

Greening the Bottom Line: Saving Resources and Money at CU

BY WILL TOOR

Director, Environmental Center

The State of Colorado and the University of Colorado are faced with an unprecedented fiscal crisis, with deep budget cuts affecting nearly every state department. In this situation, can the university afford to improve its environmental programs and attempt to implement new initiatives to reduce impact on the air, water, and land? A number of examples, from this campus and others, suggest that the question may be whether CU can afford not to improve its environmental performance.

The most comprehensive study of the link between improved environmental performance and lowered costs for campuses is a 1998 study by the National Wildlife Federation, published as a report titled "Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses." This report documents that wasting the environment wastes money, and highlights many case studies of campuses "success at achieving the twin goals of doing the right thing for the environment and saving money."

Some of the areas where there is the most potential for reducing costs over the long term are transportation, reducing energy use, reducing waste, and recycling and composting.

Here is a look at each area in turn.

Transportation

The conventional approach to

transportation at many schools has been pretty simple: wait until complaints about parking reach a crescendo, then build some new parking lots, wait a few years until the demand and complaints start to grow, then do it all over again. This may be why the former chancellor of the University of California at Berkeley stated, "A university is a diverse community held together by common complaints about parking."

However, there is a big financial problem with this approach. Many schools, including CU, do not have additional land that can be devoted to surface parking lots. In fact, new construction often uses up land once devoted to surface parking. The supply of surface parking decreases as institutions convert parking lots into other uses, such as new research buildings, dormitories, stadiums, and theaters, while the new uses increase parking demand. The campus is then faced with either acquiring new land – a very expensive proposition and often impossible – or constructing parking structures over existing surface lots. The capital cost of construction is quite high – in the range of \$15,000 to \$30,000 per net new parking space. Thus for 1,000 spaces a campus would be looking at \$15 - 30 million in capital costs. Recovering this from users could require monthly parking fees of \$100 or more – much higher than is typically charged or is politically acceptable to the campus community.

Are there are other approaches to managing transportation



The cost of a new parking structure can be as high as \$30,000 per space. Alternately, a new parking space for a bike is only \$30.

demand that are less expensive? In most cases where land constraints lead to the use of structured parking, the answer is yes. And these approaches are better for the environment.

Cornell University provides a great example. In the early 1990s Cornell faced demand for building thousands of new parking spaces. Instead, they decided to create a new transportation demand man-

agement program, which emphasized expanded transit, increased parking rates, and strong financial incentives for carpooling. The results were dramatic. Over a six-year period, the campus built only 350 new parking spaces, instead of the 3100 spaces that would have otherwise been required. After subtracting out the cost of the program, the total savings over these six years approach \$13 mil-

lion dollars. And, the program led to a 25 percent decline in the number of vehicles driven by faculty and staff to campus.

Here at CU, the faculty/staff bus pass program has also been a good investment for the campus. This program allows each permanent faculty or staff member who is eligible for benefits to ride local and regional buses and light rail by

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CU Buff Bus About to Burn Biodiesel

BY CINDY ROSENBERG

Graduate Student, Environmental Studies

Do you feel it is important to reduce dependence on fossil fuels? Biodiesel may be the answer. Biodiesel is an alternative to petroleum, can be used in any diesel engine with little or no modification, and reduces pollution both locally and globally. Individuals, local groups, and small companies are beginning to process and use biodiesel through their own initiative as a way to reduce their dependence on foreign oil. The CU Environmental Center is currently looking into ways biodiesel can be processed and used on campus.

According to a study by the Environ-

mental Protection Agency, biodiesel reduces carcinogenic emissions by 90 percent, and as there is no petroleum being burned it does not contribute to the net accumulation of carbon dioxide in the atmosphere. Biodiesel is a natural lubricant, which reduces engine wear and extends engine life. Depending on the vehicle, biodiesel may slightly increase the emissions of nitrogen oxides, a gas present in ozone formation. However, biodiesel significantly reduces particulates, carbon monoxide, and hydrocarbons, which are also significant air pollutants in the Denver/Boulder area.

Biodiesel production is a fairly simple

process using either new vegetable oil or used cooking oil. The oil is mixed with a strong base and an alcohol for an hour and then left to settle overnight as the glycerin precipitates out. The following day, the glycerin is separated from the biodiesel and the process is complete.

The CU Environmental Center, CU Biodiesel, Boulder Biodiesel, and CU's transportation department are currently working out details for a pilot program where one Buff Bus will run on 100 percent biodiesel and its performance will be compared to a similar Buff

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New Bicycle Programs at Starting Line

BY PETER ROPER
Economics Undergraduate

In the ever-active bicycling community of CU and Boulder, it has not been hard to get some exciting new programs under way. The Environmental Center is developing a no-interest bicycle loan program and is hard at work to bring a "yellow bike" free checkout program into life this spring.

Two years ago a survey of the student body revealed an interesting fact: despite the popular stereotype that every CU student has a mountain bike (or two), it turns out only half the members of the student body own bikes. So any effort to increase the use of this environmentally-friendly form of transportation must include encouraging more students to take up biking.

The proposed no-interest bicycle loan program is a cooperative effort between the University of Colorado Federal Credit Union and the Environmental Center. Its purpose is to make it easy for students to purchase commuter bikes. Many bicycle shops near the campus provide bicycles adequate for on-street commuting as well as some recreational uses. The loan program will hopefully be up and running by the time the spring bike season is in full swing.

It has not been quite as easy for the "yellow bikes" to roll onto campus. But the energy behind the program is at full throttle thanks to a joint effort of Parking and Transit Services and the Environmental Center.

Many campuses around the country have started their own rental programs, and have been great resources for strategy and planning on this end. Nancy McKinney at the University of Montana was the first contact in the planning process and has helped to design many features of the proposed CU program. As in Montana, local plans include the use of industrialized commuter bicycles with reinforced joints and wheels. The bicycles will be single-gear, and will be painted a bright CU yellow to set them apart from other bicycles on campus.

The first rental location will most likely be near the UMC, with 10 to 20 bicycles. Students with a valid (fees-paid) BuffOne card would be able to rent a bicycle for up to two days for free. If the program is successful, the program could be expanded after the first year to a select few locations around campus that would facilitate more rentals.

Additionally, an effort exists between Transit Services and Housing and Parking to improve bike parking on campus. If all goes well, about 1,000



About half of CU Students own bicycles. The Environmental Center is helping find ways for more students to use bikes for regular everyday commutes.

out of date bike racks on campus will be replaced by the end of this spring. Placing bike racks next to campus bus stops, to make the bike-bus connection easier, is also a priority.

In addition to the specific bicycle programs mentioned above, the Environmental Center has been brewing some big plans to form a unified bicycle programs front. Through cooperation with Public Safety,

the City of Boulder, independent bicycle shops near campus, and many others, CU can move to the forefront of the campus bicycling community. The long-term vision includes a universal bicycle station, providing students and others with repair services, rental bicycles, informational clinics, and more. Expanded bicycle registration, to include all bicycles on and around campus, is also planned.

Last but not least, creation of a CU Bicycle Ambassador program to educate others on the benefits of bicycle commuting as an alternative to private driving is in the works.

For more information, visit the Environmental Center bicycle programs Web site at www.colorado.edu/ecenter/bicycle_programs. You can also call 303-492-8308 to get involved.

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Bus run on regular petroleum diesel.

Any percentage of biodiesel may be used in diesel vehicles, but the most common forms used are a 20 percent biodiesel blend with regular diesel (called B20) and 100 percent biodiesel (B100). CU will be using 100 percent biodiesel in the pilot program in order to achieve the maximum emission reduction results since 20 percent biodiesel has been shown to only minimally reduce emissions.

Emissions testing for both buses will be done before and during the pilot project. The biodiesel processor built by CU Biodiesel, a student non-profit organization, will be used for processing the fuel for this program. Cooking oil from the campus dining halls and the UMC's Packer Grill will be turned into the biodiesel used to fuel the Buff Bus. CU's waste oil supply is estimated at 200 gallons of oil each month.

The quantity of biodiesel made from the used cooking oil from campus may not be enough to run one Buff Bus full time on 100 percent biodiesel so it will also be important to explore ways to increase the availability of biodiesel so it can be



One of the CU Buff Buses (above), soon to be petroleum-free. A potassium methoxide reactor (right) is used to create fuel from vegetable oil in the biodiesel refining process.

used more extensively at CU. The options being explored include the possibility of a local gas station carrying biodiesel, building a larger processor, and using waste oil from local restaurants.

With the processor completed and a stockpile of used canola oil, production of biodiesel for the Buff Bus is ready to begin. However, finding a space in which to process the

fuel has proven difficult. Biodiesel must be processed in a well ventilated area where fumes will not affect others working in adjoining spaces. Since space on campus in general is hard to come by, this has delayed the project. Hopes are high, though, to find space and start processing the fuel soon so the Buff Bus will run on 100 percent biodiesel for most of spring semester.

For more information on biodiesel check out:

www.colorado.edu/ecenter
www.biodiesel.org
www.cu-biodiesel.org/home.htm
www.boulderbiodiesel.com
www.veggievan.org



Reduce, Reuse, Recycle (and Buy Recycled!)

Why use a valuable material or product once, and then place it in the trash to be buried in a landfill? Instead, divert that material for recycling, and capture the energy and resources already used to make that product. Since recycled materials have been refined and processed once, manufacturing the second time around is much cleaner and less energy-intensive than the first.

By using recycled materials instead of trees, metal ores, minerals, oil, and other raw materials harvested from the earth, recycling-based manufacturing conserves the world's scarce natural resources. This conservation reduces pressure to expand forest cutting and mining operations.

Did You Know?

- Twenty recycled aluminum cans can be made with the energy it takes to make one new aluminum can from bauxite ore.
- Recycling one glass container saves enough energy to light a 100-watt bulb for four hours.
- Americans use enough plastic wrap to wrap all of Texas every year.
- Five recycled soft drink bottles make enough fiberfill for a man's ski jacket. Thirty-six recycled bottles can make one square yard of carpet.
- Annually, enough energy is saved by recycling steel to supply Los Angeles with electricity for almost 10 years.
- In a lifetime, the average American will throw away 600 times his or her adult weight in garbage. This means that each adult will leave a legacy of 90,000 lbs. of trash for his or her children.
- Recycling all of a single home's waste newsprint, cardboard, glass, and metal can reduce carbon dioxide emissions by 850 pounds a year.
- If every household in the U.S. reused a paper grocery bag for one shopping trip, about 60,000 trees would be saved.
- Recycling one ton of paper rather than creating it from virgin wood pulp: uses 64 percent less energy, 50 percent less water, and 74 percent less air pollution; saves 17 35-foot-tall trees, two barrels of oil (enough fuel to run the average car for 1260 miles or from Dallas to Los Angeles), 4100 kilowatts of energy (enough power for the average home for six months), 3.2 cubic yards of landfill space (equivalent to one mid-size pick-up truck) and 60 pounds of air pollution; creates five times more jobs.
- One-third of all the waste generated on the CU campus is recycled. Thank you for recycling!

Sources: EPA, World Watch Institute, and Colorado Recycles; for more information, visit www.colorado.edu/recycle

Do Your Part to Conserve Water**Suggested indoor tips for conserving water from the City of Boulder:**

- Only run full loads of laundry.
- Only flush when necessary.
- Take shorter showers.
- Turn off the running water while brushing teeth and/or shaving.
- Get leaky faucets and pipes fixed. A small drip can waste more than 1,500 gallons a month.
- Check toilets for leaks. Put a few drops of food coloring in the tank; if the coloring begins to appear in the bowl without flushing, a leak exists and should be repaired immediately.

Current water conditions in Boulder

- The city depends upon snowpack runoff for the majority of its water supply. The majority of this snowpack comes in March, April, and May, and then the runoff (water) from this snowpack normally comes in May and June. Until that time, it is very difficult to tell what the water supply will be for the upcoming year.
- Snowpack is currently below-average for this time of year; but again, the majority of snowpack comes in March, April, and May.
- On May 1, 2002, the upper storage reservoirs were 40 percent full. Projections show they will be 34 percent full on May 1, 2003.
- In 2002, the spring runoff filled reservoirs to 70 percent full; in previous years, the reservoirs filled to 100 percent capacity.

Information from Curry Rosato and Joanna Stansbury; for more info, visit www.ci.boulder.co.us/pwplan/floodweb/drought.html

Tabrizi Takes Reigns as New CU Energy Conservation Officer

BY TARRIE BURNETT

Women's Studies Undergraduate

Campus energy use has been growing by five percent a year over the past several years. In response to this, the University has taken several steps to reduce energy, including the creation of a new position through Facilities Management – Energy Conservation Officer. Moe Tabrizi filled this position in September 2002. In a recent conversation with Tabrizi, it became clear that the wave of a sustainable future is now upon the CU community.

Thanks to Vice Chancellor Paul Tabolt and the Executive Director of Facilities Management Jeff Lipton, CU is setting a positive example by becoming the first higher-education institute in Colorado to create a position that specifically deals with energy conservation, continuing CU's legacy as being on the forefront of sustainable living.

Prior to this position, Tabrizi worked as a senior manager for new product development at the telecommunications firm Avaya in Westminster, as a senior manager for engineering and operations at Lucent Technologies in Westminster, and as an engineering manager for AT&T in Westminster. Tabrizi holds bachelor's and master's degrees in industrial engineering from the University of Oklahoma.

Outside of being CU's new energy officer, Tabrizi enjoys spending time with his wife of 28 years and two children – a son who is majoring in Engineering and Computer Science at the Colorado School of Mines and a daughter who is a junior at Northglenn High School. Tabrizi also enjoys skiing, movies, and traveling abroad.

Here's what Tabrizi has to say about his new position:

Q What is your niche as the Energy Conservation officer?

A To be a good catalyst for energy and resource conservation programs, projects, and suggestions.

Q What are your day-to-day duties?

A Receiving input and suggestions from the campus community through the energy hotline, e-mail, and voice-mail as well as electing the best ideas for

technical and business evaluation. I also search for technology and application breakthroughs in order to implement some of these suggestions.

Q What do you do with this input?

A Decipher these ideas in terms of technical feasibility, conservation impact, and create business cases that have to do with profit/loss issues in order to implement the best projects. I am also an advocate for energy conservation projects – a catalyst. I engage in educational discussions with the Environmental Center, Facilities Management, and the administration. I also prepare progress reports and do research for external funding of conservation projects.

Q What are the specific projects that you are currently working on?

A Due to the current drought, I am working on some water conservation projects. One is in the physics building (JILA). The laser generators are currently being cooled by water. This project will create a network of closed-loop piping systems that will cool the generators and save approximately 25 million gallons of water per year. Another example is insulating the steam pipes. One of the energy projects is working to convert outside lights campus wide to energy efficient compact fluorescent bulbs, which also have a much longer life. And the greatest project is the PC monitor sleep campaign, which requires help from the entire campus to complete. This is what I call low-hanging fruit: a project that does not take large amounts of funding or internal changes, just simple behavior modification. In this campaign we are working with faculty, students, and staff, and getting them to not only turn their monitors off when leaving for lunch or the evening, but also enabling individual computer system sleep mode functions to conserve energy. Because we have 18,000 PCs, this project alone will help us to achieve part of my goal of reducing energy use by five percent by the end of this fiscal year.

Q What are some of your long-term goals?

A To implement sensible renewable and alternative



Moe Tabrizi

energy projects on the campus. I also hope to create an environment where students and our future leaders can leave CU with an understanding of how to balance between business demand and energy/resource conservation and respect for the environment.

Q Why did you apply for and accept this position?

A Well, it challenged me from a technical standpoint, it challenged my managerial and people skills, and there is the additional reward of respecting the environment; it's fulfilling. And of course I enjoy the people here on campus.

Q What excites you most about this position?

A To tell you the truth, it actually excites me to make changes and to know that we are saving energy and money. I also enjoy working in a situation where a strong partnership and direct communication are the foundation for success.

Q Is there anything that you would like me to include as a message to the campus?

A To let this position and my work here on campus be an open invitation to raise issues surrounding conservation, and make sure to include the energy conservation hotline phone number and e-mail!

To grant Tabrizi his wish, here are the two ways to contact him at the Energy Conservation Hotline and become a part of this movement toward a sustainable campus and even greater, a sustainable future:
 • 303-735-6202
 • energyconservationhotline@fm.colorado.edu

■ **BOTTOM LINE**, from Page 1

showing his or her university ID. Because some employees have reduced the number of times they drive to campus, or stopped driving to campus, due to the availability of free transit, some parking spaces are freed up – a total of 350 spaces based on an analysis by Parking and Transit Services. The annual cost of the bus pass program comes to \$1,125 per parking space left open. For comparison, the annual debt service required to provide one additional parking space by building a new parking structure on an existing surface lot would be more than \$2,700. Thus, it is 2.5 times as expensive to provide one additional parking space compared to reducing demand by one space. The net annual savings to campus, compared to providing 350 new spaces, is \$560,000.

But there are many more decisions to be made. For example, how much parking should be provided at the new Williams Village housing? The original plans call for supplying nearly 2300 spaces at Williams Village, requiring the construction of four parking garages. If these costs are buried in the rents, rent will go up by \$65/month – so that every student who does not own a car will pay a \$600 per year subsidy to help other students get free parking. At the other end of the spectrum, if the students who have cars there are required to actually pay the costs of building the parking structures, the increased costs would cut the demand in half, dramatically decreasing the campus's outlay for building parking. These types of decisions show that there are still significant opportunities to save money while also reducing the amount of traffic and air pollution created by CU's growth.

Energy

Campus energy use is not cheap. Here at CU, the trend over the last decade has been one of dramatically escalating energy use, with annual increases in electricity consumption hovering around five percent. The actual costs went up even faster. In the 2000-2001 fiscal year, for example, electricity costs rose by 9.9 percent! Annual utilities costs exceed \$6 million. And the campus may need to invest tens of millions of dollars in new power capacity to serve campus growth. Are there opportunities to reduce some of these costs?

Perhaps the best example is the State University of New York. Maybe their hard winters explain it, but SUNY Buffalo (UB) has made energy conservation an integral part of campus operation for twenty years now. One comprehensive energy retrofit project alone led to a \$3 million dollar annual saving in energy cost. They estimate that over a 15-year period, the cumulative energy cost savings were over \$60 million dollars. According to Walter Simpson, then energy officer at UB, "Conservation and efficiency mean less strip mines, oil fields, smog, acid rain, and global warming. Moreover, conservation projects can be set up so that they pay for themselves. Campuses would be crazy not to do these projects just from a financial point of view."

Here at CU, the same approach is beginning. In response to the big cost increases, the administration has created a new energy officer position, partially modeled after UB, and has ramped up funding for efforts to reduce energy use on campus. These range from educational campaigns designed to get students

and employees to turn off lights and computers when not in use, to major capital investments in energy efficiency. The potential savings are huge. According to an analysis by the energy officer, just getting campus computer users to enable the energy saving sleep mode on their computer monitors could save the campus up to \$450,000/year, while also reducing annual emissions of greenhouse gases by 3500 tons of carbon dioxide.

Reducing Waste

Another area where there is ample room to lower costs while reducing our environmental footprint is through reform of our purchasing practices and materials use. One example is the move towards pay for printing in campus computer labs. The Library estimated that paper use in these labs increased by 28 percent and toner cartridge use increased by 35 percent in just one year in 2001. Housing experienced similar increases prior to adopting a pay-for-print system in February 2001. Housing eliminated free printing from computer labs in the residence halls, instead charging individual users. In the first year of implementation Housing estimated a 55 percent reduction in paper use. Currently, ITS computer labs print approximately 30,000 reams of paper annually. At a conservative estimate of 33 percent savings, a conversion to pay for printing could save 10,000 reams per year. If the reduction is as large as that within housing, the reduction could be over 15,000 reams per year – all at a net savings to the university.

This is an illustration of how CU can harness the power of the free market. By having individual users pay for their use of resources that have a high environmental impact – whether it is driving a car to a parking space or printing a paper – instead of socializing the cost across the university, resource use goes down while economic efficiency goes up.

There are other arenas where costs can be saved and waste reduced through smart purchasing. Some campus departments are saving money by using recycled content paper towels and toilet paper. Other departments have found that it is cheaper to purchase furniture made from recycled wheat straw than that made from virgin wood. At the University of Wisconsin-Madison, the school saves a quarter million dollars a year by selling and reusing materials that the university used to throw away. The undergraduate chemistry labs at the University of Minnesota switched to "microscale" lab techniques, which demonstrate chemical principles with much smaller volumes of chemical. The net effect – hazardous waste generated annually went down from 2500 gallons to 23 gallons, for a cost savings of \$37,000/year.

There may be many untapped opportunities on this campus to reduce waste and buy greener products, at no net cost to the campus. This could be advanced by adopting an environmentally friendly purchasing policy, requiring that environmentally preferable products be purchased if they are no more expensive than the standard products they substitute for, and by inserting environmental language into the bidding process.

Recycling and Composting

Colorado has some of the lowest landfill dumping rates in the country – so these rates have no direction to go but up. From 1996 to 2001 the landfill rates CU has to pay went up by 83 percent. Despite campus growth during



Recycling at CU generates revenue and helps offset costs associated with dumping trash into landfills.

this time, the amount of waste that Facilities Management delivered to the landfill remained flat – there was even a slight decline from 3300 tons in 1996-97 to 3100 tons in 2001-2002. Without the CU Recycling program, CU would have to haul another 1200 tons of waste to the landfill every year – at substantial cost. Not only would the campus be paying to dispose of these materials, instead of getting paid for them, but the materials would have to be hauled much further away (the nearest landfill is in Weld County), with the associated trucking costs. So, while recycling costs money – there's no free lunch! – it also reduces the campus's cost for landfill disposal. There are probably more opportunities for CU to reduce its costs while expanding recycling and composting. For example, right now all of the food waste on campus is thrown away and trucked to the landfill. Meanwhile, we also buy fertilizer and soil amendments for campus landscaping. A composting program has the potential to save money on both ends – reducing disposal costs and saving money spent on purchasing soil amendments. For example, the housing department estimates that using finished compost instead of purchasing fertilizer could save \$10,000 annually.

Now, not all environmental improvements will save money. Sometimes the right thing to do does cost more money than the wrong thing. Of course, someone is still paying that extra cost – whether in health impacts or degraded ecosystems – but it is not reflected in the university's bottom line. An example is using fossil fuels to generate electricity, as opposed to buying clean wind energy. But one thing that CU students have consistently demonstrated is that they value a clean environment. After all, students voted by a 5 to 1 margin in 2000 to raise their student fees to buy wind power for the student controlled buildings.

As CU weathers the state fiscal crisis, it is important to remember that fulfilling our responsibility for good environmental stewardship can also help contain costs. The Environmental Center will continue to develop and advocate for projects that achieve both economic and environmental responsibility.

UPCOMING EVENTS

WHAT'S FUNNY ABOUT CLIMATE CHANGE?

**THURSDAY, FEBRUARY 13, 7:00PM
OLD MAIN**

What's Funny About Climate Change? is a question that will be asked and possibly even answered in this three person comedy review. Human Nature's light-hearted theater performance aims broad, even-handed humor at one of the most daunting issues we face – global warming and the death of the natural world. Free and open to the public.

TIM WIRTH

**MONDAY, MARCH 3, 6:30PM
LINDSAY COURTROOM, CU LAW
SCHOOL**

Former two-term US Senator from Colorado Tim Wirth will speak on global environmental sustainability issues and his efforts with the United Nations Foundation.

CAMPUS EARTH SUMMIT

**THURSDAY, APRIL 17
UNIVERSITY MEMORIAL CENTER**

The Campus Earth Summit provides a forum for students, faculty, staff and administrators to explore how to advance CU-Boulder's environmental programs and initiatives.

ENVIRONMENTAL AWARDS CEREMONY

**THURSDAY, APRIL 17
UNIVERSITY MEMORIAL CENTER**

The Environmental Awards Ceremony will recognize individuals and departments whose efforts have improved the campus environment. Submit a nomination at www.colorado.edu/ecenter.

COLORADO SUSTAINABILITY SUMMIT: FORGING SOLUTIONS AT COLLEGES AND UNIVERSITIES

**THURSDAY AND FRIDAY, APRIL 24 & 25
CU-BOULDER, UNIVERSITY MEMORIAL CENTER**

The Summit will bring together faculty, staff and student representatives from all of Colorado's campuses to network and learn about how higher education institutions can serve as models for the world in working toward environmental and economic sustainability. Sessions will cover issues such as renewable energy, energy conservation, recycling, composting, green building, toxics, water conservation, and procurement. Featured speakers include: Hunter Lovins, co-author of *Natural Capitalism* and director of the Global Academy; John DiBiaggio, President of Tufts University; Scot Case, Center for the New American Dream; David Eagan, University of Wisconsin at Madison. For more info and to register, visit www.colorado.edu/ecenter.

THE ENVIRONMENTAL REVIEW IS PRODUCED BY



University of Colorado

ENVIRONMENTAL
CENTER

University Memorial Center
Room 355
207 UCB
Boulder, CO 80309
303.492.8308
ecenter@colorado.edu
www.colorado.edu/ecenter

Design and layout by Benjamin Everson