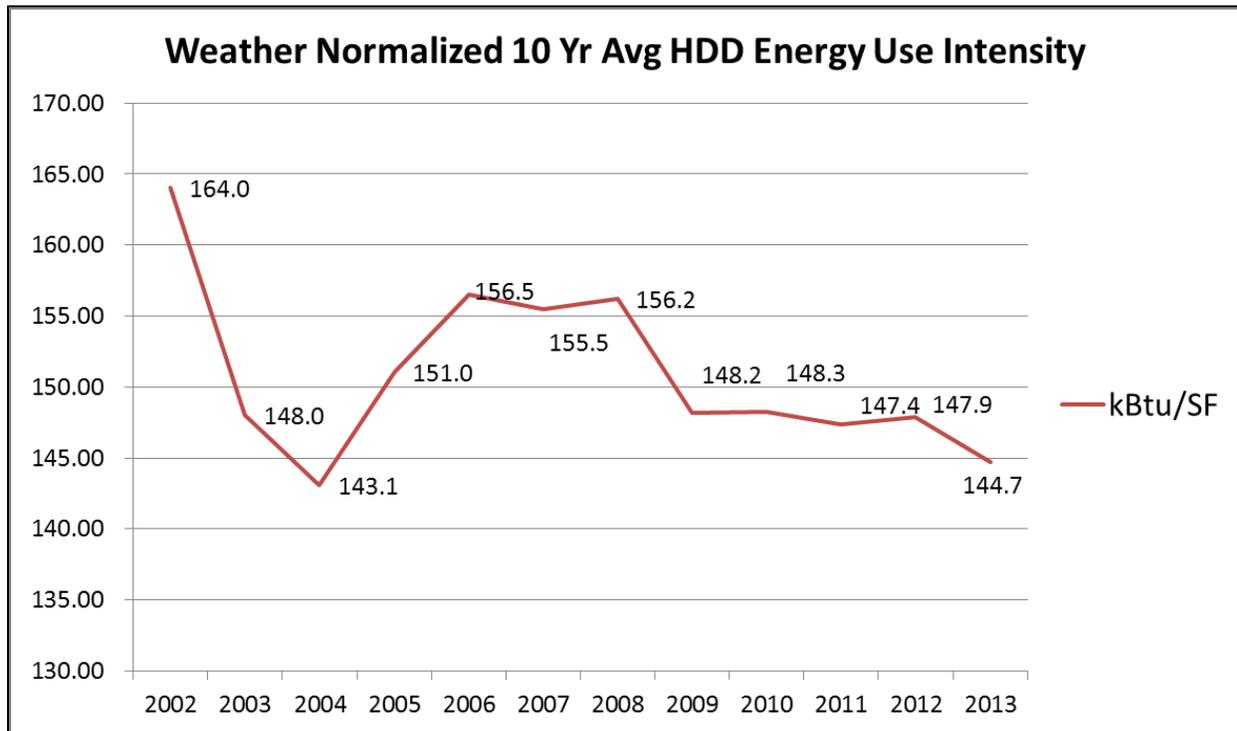


Figure 3: Weather-normalized campus energy consumption per square foot since 2002

J. Focus for Next Year

Over the past summer, the Sustainability Office has met with institutional stakeholders in order to create a plan for the year. On the building side, the College is planning to review its Green Building Standards and energy management plans in order to better capture best practices and set performance and energy reduction goals for new and existing buildings. Moving forward, these goals will help the College focus on the implementation of specific design and energy reduction strategies. The Office of Sustainability is also working to create occupant engagement programs for staff and students. These programs will highlight the initiatives that staff and students can implement in their office or dorm room, and provide peer-to-peer learning opportunities. The sum of these little actions can help create a noticeable reduction in resource use.

Finally, the Sustainability Office, with the assistance of the Communications Department, is working to reorganize the Green Colby website in order to highlight campus sustainability ventures and provide greater transparency to Colby's environmental efforts. The reorganization effort will last through 2014.