

Environmental Advisory Group (EAG) 2009 Update

The Environmental Advisory Group (EAG) was formed in 2000 to advise the president and college community on issues related to the environmental stewardship of the campus and region. The EAG met regularly through the 2008-09 academic year and, for the first time, worked over the summer to continue several important initiatives. We hope you find this report informative.

2008-09 Membership

Administrators - Douglas Terp, Pat Murphy, Dale DeBlois, Bruce McDougal

Faculty - Russ Cole, Jan Holly, Philip Nyhus, Len Reich

Students - Steve Erario '10, Zach Ezor '10, Emma Gildesgame '10, Brandon Pollack '10, Sarah Sorenson '11, Patrick Roche '09

Major Projects in 2008-09

American College and University President's Climate Commitment

- College and University initiative to exercise leadership by modeling ways to integrate sustainability into campus operations, reduce global warming emissions, and provide the campus community with the knowledge and skills to achieve climate neutrality.
- EAG has been refining Colby's detailed Greenhouse Gas Emissions Inventory and has identified the major components of a comprehensive action plan to reduce Colby's emissions profile that will be reviewed this year. The EAG will serve as the institutional advisory panel to assist in the development, coordination, and implementation of Colby's Emissions Reduction Action Plan.
- Colby set the goal of reducing Greenhouse Gas (GHG) emissions per square foot by 9% by 2010 as part of Maine Governor's Carbon Challenge. Colby achieved an impressive 24% reduction in emissions per square foot by the end of 2007-08 rather than 2010.

Energy Savings

- EAG collaborated with the Physical Plant Department (PPD) to identify and recommend changes to building heating practices during breaks, overnight, and weekend hours to reduce fuel oil consumption. These changes reduced GHG emissions – through lower fuel oil use – and reduced costs through decreases in both electricity and fuel oil use.

Integrated Pest Management Program (IPM)

- PPD has designed and EAG has reviewed what we hope will become a model Integrated Pest Management Program for the campus. This innovative program emphasizes:
 - Regular inspections of plant resources for early detection of pests and maladies,
 - Targeted preventative, non-chemical measures (e.g., adjusting mowing heights, changing irrigation patterns, pruning, fertilization) are used first,
 - When chemical use is required, strategic spot applications attempt to minimize the quantity of pesticide used. Pesticides to be used are selected to minimize toxicity.
 - Measurable guidelines are used in selecting chemical products
 - Increased communication to community through electronic announcements and increased signage
 - Record-keeping enhancements, including identification of problems encountered, non-chemical options implemented, and chemicals used, to track experience and help minimize pesticide use.
 - For additional information about Colby's IPM, see <http://www.colby.edu/ppd>.

Campus Communications

- The Office of Communications and others have worked to enhance the information content of the Green Colby website (see www.colby.edu/green/)
- EAG will be hosting open meetings on **Thursday, October 22** – beginning at 4 pm and 7 pm - for the Colby community to learn more about sustainability efforts, ask questions, and offer ideas for improvement. We hope that you will be able to attend one of these sessions.

Representative Environmental and Sustainability Initiatives

Physical Plant

- Colby has purchased 100% renewable electricity since Fall 2003. Colby was recognized by the Environment Protection Agency as NESAC “Green Power Champion” (leader in NESAC) for 2007-08 and 2008-09.
- Campus master plan enhancements included adding fourth storm water retention pond to control water flow and to help naturally purify the quality of water leaving campus. Seven new planting beds with native or naturalized species have been installed.
- Six project managers has been certified as LEED Accredited professionals and five construction projects were LEED certified: Pierce (Gold) 2009, Perkins-Wilson (Gold) 2009, Cotter/Pulver/Bookstore (Silver) 2008, Diamond (Certified) 2007, and Schair-Swenson-Watson (Silver) 2005.
- One hybrid and one electric vehicles; reduced gasoline use with new, more efficient vehicles.
- Regular investment in numerous energy efficiency projects (mechanical, electrical, lighting) and participation in the Efficiency Maine Rebate program.

Environmental Studies Program and Student Initiatives

- The ES program initiated a green orientation program to educate incoming students about sustainability issues and personal actions needed to reduce environmental impacts. The ES program and the Office of Campus Life have partnered to initiate an Eco-rep program for the resident halls to help increase student participation in sustainability efforts.
- Students initiated iBike program to offer free bike loans to students and staff. SGA partnered with Administrative Financial Services to introduce the ZipCar program, a low-cost car-sharing program.
- Organic garden relocated to an expanded site on Runnals Hill provided about 1,800 pounds of produce, valued at roughly \$4,500, for use in dining halls and area food kitchens. (<http://www.insidecolby.com/video/viewepisode.php?episode=27>)
- Student interns support Sustain Mid-Maine, a community-based organization, to raise awareness about climate change and sustainability issues in the local communities.

Dining Services

- Sustainable and local purchasing initiatives expanded, including special events (e.g., harvest dinners). 20% of total food purchases are from local suppliers.
- Fully implemented trayless dining in Fall 2008 resulting in estimated reductions of 18,000 pounds of food waste and 79,000 gallons of water, saving \$36,000.
- Composting 117 tons per year of pre- and post-consumer waste. Reducing water consumption, sewer volume, and utility costs by \$20,000 per year.
- Conversion to induction burners and just-in-time cooking reduced energy consumption and food waste. Use of bulk supplies to reduce packaging waste. Catering plates and bowls converted to 100% recycled content.

Recycle Everything Save Colby's Usable Excess (RESCUE)

- Collects items discarded from student rooms at the end of each year; donates clothes to local charities; and makes basic household items available to students for purchase at low cost in the fall. 2009-10 will be the eighth year for this successful program.
- Reduced landfill waste by 525 cubic yards in 2008 and saved \$6,500 in fees.
- Created video for training and education of students in reducing waste.

Green Graduation

- Graduation 2009 was second year featuring green enhancements to graduation weekend including:
- Serving local and organic foods at the Honorary Degree Dinner.
- Enhanced recycling and composting, and the use of biodegradable flatware.
- “Green Team” volunteers staff information tables to raise environmental awareness. “Green Team” members help guests with recycling and composting at meals.
- Created educational video (<http://www.insidecolby.com/article.php?articleid=152>)

GHG Emissions Inventory

Colby GHG emissions tracked annually since 2004 and compared to a 1990 baseline using a modified Cool Air, Clean Planet calculator. Calculations reflect actual experience where possible (e.g., electrical and fuel oil consumption) and estimates where hard data were not available (e.g., solid waste figures pre-2008, travel).

Maintenance of calculator by ES student researchers with faculty mentorship through 2007. Responsibilities assigned to Office of Institutional Research in 2008 with student research assistance. A review of model assumptions completed in 2008-09 identified the need to revise 1990 baseline calculations to correct assumptions related to the sources of electricity purchased by Colby. This change resulted in lower and more accurate 1990 baseline for GHG emissions associated with electricity use and a refinement of other assumptions.

Key findings include:

- Colby's emissions in 1990 totaled 17,154 Metric Tons of Carbon Dioxide Equivalent (MTCDEs); 15,929 MTCDEs of direct emissions and 1,225 MTCDEs associated with employee and student commuters.
- Colby's emissions peaked in 1999-2000 at 29,424 MTCDEs, largely due to:
 - Replacement of nuclear-powered electricity – with zero MTCDEs – with electricity from coal-fired plants in the standard-offer electricity mix offered in Maine.
 - An increase in the College's facilities of about 170,000 square feet, or by 15%, since 1990, resulting in higher electricity and fuel oil use.
- In 2007-08, Colby was responsible for about 16,208 MTCDEs (net) and commuters added 1,440 MTCDEs. Residual oil – used in the central heating plant – accounts for 69% of all greenhouse gas emissions.
- Compared to baseline 1990 levels, the 2007-08 figures represent a 2.9% increase in gross emissions, and a 22% decrease in emissions per square foot.
- Compared to peak levels reached in 1999-2000, the 2007-08 figures represent a 40% reduction in gross emissions and a 44% reduction in emissions per square foot.
- These reductions were possible due to the purchase of 100% renewable source electricity (since 2003), the use of the co-generation turbine at steam plant to produce about 10% of Colby's electricity, the increased efficiency of new and renovated buildings, including LEED buildings (Schair-Swenson-Watson, Diamond, Cotter, Pierce, Perkins-Wilson), and ongoing investments in numerous energy efficiency projects
- Efforts to reduce, reuse, and recycle (trayless dining, energy management, composting, RESCUE) also contributed to this reduction.
- Potential opportunities for further reduction of GHG emissions:
 - Biomass Project. Biomass is an organic material – such as wood chips – that can be used as fuel for the central heating plant. Preliminary review suggests the possibility to reduce oil consumption by 80% or more, resulting in dramatic reduction of GHG emissions. Planning slowed this year in light of financial pressures and dramatically lower oil prices. The College continues to explore the biomass technology and the feasibility of a project in the next few years.
 - Recycling and waste reduction initiatives.
 - Retail carbon offsets for college travel and other sources.

