



INSTITUTE FOR SUSTAINABLE ENERGY

2016 Annual Report



Spearheading Sustainability in Higher Education

In 2016, the **Institute for Sustainable Energy (ISE)** continued to lead and support national, state, and local sustainability initiatives—developing a comprehensive sustainability program for municipalities, promoting sustainability at the state’s colleges and universities, implementing energy and cost savings for Connecticut’s Technical High Schools, and fostering sustainability in K-12 schools.

OUR IMPACT IN 2016

Energy benchmarking for



39 K-12 schools



Developing **Sustainable CT: Local Actions. Statewide Impact.**



Supporting Community Sustainability



The Institute for Sustainable Energy
at Eastern Connecticut State University



1,048,227 kWh
Projected annual energy savings for CT Technical High Schools

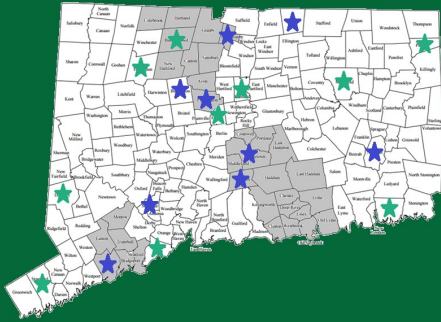
Energy benchmarking for



12 community colleges

Sustainable CT

Being Developed
By Towns, For Towns



The stars and shaded areas indicate the municipalities and regional entities involved in the development of Sustainable CT.

Sustainable CT Advisory Committee

Town of Burlington

Town of Durham

Town of Seymour

South Central Regional
Council of Governments

CT Conference of Municipalities

CT Dept. of Energy and
Environmental Protection

CT Dept. of Economic and
Community Development

CT Dept. of Labor

CT Main Street

Eversource

Partnership for Strong
Communities

Groundwork Bridgeport

Business Council
of Fairfield County

Institute for Sustainable Energy
at Eastern CT State University



Dan Giusti (*right*) is helping transform the school lunch program in New London with the kind of local initiatives that could be supported through Sustainable CT.

Developing a Comprehensive Sustainable Communities Program

The ISE has been working with the CT Conference of Municipalities (CCM) to develop a shared municipal vision and framework to accelerate sustainability action in Connecticut. This work is made possible thanks to the generous support of the Emily Hall Tremain Foundation, Common Sense Fund, and Hampshire Foundation.

Municipal Sustainability Case Studies

The ISE and the CCM's Task Force on Sustainability jointly released *Sustainable Communities: A Municipal Toolkit*. The toolkit features case studies of best practices from around Connecticut, demonstrating sustainability leadership at the local level and encouraging innovation across the state. Examples found within the toolkit include: sustainability planning, energy efficiency, local foods, and resilience and climate change adaptation.

Sustainable CT: Local Actions. Statewide Impact.

Together, the ISE and municipal leaders are developing *Sustainable CT*, a sustainable community certification program which will include: a flexible design to meet the needs of municipalities large and small; a roadmap of voluntary actions to make towns and cities healthier, safer, more resilient, efficient, and livable; resources, support, and funding to help municipalities implement actions; and public recognition for sustainability achievements. *Sustainable CT* was soft-launched in November at the 2016 CCM Annual Convention. Moving forward, program development will be led by an Advisory Committee composed of voices from municipalities, state agencies, nonprofits, the business community, and academia. The first certification cycle of *Sustainable CT* will launch at the 2017 CCM Annual Convention.



Participants at the Summer Roundtable for the CT Alliance for Campus Sustainability, held at UConn Avery Point.

Spearheading Sustainability in Higher Education

The ISE, located at Eastern CT State University, has a strong connection to higher education institutions, students, and campus sustainability. As the only sector with organizational commitments to carbon neutrality, Connecticut’s higher education institutions serve as a role model of climate change leadership for the state and nation. The ISE supports these institutions in providing models for setting and tracking climate targets and for accountability in meeting climate commitments.

Energy Benchmarking and Energy Management Plan

In 2016, the ISE served on the Steering Committee to help develop the Connecticut State College and University System (CSCU) Energy Master Plan. To assist with this planning, the ISE collected and analyzed energy data for all 12 community college campuses. Using the US Environmental Protection Agency’s Portfolio Manager, the ISE compiled energy data for these 12 campuses and prepared an Energy Use Profile report for each school. These reports will help each college identify energy and cost savings opportunities.

CT Alliance for Campus Sustainability

The ISE and Yale University’s Office of Sustainability continue to co-chair the Connecticut Alliance for Campus Sustainability, which promotes networking and collaboration among Connecticut’s public and private colleges and universities. In 2016 the Alliance coordinated several events, including *From Paris to Hartford*, its third annual campus sustainability conference. The conference, held at UConn Law School, brought together more than 120 attendees from across the state to discuss campus climate action within the context of international climate agreements and national, state, and local climate initiatives.



“The part I liked most about the conference was the importance that was put on environmental policy dialogue, especially because the conference discussed the Paris climate talks and what we are doing here in Connecticut to put these discussions into effect. I thought the stress on environmental policy was crucial.” –Attendee, *Paris to Hartford*, the third annual campus sustainability conference.

Summer Roundtable

Hosted at UConn Avery Point, attendees from across Connecticut gathered at the Roundtable to learn about creating Resilient Campuses.



In October, Connecticut celebrated its second annual Campus Sustainability Week. Several higher education institutions across the state held events to showcase and promote sustainability to students, faculty, and the general public.



CT Technical High School System



20 schools



3,568,361
sq. ft.

Projected annual savings from first seven lighting retrofit projects (see table below):

1,048,227 kWh

\$191,908

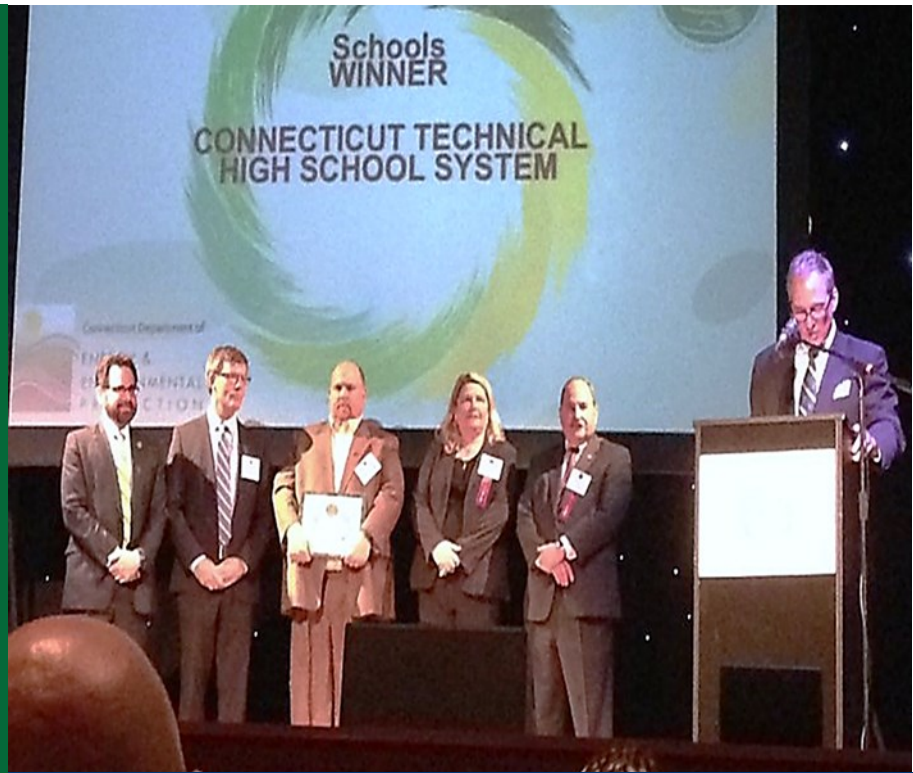
Lifetime energy savings from first seven lighting retrofit projects:

13,107,308 kWh

Lighting Upgrade Savings

Resulting from ISE-assisted EnergizeCT Projects

	Lifetime kWh savings	Estimated Annual \$ Savings
Abbott Tech	1,229,577	\$24,250
Bristol TEC	650,381	\$8,288
Cheney Tech	2,620,029	\$40,082
Goodwin Tech	3,249,981	\$43,975
Prince Tech	2,486,416	\$36,166
CT Aero Tech	888,150	\$13,721
Kaynor Tech	1,982,774	\$25,426
Total:	13,107,308	\$191,908



Assistant Superintendent Jeff Wihbey (third from left) accepting a GreenCircle Sustainability Award in the Schools category on behalf of the CTHSS; presented by CT DEEP Commissioner Rob Klee (left) and staff from the Hartford Business Journal.

Saving Energy and Costs for CT Technical High Schools

Throughout 2016, the ISE has continued to work with the Connecticut Technical High School System (CTHSS) in developing a strategic, system-wide approach to energy management. In addition to updating energy benchmarking for the 20 CTHSS facilities, the ISE helped coordinate the implementation of lighting retrofit projects at CTHSS facilities.

The ISE connected seven of the technical high schools with the EnergizeCT Small Business Energy Advantage Program, which provides a means of implementing energy efficiency projects without any up-front capital expenditure to the school system. So far, these seven LED lighting retrofit projects will save CTHSS an estimated 1,048,227 kWh and \$191,908 per year. Lifetime energy savings from these projects is an estimated 13,107,308 kWh.

In May, CTHSS received a Department of Energy and Environmental Protection GreenCircle Sustainability Award in making Connecticut cleaner and greener. The award recognized CTHSS for its recent lighting upgrades.

The ISE will continue to assist CTHSS with sustainable energy management, pursuing additional energy and cost-saving measures as well as opportunities to implement solar photovoltaic systems at the schools.



Left: Students at Two Rivers Magnet High School—a 2016 Green Ribbon Honoree—cleaning up trash on the Hartford River Walk for Earth Day. Right: Two Rivers Green LEAF Club members collecting materials during a Recycling Challenge.

Fostering Sustainability in K-12 Schools

The ISE administers and co-chairs the Connecticut Green LEAF Schools program, a collaboration of four state agencies and over 35 educational and environmental organizations. The program provides resources and support for environmental and sustainability education, improved health and wellness of students and staff, and reduced environmental impacts and costs. Benefits include:

- Academic benefits - Higher achievement, reduced absences, improved engagement, reduced disciplinary problems
- Improved health - Healthier eating, more physical activity, healthier school environment
- Reduced costs - Savings on energy, water and waste

Green LEAF Schools has grown to 107 member schools, with 21 schools added in 2016. The ISE completed Energy Star Portfolio Manager benchmarking for 39 member schools, helping to measure their energy use and guide their next steps in improving energy efficiency.

The Green LEAF Steering Committee nominates CT schools for federal Green Ribbon School recognition by the US Department of Education. Three Green LEAF schools were recognized in 2016 as Green Ribbon School Honorees: King School in Stamford and Two Rivers Magnet Middle School and High School in Hartford. The Green LEAF program was recognized as a 2016 GreenCircle Sustainability Award finalist by the CT Department of Energy and Environmental Protection.

National Best Practices

Interns at ISE researched and identified best practices and innovations from hundreds of 2012-2016 U.S. Green Ribbon Schools applications. The resulting 10 documents — ‘Green Ribbon Case Studies and Opportunities’—provide excellent sustainability examples for Connecticut schools, and can be found at www.ctgreenleaf.org.


At a November 2016 workshop, the Green LEAF program and environmental and state organizations worked with teams from 10 Connecticut schools to explore best practices in integrating sustainability into building operations and curriculum.



CONNECTICUT
GREEN LEAF
SCHOOLS

 **107** CT
Green LEAF schools

 **53,327**
students served
through Green LEAF

 **12** CT schools
and 1 CT district
recognized as US Green
Ribbon School Honorees

Green LEAF's Leading State Agency Partners

CT State Dept. of Education

CT Dept. of Energy and
Environmental Protection

CT Dept. of Administrative
Services

CT Dept. of Public Health

“We have made great progress towards creating a curriculum around our theme of environmental studies and making mindful choices for ourselves, our environment, and our world. This progress is largely due to our work with CT Green LEAF.”

— Rebecca Pellerin, Principal of Moriarty Environmental Sciences Magnet School, Norwich; a 2017 Green Ribbon applicant.





ISE interns promoting campus sustainability at an Earth Day event at Eastern Connecticut State University.

Advancing Innovative Policy and Best Practices: National, State, Local

National Partnership on High Performance New Buildings

During 2016, the ISE continued its partnership with the National Renewable Energy Lab and Seventhwave to promote and support “performance-based procurement” to maximize energy efficiency in the construction of new buildings. Performance-based procurement empowers building owners to prioritize project goals and specify energy performance requirements when soliciting services to design and construct new buildings. This approach inspires innovation and competition among design teams and results in high performance and net-zero energy buildings at little or no additional cost. ISE is partnering with Eversource and United Illuminating to identify and support demonstration projects in Connecticut.

Development of State Policy

The ISE’s Director serves on the Governor’s Council on Climate Change. The Council is charged with monitoring progress and identifying bold strategies to ensure that Connecticut meets its greenhouse gas reduction targets. The Council issued an initial exploratory report in 2016 and engaged in modeling and analysis of policy scenarios. ISE staff also participates actively on other statewide boards and commissions, working collaboratively on issues ranging from high performance buildings and campus sustainability to sustainability education and workforce development.

Sustainability on Eastern’s Campus

The ISE chairs Eastern’s Green Campus Committee, which meets monthly to develop and report on sustainability initiatives. The Committee is focusing on: campus recycling, commuter efficiency, reducing food waste from the university’s dining hall, and general sustainability outreach.

Chairing Eastern’s Green Campus Committee (GCC)

Outreach

The GCC developed a logo to brand Eastern’s green initiatives.



Merchandise featuring the logo is available in Eastern’s bookstore. In December, the GCC released a brochure showcasing Eastern Sustainability.

Waste Reduction

The ISE performs regular audits of Eastern’s waste and recycling stream. Based on the data collected from these audits, the GCC was able to recommend opportunities to reduce Eastern’s waste management services, saving **\$39,000** over the past two years.

Recognition

The GCC won a GreenCircle Sustainability Award from the CT Department of Energy and Environmental Protection for its waste reduction efforts. Eastern also achieved its second Silver Rating through the Association for the Advancement of Sustainability in Higher Education’s Sustainability Tracking, Assessment & Rating System.



130+

student interns employed by the ISE over the past 16 years



85%

of Eastern students work in Connecticut after graduation, extending the impact of internships into our state's workforce

ISE interns represent a broad range of academic majors:

- Business Administration
- Accounting
- Elementary Education
- Communications
- Economics
- Sociology
- Environmental Earth Science

"I do meaningful work that positively affects the sustainability of Eastern's campus. I feel that I am able to make a difference in my local community, which is a wonderful feeling. I am a sophomore and an Environmental Earth Science major hoping to enter the field of Environmental Law. My experiences at the ISE will prepare me for my future, giving me practical experiences and opportunities."

—Emma Avery, ISE intern.



ISE interns enjoy a field training at Eastern's Arboretum.

Preparing Students for Connecticut's Clean Energy Workforce

The ISE's paid student interns perform valuable work while developing energy and sustainability expertise and professional workplace skills. At the ISE, interns have opportunities to work with specialized energy software and to meet with sustainability-focused professionals from various state organizations. The ISE also hosts credit interns, fulfilling academic requirements for students in many majors.

Interns perform the following work in a strong team environment: energy benchmarking, web site development and maintenance, research on sustainable technologies and practices, social media outreach, collection and analysis of data, promotion of Eastern sustainability actions, waste audits, organizing on-campus events, development of educational and outreach materials, and support for statewide conferences. As a result of this experience and training, ISE alumni have been hired by energy and environmental consultants, utility companies, state agencies, and public schools.

2016 Intern Accomplishments

- Research and outreach on cleaner commuting for Eastern staff and faculty
- Support in the creation of *Sustainable CT*, a certification system and roadmap for municipal sustainability action
- Development of a green procurement policy for Eastern
- Development of case studies highlighting best practices from Green Ribbon School Honorees



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Eastern CT State University

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Our Mission

The Institute for Sustainable Energy (ISE) was established at Eastern Connecticut State University in 2000 by the Board of Trustees of the CT State University System. The ISE provides support to municipalities, state agencies, colleges and universities, K-12 schools, and other stakeholders through education, research, and technical assistance. The ISE serves as an objective resource to advance the adoption of practical, cost-effective solutions that increase energy efficiency, sustainability, and resilience.

Our Sponsors

We are grateful to the organizations supporting our current work:



Tremaine Foundation



COMMONSENSEFUND

The United States
Department of Energy

Our Team



Our Staff (left to right): Alyssa Norwood, Laura Miller, Jenna Laffleur, Lynn Stoddard, Laurel Kohl, Jessica LeClair, and (*not shown*) Mimi Cedrone.



Our Interns (left to right): Leticia Denoya, Alex Fazzino, Tara Brooks, Zachary Stygar, Emma Avery, Weronika Lewkowicz
Not shown: Graham Benedict, Ashley Houle, Kevin McCormick, Musitafa Musha, Tyler Stebbins, Trevor Warbin, Gabriela Wroebel, Daniel Wunderlin.

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