

**"Environmental Sustainability—A Campus-wide Effort"**  
**AASCU Grant Resource Center Conference**  
**October 6, 2008**

I want to thank Richard Dunfee and the staff at the American Association of State Colleges and Universities and its Grants Resource Center for inviting me to be with you today. It is a pleasure for me to be here in Alexandria to share with you how Eastern Connecticut State University has developed its sustainability program. It has been a 20-year journey and one that I believe has had a significant impact on our campus and our state.

Global warming, climate change, renewable energy, preserving our natural habitats, and other related issues are hot topics in today's news and on college campuses. Each of us is in this auditorium today because we care about the future of our planet, and because we know that the intellectual capacity, creativity, and commitment found at our own institutions and within higher education as a whole, put us in a unique position to be leaders in solving the global climate and energy crisis. As a result, few college campuses do not have some form of energy or environmental programs in place. How can your own institutions make a greater impact in the environmental arena? And how will you fund those efforts?

I would like to spend my time today with you describing the approach we are taking on the issue of sustainability at Eastern Connecticut State University. While we certainly have much work to do, we have developed a comprehensive, working model — the "three-legged model" as we call it at Eastern — that serves as the foundation for our efforts. We have been fortunate to have attracted funding from a variety of sources to help move our plan forward. In the process of describing the evolution of our model and the successes we are realizing under its umbrella, I will try to offer you some insights into how to develop and fund your own successful sustainability program. I wouldn't be surprised if some of you are further along than we are, and I hope we can use the question/answer period at the end of my talk to share your experiences. That is the value of conferences like this, to measure your own progress, learn new ideas, and share your own.

The three legs of Eastern's Sustainability Model are:

1. **Creating a Green Campus** – from construction programs to facilities management, to our conservation efforts, I will explain how we have been lowering our energy costs and conserving our natural resources going on 20 years.
2. **Providing Statewide Outreach and Public Education to residents, municipalities, and organizations in Connecticut.** Since the creation of the Institute for Sustainable Energy in 2001, we have become leaders in the State of Connecticut in promoting energy awareness and sound public policy in the fields of conservation, alternative energy sources, and energy efficiency.
3. **Offering Academic Programs in Sustainability Studies to our Students.** With the advent of Eastern's Center for Sustainable Energy Studies in 2004, our academic programs to teach sustainability have come alive.

We did not create this model as a fully-realized plan from conception. While the potential for all three components was recognized early on, each of the three elements has had its own beginning and its own life. In the past five years or so, as all three areas have come online, we now realize that the synergy inherent in this model is its strength. Today, we look for opportunities to plan our activities with all three components in mind. To set the

stage for discussing how we are doing that, I want to go back in time and give you a brief history of each of the three.

### **[Creating a Green Campus]**

My predecessor, Dr. David G. Carter, became the fifth president of Eastern in 1988. In 2006, he became the Chancellor of the Connecticut State University System and I have had the pleasure of continuing his legacy at Eastern since August of that year.

From his first days on campus, Dr. Carter challenged faculty, students, and staff to take up the mantle of environmental stewardship. Over the first few years of his administration, he met frequently with officials from Connecticut Light & Power, our electric utility company, as he sought ways to control energy costs and limit negative environmental impact.

These campus visits resulted in the university taking advantage of energy-conscious construction programs, and with the signing of long-term electrical service agreements with the state's major utilities. Dr. Carter and his team were able to establish relationships with such companies as Northeast Utilities, United Illuminating and Select Energy, which also provided the university counsel on energy control usage.

A direct outcome of the relationship with our utilities has been a steady program of incentive rebates over the years, as Eastern's willingness to try new technologies and other energy-saving strategies has been rewarded with cash rebates and long-term energy savings. Examples include a \$152,000 rebate for the energy efficiencies built into our new Science Building; a current \$132,000 project involving retro-commissioning our HVAC systems; and similar rebates for energy efficiencies in our early childhood education center and for our energy monitoring system found in buildings across the campus. If you haven't started a sustainability program on your own campus, I suggest you start by looking into similar rebate programs with your own utility companies.

From the outset, Eastern's conservation efforts were intended not only to lower energy costs for the University, but also to inspire faculty, staff, and students to find and use alternative energy sources. One special example of meeting this goal is our Geothermal project. Following discussions with the Geothermal Heat Pump Consortium in 2001, Eastern installed a geothermal heating and cooling system in our Windham Street Apartments, making it the first such geothermal installation in the state. The system utilizes three 800-foot wells to heat and cool the nine-story residence hall. In addition, the building deposits 100,000 gallons of fresh, clean water per day into the Willimantic River, which improves the ecosystem. Windham Street Apartments is the largest geothermal heated and cooled building in Connecticut. The new system cut heating costs in half and made the building more efficient. Previously, the building was electrically heated and had no air conditioning. Now, the building is both heated and cooled for \$50 to \$70,000 less per year than it took to just heat it by electricity. Funding for this landmark initiative came from our electricity service agreement with Connecticut Light and Power, the Utilities Conservation Incentive Program, and our own capital building funds.

### **[Statewide Outreach and Public Education]**

I will speak more about our current green campus efforts in a moment, but now I would like to tell you how the second leg of our model—the component that focuses on statewide outreach and public education—came into being. In July 2001, the Connecticut

State University System's Board of Trustees created the Institute for Sustainable Energy at Eastern. The University was given the task of providing statewide outreach and public education services to advance public awareness of this critical issue, while serving as a resource to government agencies, municipalities, school districts, other universities, and the general public. Using our knowledge to recommend legislation was to be another important part of the Institute's work.

How is the Institute funded? It grew out of nearly \$6 million in grants over seven years. The Department of Public Utility Control and the Connecticut Energy Conservation Management Board, which includes representatives from energy companies United Illuminating and Connecticut Light and Power, provided \$5 million, and recently approved an additional \$2.4 million to support the Institute's conservation efforts for the next four years. The Institute is 100 percent grant funded, with other grants and support from the U.S. Department of Energy, the Environmental Protection Agency, and private foundations helping Eastern to become recognized as a leading expert and advocate for energy change in Connecticut.

One of the goals of the institute is to facilitate energy consciousness on Connecticut's University campuses. In preparation for the American College and University Presidents Climate Commitment, the institute assisted three of the four Connecticut State University campuses in 2006 to develop multi-year strategic energy plans. The Institute engaged the campuses in a comprehensive approach to lower energy costs and use; reduce greenhouse gases from building systems and transportation; improve water and water waste management; increase recycling and safe hazardous waste disposal; and encourage the procurement of environmentally friendly products.

In addition to providing information and educational programs, the Institute also is heavily involved in our State's energy policy. The Institute advises the Office of Policy and Management; the Connecticut Clean Energy Fund; the Connecticut Department of Public Utility Control; and the Connecticut Energy Advisory Board, and also provides testimony to the General Assembly's energy committee, environment committee, and legislative research office for formulating new state energy policy.

### **[Our Academic Program]**

I would now like to introduce the third leg of our model to you; our academic programming. Back in 2001, at the same time that the Institute for Sustainable Energy was established, the Board of Trustees created the Center for Sustainable Energy Studies at Eastern, with the goal of eventually hiring an Endowed Chair for Sustainable Energy Studies and creating an academic program in sustainability. In its wisdom, the University, the Board of Trustees, and state officials realized that Eastern's primary mission is to prepare students to be engaged, productive citizens, in this case, knowledgeable and skilled in environmental matters. A \$500,000 grant from Northeast Utilities and another \$470,000 in matching funds from the State of Connecticut served to fund the endowed chair, and a search began almost immediately to fill the position.

In 2004, after a careful national search, the University hired Fred Loxsom as the Endowed Chair of Sustainable Energy Studies. Dr. Loxsom immediately organized faculty and staff to develop a campus-wide commitment to sustainability scholarship, and in 2005, he launched an undergraduate minor in Sustainable Energy Studies and an active research program. Dr. Loxsom also began developing a strong online program that would attract

returning students and working professionals. A Bachelor of General Studies (BGS) in Sustainable Energy Management and certificate in Sustainable Energy Management were also initiated.

### **[Sustainability Today]**

Let me fast forward to today. We now have our three legs in place, and we are using their combined strength to positively impact our campus, our students, and our state. Certainly there is work to do. Our campus has grown enormously in the past 20 years, both in terms of facilities and enrollments. We now have 5,400 students and almost 1,000 employees. We have two million square feet of gross square footage and 182 acres of land. And most relevant to this discussion, our utility bill last year was \$2 million for electricity, another million dollars for natural gas, and another \$190,000 for other fuels —a total of \$3.2 million. Managing these costs while being good environmental stewards has never been more important to our operations.

In the past five years, having the Institute for Sustainable Energy and the Center for Sustainable Energy Studies has allowed us to further leverage our campus sustainability efforts. As a result, we are able to shift valuable financial resources from paying utility bills to hiring faculty, funding student support initiatives, and securing the latest technology and equipment. Close your eyes and imagine it — students taking sustainability courses work at the Institute for Sustainable Energy, take environmental courses in our LEED Certified Science Building, and sleep in a LEED certified dorm—it's a complete sustainable living/learning laboratory!

Campuswide participation and buy-in has been a key to our success. In addition to the leadership provided by our Office of Facilities Management and Planning, our Green Campus Committee, created in 2004, provides guidance and generates interest and involvement throughout the campus. Committee activities have included helping to organize Earth Day, faculty luncheon lectures and guest speakers, developing our recycling program, and conducting a greenhouse gas inventory.

### **[Greening Today]**

Conserving energy involves our entire campus. Our energy costs are reason alone to do so, apart from the positive impact of lowered energy usage on the environment. Last year, our energy costs were \$1,300 per student, and 20 percent of our tuition and room revenue went to paying our utility bills. Over the past two years, our electrical rates have grown 70 percent.

In addition to simple strategies such as closing blinds in the summer, car pooling, and turning off lights, computers, and other energy guzzlers on weekends and over holidays, we have created a new wave of conservation consciousness on campus with an exciting new initiative that was funded through another incentive rebate from Connecticut Light & Power. Our new electricity monitoring system features flat screen monitors in all our buildings to show students, faculty, and staff what our daily usage is. As a result, our residence halls are having friendly competitions among students to see which dorms can lower their electrical usage the most. Talk about a teachable moment! We are also joining the other three universities in the Connecticut State University System to pool our bid for electricity, with an expected savings of \$700,000 over the next 20 months. All these efforts, while not

generating revenue for us, lower our costs — remember, “a dollar saved is a dollar earned” — and impress funding sources when they read of our energy consciousness.

The energy policy debate is impacting colleges across the globe, and Eastern has been active in joining coalitions and partnerships with universities and colleges that have shown leadership in this regard. In 2004, Dr. Carter signed the Talloires Declaration, joining colleges and universities around the globe who pledged to take the necessary steps for environmental and energy sustainability on their campuses in order to reduce dependence on fossil fuels. I was also pleased to sign the 2007 President’s Climate Change Commitment, which calls for colleges and universities in the United States to develop comprehensive plans to achieve climate neutrality, and reduce greenhouse gases. I urge you to join this and other coalitions if you haven’t already done so.

Our green building initiative is another component of greening our campus, perhaps the biggest component. In addition to retrofits on existing buildings that includes installing energy efficient windows and lights and adding insulation, newer buildings such as our Early Childhood Education Center, the South Residential Village — a 3-building residence complex—and the new Science Building have all been built to U.S. Green Building guidelines. The result has been energy savings on the order of 30 percent. In the Science Building, which opened only last month, we have a number of the latest green building features in place, including structural framework made of recycled steel, a grey-water system that reduces water use by redirecting wash sink water for the lavatory system, and recycled/renewable content in carpeting, flooring, and casework, to name just a few of the building’s green features.

In addition to constructing new buildings and retrofitting older ones, we have a number of systems in place to achieve further energy benefits.

- All older buildings are networked by a Building Automation System, which enables Eastern to monitor, schedule, and control all heating, ventilation, and air conditioning in six residence halls, a classroom building, our library, the student support services center, and Eastern’s early childhood education center.
- Photo-voltaic panels power the lights on our bus stops and parking lot lights, as well as the emergency lights for two of our residence halls. This was an interesting idea formulated by our electrical shop supervisor, an idea that was rewarded in 2004 with a grant from the Office of Policy and Management to install the panels, proving that green ideas grow best at the grassroots level.
- We are even finding sustainability opportunities with our vehicles. Several of our campus police have traded in their cars for bicycles, and our admissions staff is saving 40 percent in gasoline costs by using a new fleet of hybrid cars for recruiting trips.

### [Continuing to Educate Connecticut on Sustainability]

As we continue to green our campus, sharing our knowledge throughout the State of Connecticut remains a priority. One major project undertaken recently by the Institute for Sustainable Energy has been to identify energy inefficiencies and make recommendations for improvement among Connecticut’s schools. So far, more than 150 schools in 30 school districts have been analyzed using the EPA’s Energy Star Portfolio Manager benchmarking program. Student workers in the Institute have assessed local schools and developed reports on the benchmarks. In so doing, Eastern students are saving taxpayer’s money while gaining valuable work experience. In our local high school alone, the project is helping to realize a

\$500,000 savings due to energy efficiencies. In addition, the project is being used to support legislation for green building standards within Connecticut and to develop a school energy management course. Using an Office of Policy Management grant, the Institute has conducted a similar audit of 180 state agency buildings over the past three years.

### **[Innovation in our Academic Programs]**

Even as we discover new ways to save energy, both on campus and throughout our state, we continue to strengthen the work of the Center for Sustainable Energy Studies, the academic leg of our sustainability model.

The minor in sustainable energy studies will soon be expanded to become a major. Dr. Loxsom also has helped to infuse sustainability into our liberal arts core curriculum with a number of courses ranging from environmental policy and economics to geography. In this way, all Eastern students, regardless of their major, can become more knowledgeable on sustainability issues. Students see the work we are doing to green our campus as proof that Eastern is serious about sustainability, and they use our campus resources, including an on-campus, 19-acre Arboretum and a 100-acre farm that Eastern owns about 10 minutes from campus, as laboratories. We have gone from 300 students in sustainability courses last year to 500 this year. Whether it is field studies of insects, our recycling program, energy monitoring in our dormitories, Earth Day, internships with local agencies and nonprofits, or other opportunities, Eastern students have a wide range of opportunities to put their sustainability studies into practice. The Outing Club organizes hiking trips and also established a 5K trail race that attracted more than 120 runners in conjunction with Earth Week 2008, which has now become EARTH SEMESTER at Eastern.

As an example of service learning in action, a number of our students will be visiting Rusea, Jamaica, in November to begin the first phase of a project to bring renewable power to a local school in an underserved area of the island. I wish I had the time to go with them!

Another feature of our academic program I am proud of that is in the finer traditions of the liberal arts is the interdisciplinary nature of our work. Faculty from environmental earth science, biology, political science, geography, economics, business, education, and communication are all finding ways to impact Eastern's academic programs in sustainability.

### **[Synergy at Work]**

I hope some of these initiatives are sparking your own ideas. The key to your success is developing a comprehensive plan and ensuring that planning and implementation is a team effort.

I continue to be impressed by the efforts of our three sustainability leaders on campus to work together and find opportunities to support each other. You will frequently see Nancy Tinker, our director of facilities planning and management, ISE chief operating officer William Leahy, and Fred Loxsom, our endowed chair in sustainable energy studies, sharing the podium to co-present lectures and presentations. They also collaborate in other ways. Two years ago, the university received a Supplemental Environmental Program Grant of \$47,000 from the State Department of Environmental Protection to pilot an innovative renewable energy alternative, B20 — a mixture of 80% diesel fuel and 20% soybean oil — to heat our south campus. Both Bill and Nancy were involved in that project.

More recently, through her connections with the Connecticut Office of Policy and Management, Ms. Tinker was able to alert Dr. Loxsom about a grant opportunity that

resulted in a \$35,000 award for Dr. Loxsom and his students to monitor innovative solar hot water systems being erected at five sites in Connecticut. One of the sites is on our campus.

These are just two examples of how we are actively leveraging the networks established by each of our three sustainability leaders to advocate for and assist all three. **Three heads AND three legs are better than one!**

### [The Future of Sustainability at Eastern]

I have talked at some length about the three components of Eastern Connecticut State University's sustainability initiative — how each got started, how they have evolved and come together, and how we are finding opportunities to leverage their knowledge, shared resources, and networks. What does our future hold in store? For one thing, as I mentioned previously, we plan to have a major in Sustainable Energy Studies in place by fall 2009. The academic program is also working to make greater use of the internship opportunities offered by the Institute for Sustainable Energy. Our Science Building will have achieved Silver Certification by the U.S. Green Building Council. The design of our new Fine Arts building will be well on the way, again with green building standards in mind. The Institute for Sustainable Energy will have analyzed the energy efficiency of more than 200 Connecticut schools and offered specific proposals for those schools to conserve energy and save tax dollars. Students will have more options for receiving 'hands-on' learning in sustainability—via study abroad, independent research, internships, and other applied learning programs. We also see the possibility of NSF grants for outreach, curriculum development, and partnerships with our community colleges. Our Master Plan for campus expansion over the next 10 years features a goal of becoming a greener, more pedestrian campus, with the removal of many surface parking lots and moving our roadways to the campus periphery. In addition, as the first state to mandate it, Connecticut's legislature has passed a bill that will require all new school building projects exceeding \$2 million to build to LEED silver standards by January 1, 2009. Eastern is the liaison between the state and the schools.

### [Funding Opportunities]

Throughout my presentation today, I have attempted to reference funding for Eastern's various energy and environmental projects. I know that most of you in the audience have a vested interest in discovering external sources of sustainability funding. Let me focus a few minutes on this aspect of your planning. Here are a few "do's," if you will.

- **Take the time to develop a comprehensive approach.** Greening your campus is important. But are you sharing your knowledge and learning with the communities around you? Graduating majors in environmental studies is great, but what are you doing on your own campus to demonstrate to your students that you are walking the talk? Hosting a think tank on energy conservation but not also offering an undergraduate program in the same discipline is a lost opportunity. A well-thought-out, active approach to sustainability that teaches students good environmental stewardship and the skills needed to develop renewable energy options and a sustainable world, while sharing this knowledge widely throughout our state's communities and applying it to our own campus has worked for Eastern. Such a comprehensive plan is what funding sources are looking for — long-term, sustainable, systematic, and widely adaptable.
- **Getting money starts with building relationships.** For 20 years, Eastern has worked hard to develop partnerships with state officials, regional organizations, federal agencies,

other colleges, utility companies, and many other energy stakeholders. In addition to state agencies such as the Department of Environmental Protection and the Department of Public Utility Control, we also work closely with the Connecticut Energy Advisory Board which advises the Legislature and the Governor, and the General Assembly's Energy and Technology Committee. At the regional level, we have a good working relationship with the New England Region EPA, as well as maintaining close ties with the energy offices in New York and the five other New England states. National groups you should investigate include the Alternative Fuels Data Center, the Department of Energy's Clean Cities Program, EPA's ENERGY STAR program, and the National Association of State Energy Officials.

- **Work closely with your utility companies.** We have received hundreds of thousands of dollars in energy rebates and incentives from our utilities. Their guidance and support has been critical to installing energy-efficient technology and equipment and realizing energy cost reductions. If you still consider yourself nothing more than a customer of your utility companies, you need to rethink that relationship—these companies are your energy partners.
- **Leverage multiple funding sources.** Consider how many different funding streams you have available. Each will enjoy hearing that you are getting funds from the other. People like to join a winning team. You also may be able to match one source of funds with another. And as your sustainability program grows in scale, larger funds are going to become available. Let me just mention four areas that we have chosen to focus on:
  - a. **Corporate Funds:** In our case, that has been Connecticut Light & Power, United Illuminating, and Yankee Gas. The utilities in your state are natural sources for funding.
  - b. **State Funds:** Our utility oversight agency is the Department of Public Utility Control. Look at your own state agencies for clean air funds, funds for renewable energy research, and other opportunities. Some examples for us include the Connecticut Clean Air Fund and the Connecticut Energy Efficiency Fund. And, of course, our legislature provided some of the funds to create our endowed chair.
  - c. **Federal funding.** Universities are uniquely positioned to take advantage of the EPA/Department of Energy's Energy Star program, National Science Foundation funding, and other sources within the federal government.
  - d. **Private Foundations.** There are a number of foundations seeking to seed sustainability studies, research, and related programming. We have been successful in finding some of these and I urge you to look into them as well. The key, again, is to diversify the sources of funding for your energy efforts.

## Conclusion

I hope I have given you a thorough understanding of how our institution has developed a comprehensive, three-phased approach to sustainability on our campus, along with ideas for developing partnerships and securing funding. Campus sustainability efforts must be comprehensive and include academic, operational, and community outreach components. Faculty, staff, and students must be part of the planning and have ample opportunities to participate in your campus sustainability efforts. Academic programs should use your campus as a laboratory and your outreach program for real-world experience. You also need to be about the task of building relationships with industry professionals, policymakers, and

other energy stakeholders in your state. To the extent that you can be a resource to local and state governments, you will enhance your opportunities to secure external funding.

I would close by saying that we are only limited by our vision and our ability to adapt to change. I think you will find it interesting that in 1931 — almost 80 years ago — Thomas Edison told his friends Henry Ford and Harvey Firestone shortly before he died: “I’d put my money on the sun and solar energy. What a source of power! I hope we don’t have to wait until oil and coal run out before we tackle that.” Talk about vision! Let’s not disappoint Mr. Edison!

Good luck in your own endeavors and I would be happy to take any questions at this time.