ZILKHA CENTER
FOR ENVIRONMENTAL INITIATIVES
WILLIAMS COLLEGE

Jay Corey

Students ride to visit Cricket Creek Farm in Williamstown on a sunny May morning. Real Food Williams, a student group advocating sustainable food, organized the event.

Annual Update
June 2013

Inspiration for Action

We couldn't have predicted where the path we set out on would lead.

In January 2007 the Williams College Board of Trustees voted unanimously to adopt the greenhouse emissions goals proposed by the Climate Action Committee and to support the College's commitment to the principles of sustainability. Now, 5 ½ years later we are close to reaching our emissions goal—7 years early! While we are encouraged that we have made such progress in a relatively short time, we know that so much more needs to be done as atmospheric carbon dioxide levels reach 400 ppm.

> We are dangerously close to the possibility that we will not manage to keep global temperatures below a tolerable threshold.

In this report, we introduce you to a few people, we highlight a few of our endeavors, and give you a sense of what it means to build, learn and live in a sustainable campus. All across our campus individuals, offices and academic departments are deeply engaged in seeking better ways to serve the needs of our campus community and our global community.

We have made great strides in lessening our environmental impact through our waste reduction programs, green building initiatives, sustainable food programs, renewable energy and energy efficiency projects. We understand that we must not only think about the impact of our actions on campus but we must consider the upstream and downstream effects of our decisions.

Of course, our most important work is with students; supporting them in their quest to make a difference, teaching environmental leadership skills, and providing opportunities for them to explore human impact on the world (both positive and negative). When over 10% of our student body shows up to spend a Saturday weatherizing low income homes in the area, we all become a little more hopeful about the future.

We've learned important lessons in our journey. One that I keep coming back to: the more we learn, the more we understand that we need to learn more. As we make one stride forward on sustainability—installing solar panels, reducing a waste stream, buying a product with low VOCs—we see opportunities to question deeper. What is the full life cycle impact of a product? Why can't all of our energy come from renewable sources? How do we consider adaptation strategies? Do our investment dollars influence fossil fuel exploitation?

As our re-envisioned environmental center takes shape (see page nine), we look forward to our continued close partnership with the Center for Environmental Studies and to our shared environmental stewardship of the campus. Sarah Gardner, Jennifer French, and others over the years have developed a voice of environmental activism at Williams, and in so many ways have laid the groundwork for our current sustainability initiatives.

Stephanie Boyd
Director, Zilkha Center for Environmental Initiatives

Once Upon a Time[line]

2005

Henry Luce Foundation grant awarded to Williams College to support curriculum initiative for renewable energy and resource sustainability; 7.2 kW photovoltaic array installed on Morley Science Center

Town of Williamstown COOL Committeee develops plan to reduce greenhouse gas emissions

2006

Amy Johns joins Williams College as Luce Grant environmental analyst

Following student petition to reduce greenhouse gas emissions, Climate Action Committee formed

Thomas Friedman writes about Do It In the Dark, our residential energy competition, in *The New York Times*

Over 90 students join Thursday Night Grassroots, a student environmental group led by Morgan Goodwin '08

Fort Hoosac solar hot water system installed

Classrooms Extend to Kitchens

Students immersed themselves in cooking initiatives led by the Zilkha Center's Sustainable Food & Agriculture Program over the 2013 academic year. They developed new appreciation for the cultural and environmental importance of food. Faculty, too, found lessons in the kitchen that supported coursework. Foreign language classes and participants in the winter study course Elementary Cooking Techniques explored culture, agriculture, and the impact of their daily choices through the lens of the kicthen.

"Elementary Cooking Techniques made me realize the need to regain mindfulness about our eating habits—the need to consider not only the pleasure and energy we get from food, but also the labor, artistry, and natural resources required to put food on our plates," said Rebecca Lewis '16 reflecting on her January term. She joined nine students to emulsify, sauté, braise, and poach their way through three weeks of farm visits discovering the possibilities of seasonal regionally grown food. The course culminated with a splendid meal featuring winter delicacies like cream of red kuri squash soup and braised beef, all prepared with ingredients from local growers. The course armed these students with professional kitchen skills and fostered their understanding of farm-to-table cooking.

Foreign language faculty found immediate links between cooking and curriculum in the fall and spring. In partnership with the Center for Foreign Languages, Literatures, and Cultures, the Sustainable Food & Agriculture Program offered seven sessions that brought students on a culinary world tour using ingredients from close to home. Spanish language students prepared *empanadas* with locally raised beef, Russian students folded and boiled

(continues on page 5)

Annelle Curulla

"The French Regional Cheese Tasting and Dinner offered students a rare and invaluable linguistic immersion," said Assistant Professor Annelle Curulla. Wen Han '13 and Katherine McDowell '15 peel shallots for sauce chasseur.

Brent Wasser

"Elementary Cooking Techniques made me realize the need to regain mindfulness about our eating habits," said Rebecca Lewis '16, left, caught here peeling organic butternut squash from Mighty Food Farm.

2007

- Board of Trustees votes to reduce College greenhouse gas emissions to 10% below 1990 levels
- First semester of Renewable Energy and the Sustainable Campus, taught by David Dethier (Geosciences) and Hank Art (Biology)
- Williams College switches from residual oil to natural gas to cut heating plant emissions
- Interns: Katie White '11 studies Williams' waste and recycling practices; Ruth Aronoff '09 investigates solar payback opportunities
- Selim Zilkha '46 provides funding for the Zilkha Center for Environmental Initiatives

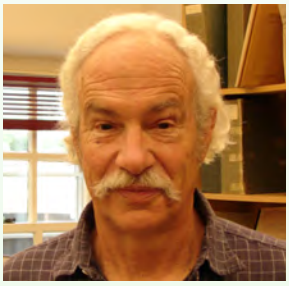
2008

- Zilkha Center for Environmental Initiatives opens its doors in Hopkins Hall; Stephanie Boyd appointed its first director
- 27 kW photovoltaic system installed on Library Shelving Facility
- Williams conducts campus-wide energy assessment
- Frst annual end-of-year Give it Up! recycling program
- First Zilkha Center Summer Internship program commences
- Intern: Hannah Hausman '12 explores sustainable landscaping practices at Williams

Profiles in Sustainability

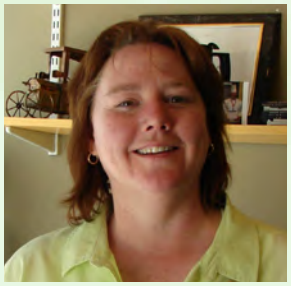
Lexie Carr '13
History Major with an Environmental Studies Concentration

Lexie got involved with environmental work in high school, and brought that passion to Williams. A four-year member of the environmental club Thursday Night Grassroots (TNG), she worked on a trash awareness campaign and a bring-your-own-cup party. For Williams' No Impact Week in April 2013, Lexie organized a stuff swap, a make your own bath and beauty products event, and a make your own electricity demonstration in the gym. She says "it's incredible to have a physical experience of the energy we're using." She hopes to work for what she calls "an ethically and sustainably conscious business"—work she learned about during a Winter Study with the alumni-owned company Designed Good. "There is an enormous amount of potential for businesses to get involved and to make things happen quickly," she says.



David Dethier
Edward Brust Professor of Geology and Mineralogy

The type of geology that interests David "is of the surface and of the modern," he says, which means the field's environmental aspects are paramount. Since arriving at Williams in 1982, he has taught about energy. "And necessarily when you teach about energy, you have to think about the future and future generations: how can we keep doing what we're doing now?" Part of that means infusing the curriculum with sustainability initiatives, thereby helping guide future generations to work towards a more sustainable campus. David enjoys being on what he calls "the edge of engineering and facilities, where things can actually happen." Case in point: one of his students recently submitted a facilities work order to address the temperature problems on the squash courts. "It should be a straightforward fix," he says.



Molly O'Brien
Unit Manager, Dining Services, Driscoll Dining Hall, Eco Café, and the CDE

Molly has been working in restaurants since she was a teenager, and she loves food. To her, food is sustainability. "Because it comes from the earth, it's organic and local, it's good ingredients, and it's community," she says. She is proud to be involved in the movement for more locally-sourced ingredients, and greatly enjoyed serving 150-Mile Meals on Earth Day 2013. She loves the challenge of making menus and finding recipes that the students will enjoy. Of Driscoll's Meatless Mondays she says: "At first I was worried we would lose all the athletes, but Mondays are our most popular nights."

2009

- Zilkha Center and CES offer Thoreau Green Building Fellowship
- Nine Williams students earn LEED accreditation
- College sustainability principles publicized
- LEED gold certification achieved for Hollander and Schapiro Halls; Driscoll Dining Hall goes trayless

- Sustainable Food and Agriculture Program launched with gift from the Goldman-Israelow family; Lori VanHandel appointed manager
- Lambert House and Susie Hopkins solar hot water systems installed
- Mission and Greylock Dining Halls go trayless
- First Annual Holiday Farmers' Market with Berkshire Grown

2010

- First winter shut-down saves close to $100,000
- Panel discussion "Greening the Games: Can Athletics and Sustainability Reach the Same Goals?" featuring Bob Nutting '84; "Gender and Food" panel discussion
- Steam submetering project begins, enabling better analysis of energy use for campus buildings
- Jennifer French, Associate Professor of Spanish, becomes Chair of Environmental Studies Program

(Classrooms Extend to Kitchens: continued from page 3)

vareniki dumplings filled with fresh cheese from southern Vermont, and Japanese students made *onigiri* rice balls and daikon salad using organic produce. "The opportunity to run a series of classes for our intermediate language students with a professional chef added a special dimension to their learning outside of the classroom," said Jane Canova, Administrative Director of Center for Foreign Languages, Literatures, and Cultures.

In the spring semester, the Sustainable Food & Agriculture Program joined Assistant Professor of French Literature and Language Annelle Curulla to offer a classic French meal. Students prepared *poulet chasseur*, *pommes de terre à la Dauphinoise*, and *ratatouille* with produce and meat from southern Vermont. "The event was an ideal way to engage, enliven, and complete my students' prior knowledge of French regions and cuisines," said Curulla, who encourages students to speak French in non-classroom environments and values the cultural education cooking provides.

> "Language teachers and learners alike know that the immersive experience is the single most effective way to achieve fluency in a second language."
> —Assistant Professor of French Literature and Language Annelle Curulla

Mole poblano and pork tamales set the table after an intensive cooking session with students enrolled in "The Subject of Empire: Race, Gender and Power in the Colonial Era." The menu represented themes of the course: the complexity of mole sauce reflects the popular cooking style of the medieval elite in Spain, corn is the basis of the traditional diet of indigenous Americans, and the pig is one of many animals imported to the Americas by European colonists. Students were able to taste history and gain a new perspective on the role of food in colonial relationships. "The opportunity to participate in preparing a meal such as might have been enjoyed by the 17th century polymath Sor Juana Inés de la Cruz was a tremendous addition to our course on colonial Latin American literature," said Associate Professor of Spanish & Comparative Literature Jennifer French.

From applesauce to pesto made with campus-grown arugula, cooking has captured the interest of students over the past year and continues to encouage students to recognize the impact individual food choices have on culture, health, and the environment. The coming year will feature more such events for students and faculty.

13.1

Percent of annual food budget spent on Real Food, as calculated by the student group Real Food Williams. To learn more about this student organization and the Real Food Challenge, find it on Facebook and visit www.realfoodchallenge.org.

2011

Intern: JJ Augenbraun '10 authors wind power feasibility study

Revamped College sustainability website launched

"Production & Consumption," a panel discussion featuring Karen Washington

Draft Sustainability Strategic Plan completed under committee chair Provost Bill Lenhart

Amy Johns steps in as acting director of Zilkha Center

First annual Food Week

Meatless Mondays in Driscoll Dining Hall begin

Reusable To-Go Lunch Container program launched; Food waste composting program streamlined

Todd Holland appointed Energy Conservation Project Manager; Williams Sustainable Growers plant first garden; first annual Farm and Food Film Series at Images Cinema

Board of Trustees approves green building guidelines; new construction to meet LEED Gold standards

Intern: Jennifer Luo '13 researches a history of dining at Williams

Brent Wasser joins as the Sustainable Food & Agriculture Program Manager

Winter Blitz Heats Up Area Homes

On a Saturday morning early in November, over 250 students from Williams College and MCLA worked together to weatherize over 60 homes in North Adams. The event was the fifth annual Winter Blitz, organized by Sarah Rowe '13 and Lexie Carr '13, with help from a dedicated group of fellow students and College staff.

"Winter Blitz is a great opportunity for students to become involved in both climate activism and community service. They're providing a real service to low-income families in the area that struggle with the high cost of energy, while also helping to reduce greenhouse gas emissions that affect us all," said Amy Johns, Assistant Director of the Zilkha Center for Environmental Initiatives.

> "Winter Blitz has been one of the defining experiences of my Williams career." —Sarah Rowe '13

Students work in teams to install weather stripping and storm windows, foam gaps in a home's envelope, and install energy efficient light bulbs. Team leaders have all participated in weatherization training prior to the event.

Sarah Rowe '13 notes, "Winter Blitz has been one of the defining experiences of my Williams career. It's given me the chance to become involved in both the community and in leadership on campus. It's been incredibly rewarding to see how the program has gathered momentum over the years—the number of volunteers has been steadily increasing, and I think it's a real sign of how excited people are about it." Sarah also spread the word about this inspiring program in October at the national conference in Los Angeles of the Association for the Advancement of Sustainability in Higher Education.

Todd Holland

Members of a Winter Blitz team get ready for some weatherizing. Students improved insulation in over 60 homes.

Stephanie Boyd

A student cuts a piece of weather stripping to size during Winter Blitz. All team leaders receive weatherization training prior to the event. The weeklong initiative in collaboration with MCLA involves students in climate activism and community service at once.

2012

- Woodard and Curran engaged to study solar energy potential at Williams
- Adam Gopnik: How did Food Happen in France?
- All-campus local food meal; Second Farm and Food Film Series at Images Cinema
- Annual campus energy use reaches lowest level in six years (25% lower than peak)
- Renovated Lansing Chapman Rink opens with 40% energy savings; Real Food Williams launches as an official student organization; Cooking with Cultures foreign language meal series launched; Kathleen Merrigan '82 of the USDA speaks at Williams on local food
- Budget approved for renovation and expansion of Kellogg House environmental center; Real Food Challenge panel discussion; intern Will Raskin '15 holds Farm/Food photography show; Second Annual Food Week at Williams; Meet Your Farmer series in Mission Park Dining Hall
- Third annual Holiday Farmers' Market with Berkshire Grown; "Alumni in Food" panel discussion
- Real Food Williams calculates the percentage of sustainable food served

Profiles in Sustainability

Mary studied environment science as a Williams student (class of '91) and went on to work for several non-profits that promote the sustainability movement. She brings all that to bear on her work with alumni donors today, as she helps them plan gifts that will lead Williams into a sustainable future. She has two current projects geared towards that future: The class of 1963 Sustainability Development Fund, which funded a Winter Study 2013 trip to California to learn about sustainable agriculture, and The Class of 1966 50th reunion gift, which will help fund the renovation of Kellogg House as the new campus environmental center. See page nine for more information on this project.

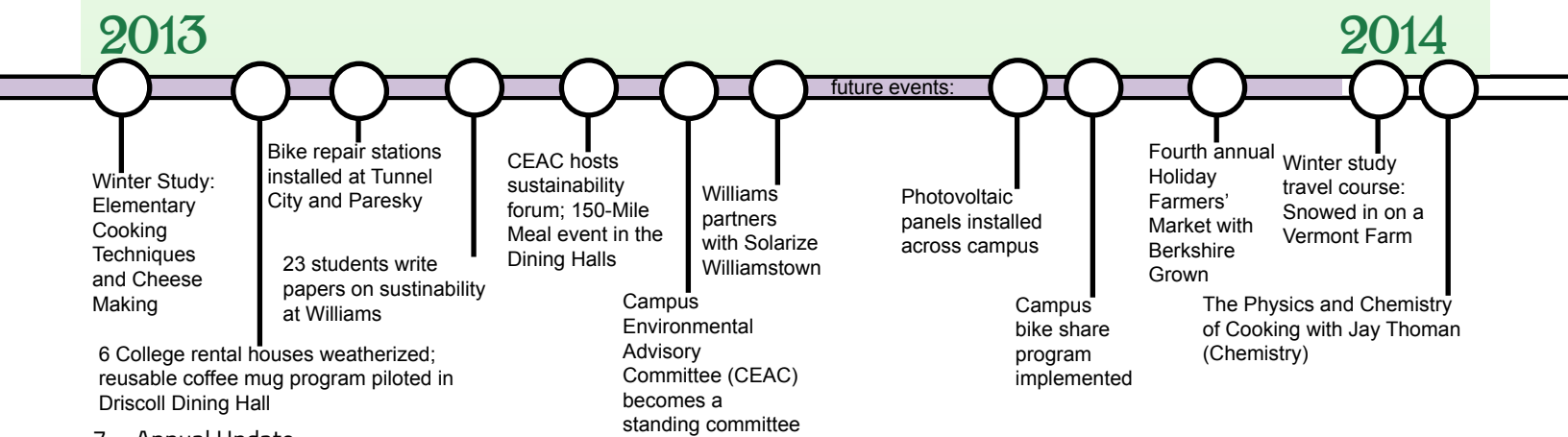
Mary Richardson
Director of Milestone Reunions, Development Office

As Don nears retirement, he reflects on everything that has changed since he started working in the facilities crew as a pipefitter 35 years ago. He remembers installing fluorescent light bulbs all over campus, in a long-ago move towards energy efficiency, and laughs that now the college has to replace those. He was a member of the Climate Action Committee that set the college goal of bringing greenhouse gas emissions to 10% below 1990 levels, and says we're very close to achieving it, well before the 2020 deadline. He feels his biggest contribution to a sustainable campus comes in his monthly checks of each and every building's utility use. "If there's a blip, we get right on it," he says.

Don Clark
Utilities Program Manager, Facilities

Cosmo grew up in theatres. His dad was a director, and his first job building sets put him on the path to his career at Williams. He describes the '62 Center—which he says was built "before the college started to think seriously about energy efficiency" —as sustainable by yesterday's standards, with lights that automatically dim in the daytime and a more efficient heating and cooling system than in the old Adams Memorial Theatre. But he would like to do more, and is researching ways to have a greater impact, including the conversion of stage lighting to LED bulbs, a project that in part depends on advancements in technology allowing new bulbs to do everything theatres depend on incandescent ones for now. Cosmo is an active member of Campus Environmental Advisory Committee.

Cosmo Catalano
Technical Supervisor for the '62 Center, Theatre Department Production Manager, and Lecturer in Theatre



No Impact Week Hits Hard

Lexie Carr '13 worked throughout her senior year to organize "No Impact Week," a week of events and activities inspired by Colin Beavan's book *No Impact Man*. In the book, Beavan and his family experiment to see how close to zero impact their life could be: they eat only local food, buy nothing new, travel exclusively by bicycle or foot, and turn off the electricity. "No Impact Week" brought the spirit of the No Impact experiment to Williams College for Earth Week. Throughout the weeks before Earth Week, students signed up for No Impact Week and pledged to reduce their environmental impact.

Each day of the week focused on a different aspect of sustainable living: consumption, transportation, waste, energy, water, giving back, and reflection. On Sunday, a stuff swap encouraged students to consider their consumption of consumer goods. On Monday, three different dining halls hosted "150 Mile Meals," where all of the food served was grown within 150 miles. Carr, Dining Services, and Zilkha Center staff worked for months prior to the event to find recipes and ingredients that worked. This was an especially challenging task in April, before the growing season had begun in New England.

> "The Zilkha Center has been unbelievably supportive, and I feel I gained very practical and professional experience from my internship with them."
> —Lexie Carr '13

On Thursday, a Make-Your-Own Electricity demonstration and workout invited students to use the elliptical trainers in Upper Lasell to generate electricity for blending smoothies. Friday brought Williams After Dark: Make-Your-Own Biodegradable Bath and Beauty Products. The week wrapped up with a Bring-Your-Own Cup party on Friday, the Great Day of Service on Saturday, and a final dinner and discussion on Sunday.

Carr said of her experience, "I've really enjoyed working with the Zilkha Center this year. They've been unbelievably supportive, and I feel I gained very practical and professional experience from my internship with them."

Lexie Carr

Students make their own bath and beauty products with natural household ingredients. Over the course of No Impact Week, participants explored ways to relieve the environmental impact of their daily decisions.

$1,200,000

Annual utility bill savings due to efficiency project implementation. This could pay for 20 full-time financial aid packages every year!

Todd Holland

"The first thing we noticed was the improvement to the lighting," said Mark Lyons '13, men's hockey co-captain. "The consistency of the ice has been great as well."

Cold as Ice

During the summer of 2012, Todd Holland led a project to improve energy efficiency in Lansing Chapman Rink inspired by a classroom project of former women's hockey co-captain Samantha Tarnasky '09. The energy savings from the first six months of this season have exceeded expectations: close to 200,000 kWh of electricity, a 37% reduction compared to the previous two years and, 720 million Btu of steam heat—a 34% reduction!

Kellogg House: One of the Oldest Buildings on Campus Reborn

Black River Architects

The Kellogg Environmental Center will be home to the Center for Environmental Studies and Zilkha Center for Environmental Initiatives. It features a net-zero energy profile, a teaching kitchen, and edible landscaping .

In the fall of 2014, the Zilkha Center for Environmental Initiatives and the Center for Environmental Studies will move into the newly renovated nearly 220-year old Kellogg House. We are currently in the final stages of design of our new environmental center, as we strive to meet the stringent green building standards of the Living Building Challenge. Only a handful of buildings worldwide have achieved this designation. Faculty, staff and students have been engaged in an intensive integrated design process that will lead to the creation of a building project that operates as cleanly, beautifully, and efficiently as nature's architecture. The building will be powered and heated by energy captured from the sun, consume no more water than what lands on its roof, and feature an edible landscape.

108,000

Square feet of new photovoltaic panels planned to be installed on campus. This is the equivalent to over 1.5 soccer fields. The 800–900 kwh system will provide enough to power 90 average houses! Williams College is currently partering with Solarize Mass, the Massachusetts Clean Energy Center, and the Williamstown COOL Committee to launch a program to encourage the installation of photovoltaic panels on area homes.

Williams Embraces Solar Energy

Developing renewable energy resources on campus will help decrease our emissions, reduce dependence on fossil fuels, and control energy costs. These outcomes are particularly valuable as pressures to increase building square footage on campus continue.

Wind and solar are the two renewable energy technologies to which the College currently has the most reasonable access, though we continue to explore other technologies. Incentives at the state level, including tax benefits that are not available for non-profit institutions, have driven a strong interest in the past several years in third party financed solar photovoltaic projects in Massachusetts.

In a third party financed project, one entity (generally a for-profit company) owns and operates the solar panels and receives the tax benefits. The off-taker (in this case, Williams College) commits to purchasing the electricity from the solar project for a period of time (generally fifteen or twenty years) at an agreed upon rate.

To explore the possibility for such a project, Williams engaged Woodard & Curran as a solar consultant. We identified several potential locations for solar on and off campus. Currently TectaSolar, a solar developer, is partnering with us to refine project scope with a target of late summer or fall implementation. An assessment that included technical feasibility (roof condition, space availability, solar exposure, and aesthetics) identified four locations: Chandler Gymnasium, Paresky Center, and Bronfman roof tops, and a ground-mounted system adjacent to the library shelving facility on Simonds Road.

> The College has identified several potential locations for solar on and off campus.

The project is still being designed, but if it proceeds according to plan, the final project will result in installation of 800–900 kW photovoltaic arrays and provide almost 5% of the College's annual electricity.

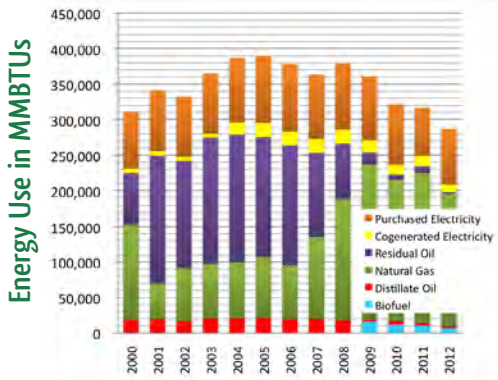
The current 27kW photovoltaic system on the roof of the library shelving facility represents only a fraction of the future solar energy collectors to be installed.

six

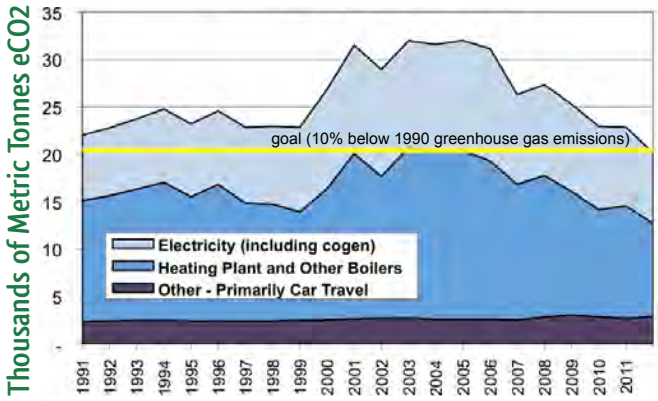
Zilkha Center interns will start work in early June. Josh Morrison '16 will maintain and expand the student gardens on campus. Robin Gimm '14 will be an Artist in Residence. Sara Clark '15 will work on the Real Food initiative and food labeling in partnership with Williams Dining. Natalee Dawson '15 will analyze and promote the College's energy efficiency projects. Will Raskin '15 will focus on developing initiatives to broaden campus engagement in sustainability, and Henry Schmidt '14 will plan a WCMA at Night event related to sustainability for Williams College Museum of Art.

Emissions Goals: Party Like it's 1990

Annual Energy Use



Greenhouse Gas Emissions



Williams' total energy use has decreased approximately 24% since the peak in 2005, resulting in $1.2 million annual utility savings. This is largely due to the gradual shift from residual oil to natural gas as the College's primary heating fuel. In the near future, solar energy will represent up to 5% of annual energy use, which will have a further impact on the cost of campus energy and the resulting greenhouse gas emissions.

Williams has made commendable progress towards its emissions goals over the past seven years. Total emissions have decreased 37% from the peak in 2005, and we are 97% of the way to our goal of reaching 10% below 1990 levels by 2020. Emissions reductions have primarily come from energy conservation programs and burning natural gas at the central heating plant rather than residual oil.

Campus Weatherization Saves Thousands

In 2013, Williams continued its weatherization efforts. We insulated and airsealed six buildings under the Mass Save program. The net cost of the project was $31,700 and annual savings are estimated to be $11,100 for a payback period of 2.8 years.

Insulation measures included spot air sealing (caulk and foam), wall and attic insulation (blown-in cellulose), foam around basement perimeter rim joists, insulating and sealing basement and attic doors, and installing vapor barriers in crawl spaces.

Rigorous blower door testing was used before and during the projects to verify the reduction in air leakage. Normally for this type of work one would expect a 10% to 25% improvement. Our actual reductions were 24% to 46%, with an average of 33%. This impressive result was due to careful selection of energy efficiency measures and skilled implementation.

In 2013, the College converted three rental houses from oil to gas boilers: Maxcy, Buckey, and Woodworth. The project cost was $56,400, less a rebate of $8,700, yielding a net cost of $47,700. Annual savings are estimated at $12,100 for a payback period of 3.9 years.

Todd Holland

Thermal imaging on this College property helps Todd Holland, Energy Conservation Project Manager, assess where a building is losing heat. The warmer the color, the more energy lost due to insufficient insulation. Weatherization on campus targets sealing building envelopes with caulk, cellulose fill, and vapor barriers.

Stephanie Boyd

The Zilkha Center for Environmental Initiatives and campus partners are guiding the College to a new green future.

To get involved, contact us!

Williams College achieves a silver STARS rating from the Association for the Advancement of Sustainability in Higher Education (AASHE), joining 124 other similar instititions. 48 institutions have achieved a gold rating, and 62 schools qualify with bronze. To achieve gold, Williams must increase its current score from 47.35 to 65.

ZILKHA CENTER
FOR ENVIRONMENTAL INITIATIVES
WILLIAMS COLLEGE

54 Stetson Court
Williamstown, MA 01267
(413) 597-2346
zilkhacenter@williams.edu
sustainability.williams.edu

Zilkha Center for Environmental Initiatives
Williams College Sustainable Food & Agriculture Program