

Institute for Sustainable Energy

At

Eastern Connecticut State University

2006 End-of-Year Report

**Prepared for the
Energy Conservation Management Board
February 15, 2007**



Projects were funded by the
Connecticut Energy Efficiency Fund

Contents

ECMB Goal Summary	1 – 4
Budget Summary	5
State Building Code Report	6-7
2006 Activity Summary	8
2006 Public Outreach	9
ISE Affiliations	10
www.ctenergyinfo.com	11
www.sustainenergy.org	12
Connecticut Energy Education	13 - 17

Institute for Sustainable Energy at ECSU
2006 Year End Report
ECMB Goals
February 14, 2007

Activity 1: Connecticut State University, Energy Efficient “Green” Campuses Initiative

Objective: The Green Campus Initiative was developed by the Institute for the 2005 CT Climate Change Action Plan and designed to complement the delivery of CEEF supported energy efficiency programs to all Connecticut colleges and universities including Connecticut’s State University System (CSU) and Connecticut’s Community Colleges.

2006 Activities	<ul style="list-style-type: none"> • In 2006, ISE completed comprehensive energy plans for Western Connecticut State University and Eastern Connecticut State University. ISE continues to work with Southern Connecticut State University on the energy plan developed in 2005. ISE started initial energy planning steps with Central Connecticut State University, Gateway Community college and Three Rivers Community College. • ISE developed an assessment tool to determine relative building efficiency for unmetered buildings and an ACCESS database for collecting building data and prioritize efficiency opportunities from information collected on walkthrough analysis. ISE uses the scoring process in conjunction with conducting walkthroughs of all the campus facilities at SCSU, WCSU and ECSU. • In addition, Energy Star benchmarking was performed on 18 sub-metered Residence Halls with two at ECSU and three at SCSU scoring high enough to be recognized with EPA Energy Star status. <p>4th Quarter Progress</p> <ul style="list-style-type: none"> • At SCSU, a presentation was made to the President and her cabinet. The plan was adopted into Southern’s long range capital plan. Following the presentation, President Norton established a Green Campus Committee to perform an evaluation of other campus sustainability opportunities beyond energy. SCSU participated in the Load Response program through Enernoc. • Eastern selected a contractor to install submetering in thirty-five buildings. Certification is underway to obtain Energy Star awards for High Rise and Noble Residence Halls. ECSU participated in the ISO Load Response program contributing over 1MW through CL&P. • The WCSU study identifies numerous opportunities to participate in CEEF retrofit programs and several capital projects were identified. Western has successfully participated in the ISO Demand Response program contributing over 2MW through Enernoc. • Presented the findings of the three studies to the CSU Central Office Administration. Discussed the aggregation of electric use and loads at all four campuses in order to move the universities from the “Supplier of Last Resort” to competitive electric supplier.
------------------------	--

Activity 2: High School Energy Efficiency Curriculum

Objective: The objective of this initiative is to develop, test and implement energy efficiency and conservation modules for grades 9-12 and train teachers in Connecticut to integrate them into their classrooms, following the CT Frameworks and Standards as required by the CT Department of Education.

<p>2006 Activities:</p>	<ul style="list-style-type: none">• Launched the HS energy education program and www.CTEnergyEducation.com website statewide through workshops, newsletters and teacher conference events. This interactive high school energy education website currently includes background information on energy issues in Connecticut, along with 26 energy based lessons on energy principles, efficiency and climate change.• During the month of August, two workshops were held where lessons were vetted by a group of twenty nine highly experienced Connecticut teachers. Each lesson was critically reviewed, and amended as necessary to provide Connecticut high school teachers with highly qualified energy lessons that meet the CT Frameworks and Standards.• Held five hands-on training workshops for over 81 Connecticut high school teachers statewide.• Tracked the use of the website and materials by both teachers and students. During the first six months of use CTEnergyEducation.com had 979 unique visitors. 20% of users were of duration greater than 15 minutes with 8% at over one hour. Reports identify teachers who download lesson by school district.• Published quarterly newsletter announcing the launching of the CT Energy Education website and sent it to 130 interested Connecticut teachers and administrators.• Participated in the development of the “Cool It Challenge,” www.coolitchallenge.org, to develop a competition for high school and middle school students to develop local solutions to climate change. <p>4th Quarter Progress</p> <ul style="list-style-type: none">• Conduct 3 regional training workshops to deploy the program, including workshops at regional educational resource centers and at the Connecticut Science Teachers Association annual professional development day.• Continued development and tracking reports for the website and adding materials for both teachers and students utilization.• Beta test additional lessons and materials for launch in early 2007.
--------------------------------	---

Activity 3: Multi-family Residential Customer Initiative – Demonstration Project

Objective: The objective of the multifamily demonstration project is to determine more effective marketing and administrative strategies to reach this diversified market segment.

<p>2006 Activities:</p>	<ul style="list-style-type: none">• Identified fourteen project financing alternatives with descriptions and site links and posted financing options on the www.ctenergyinfo.com web site.• ISE consultant completed the Preliminary Facility Evaluation on demonstration site #1, Ogden House, Wilton. ISE hired consultant for demonstration project #2, Fountain Terrace, Stamford (condominium Assoc.). A Preliminary Facility Evaluation on the site was initiated.• ISE facilitated discussions between the utility C&I program administrators and CHFA design and finance teams as to timeliness of CEEF consideration and commitments. CHFA affordable housing projects can be addressed by CEEF funding under the Energy Conscious Blueprint (ECB) program and the Energy Opportunities (EO) program. A direct channeling of CHFA projects into these programs is anticipated.• ISE established a roadmap for partnership interactions with Connecticut Housing Finance Authority (CHFA) affordable housing projects for energy efficiency upgrades under CEEF C&I programs.• ISE Developed financing calculation spreadsheets to evaluate comprehensive project proposals utilizing long-term financing. Spreadsheets allow for adjustments to incentive programs, financing program interest rates, and capital depreciation for analyzed comprehensive projects.• ISE received a DOE grant with grant partner NYSERDA to provide two 3-day building operator training course (BOC) in 2007 & 2008. The program will be offered in the May 2007 in Stamford and will target building operators from private sector and housing authority multifamily buildings. <p>4th Quarter</p> <ul style="list-style-type: none">• Completed data collection on demonstration projects #2 (Stamford) market rate condominiums.• Began testing of TREAT (Targeted Residential Energy Assessment Tool) for building assessment and efficiency application with multifamily projects.• Completed data collection for demonstration project #3, CHFA financed projects in Hartford (Common Ground Community) and East Haven (AIMco Capital) to be approved and initiated with CEEF funding for renovations projects to start in early 2007.• Final report on multifamily demonstration project recommendations in final review and vetting.
------------------------------------	--

Activity 4: Building Inspector Energy Code Training

Objective: The objective of this project is to increase awareness and knowledge of the energy related components and the Connecticut Building Code including provisions of the 2003 International Energy Conservation Code (IECC) and ASHRAE 90.1 2003 through amendment S.

The project was a joint venture of Department of Safety – Training Division, Office of the State Building Inspector, CL&P, UI and ISE.

2006 Activities	<ul style="list-style-type: none">• ISE developed the 2006 Energy Code Training with Doug Schanne, Assistant Director of Education, Department of Safety for the State Building Inspectors Office, Donald Vigneau, Program Manager for Code Training at NEEP and the Fred Wajac of CL&P.• Five regional training sessions for 64 local building officials were conducted in September and October 2006 on compliance with the energy efficiency codes for both residential and commercial buildings.• Additional information was included on interconnection standards for PV and Distributed Generation (DG) installations• Information on the CEEF program was presented by the utility program administrators from CL&P and UI.• Inspectors were polled as to their view of the importance of inspecting for compliance to the energy efficiency codes and asked to name the current code in effect. The results were that most inspectors ranked the importance of the energy efficiency components of the code behind that of egress, safety, electrical, plumbing, and structural integrity. Half could not name by version the current energy code in effect in Connecticut, but were familiar with the use of ComCheck to evaluate compliance to state code. (survey results attached)
----------------------------	--

EASTERN CONNECTICUT STATE UNIVERSITY
Institute for Sustainable Energy
Acct # SEGO03 - ECMB Projects
Reporting Period: 1/1/06-12/31/06

	1ST QUARTER ACTUAL	2ND QUARTER ACTUAL	3RD QUARTER ACTUAL	4TH QUARTER ACTUAL	YEARLY ACTUAL
LABOR:					
ISE STAFF (3)	59,695.80	51,167.85	57,741.73	53,772.34	222,377.72
STUDENTS (9) *1	6,928.80	7,512.90	16,966.20	9,586.70	40,994.60
UA'S (2) *2	11,294.15	8,166.75	9,831.00	9,117.00	38,408.90
FRINGES	17,796.03	15,402.66	20,301.49	15,943.12	69,443.30
SALARY TOTAL	95,714.78	82,250.16	104,840.42	88,419.16	371,224.52
OPERATING:					
MATERIAL/SUPPLIES	4,682.18	14,156.16	13,019.89	9,679.76	41,537.99
CONTRACT SERVICES *3	-	1,604.94	8,280.00	18,604.94	28,489.88
RENT	17,500.00	17,500.00	17,500.00	17,500.00	70,000.00
OPERATING TOTAL	22,182.18	33,261.10	38,799.89	45,784.70	140,027.87
Total Sal & Operating	117,896.96	115,511.26	143,640.31	134,203.86	511,252.39
UNIV. OVERHEAD 20%	23,579.39	23,102.25	28,728.06	26,840.77	102,250.48
QUARTERLY TOTAL	141,476.35	138,613.51	172,368.37	161,044.63	613,502.87
REVENUES	76,500.00	76,500.00	76,500.00	76,500.00	306,000.00
			2005	Carry forward	<u>320,000.00</u>
					626,000.00

- *1 Student Interns work 15 hours per week
- *2 University Assistants work 19 hours per week
- *3 Contract Services includes: Engineering and websupport

William M. Leahy
January 1, 2007



At Eastern Connecticut State University

The Institute for Sustainable Energy at Eastern Connecticut State University was established in 2001. The Institute's Mission is **"...to identify, develop and become an objective energy and educational resource regarding the means for achieving a sustainable energy future."** The work of the Institute focuses on matters relating to the formation of public policy, providing educational outreach, supporting energy solutions and maintaining information resources on energy and sustainability. The Institute provides an unbiased view of energy resources, practical applications for alternative sources and information about how to improve the energy profile and sustainability of the region. Below is a sample of the work accomplished or underway by the Institute.

Public Policy

- Facilitated the development of the 2006 and 2007 Connecticut Energy Plans for the Connecticut Energy Advisory Board.
- Supported the legislative process with testimony promoting energy efficiency at the CT Energy Summit, and to the Energy & Technology and Environment Committee hearings.
- Co Chaired the Fuel Diversity Task Force initiated by Speaker of the House of Representatives, James A. Amann.
- Supported the adoption of High Performance Building Standards in all new state projects. (adopted in the 2006 legislative session)
- Conducted public roundtable discussions on energy issues with regional, state, municipal stakeholders and university leadership in support of the promoting energy efficiency and distributed generation.
- Contributed to the implementation of the 2005 Connecticut Climate Change Action Plan Initiatives, including Benchmarking State Facilities and Municipal facilities including schools, leading the Green Campus Initiative, and conducting the Biodiesel Test.

Educational Outreach

- Conducted a stakeholder process with educators and energy and environmental professional in order to develop a grade 9-12 Energy and Environmental Education curriculum in support of State Department of Education high school frameworks.
- Launched www.ctenergyeducation.com to support the above initiative.
- Conducted multiple teacher workshops statewide on energy education topics for 9 -12 classrooms through local school districts, the Regional

Educational Service Centers and the Connecticut Science Teachers Association.

- Provided energy and environmental educational experiences to the participants in the 2005 - 06 Connecticut Envirothon and 2006 COMCAP.
- Developed and hosted professional seminars, workshops and symposiums on sustainable energy topics, including EPA benchmarking, business applications for distributed generation, creating environmentally sound "Green Campuses," and State Building Code Training on energy standards for local building officials in 2005 & 2006.
- Developed and launched www.ctenergyinfo.com, an energy information portal connecting energy related program and resources on 57 websites.

Energy Solutions

- Conducting a stakeholder process on the benefits and barriers to adopting High Performance Building Standards for public schools, sponsored by the Connecticut Green Building Council.
- Conducted a statewide study to evaluate the current energy efficiency of Connecticut's public schools.
- With ECSU's Facility Management Dept., tested the use of B20 Biodiesel for heating two campus buildings during the 2005-2006 heating season.
- Provided Energy Star Benchmarking for Connecticut state agencies including 120 buildings through the Office of Policy and Management.
- Assisted the Connecticut Housing Finance Authority incorporate Energy Star high efficiency energy building standards into their requirements for loan applicants for financing affordable housing.
- Providing technical support to the colleges, universities and local high schools in Connecticut interested in implementing the "Green Campus" Initiatives using the Institute's "12 Steps to a Sustainable Campus."

Award & Recognition

- Eastern Connecticut State University received the **2006 Connecticut Quality Innovation Gold Award** for the development and implementation of "the Greening of Eastern."
- Results from the Institute's study; "The Energy Efficiency of Connecticut's Public Schools" was featured in the news media, including in the New York Time, Hartford Courant, and on NPR radio.
- **2004 National Energy Star Partner of the Year** for excellence in energy education from US Environmental Protection Agency and Department of Energy.
- **2005 and 2005 Environmental Merit Award** from the New England Region of Environmental Protection Agency for promoting energy efficiency.
- CT Department of Environmental Protection "**Green Circle Award**" for participation of Laurel Kohl and Bill Leahy on the Connecticut Climate Change Action Plan Working Groups.