

The Institute for Sustainable Energy

at

Eastern Connecticut State University

Newsletter



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Clean Energy

Facts

- Wind power could produce more than 600,000 MWh of Electricity in Connecticut with the development of 200 acres into wind farms.
-Department of Energy
- 2002 was the second warmest year since 1860, with 1998 the hottest. Nine of the hottest years occurred since 1990.
-Department of Energy
- Connecticut could produce 645,505 MWh of electric capacity from hydro-power—about 4% of our current electricity use.
-Department of Energy

Connecticut Energy Day March 21, 2003

March 21, 2003 has been officially proclaimed Connecticut Energy Day by Governor John Rowland at the request of the Institute for Sustainable Energy.

Connecticut Energy Day is an idea that was developed at an energy conference for teachers sponsored by the Institute on the Eastern campus last November. This is a day designed to raise awareness about energy in all classrooms around the state at every grade from kindergarten through high school.

Governor Rowland, citing Connecticut as the home of many innovative energy companies, manufacturers, producers and suppliers, said "I encourage all students to explore the use of energy in their classrooms and Connecticut educators to incorporate energy lessons into their curricula in celebration of this most essential resource."

"I am very pleased the Institute is leading this statewide effort," said Dr. David G. Carter, president of ECSU. "The study of energy is important for many reasons, including our understanding of the relationship of energy use to global warming, pollution, and the world economy and especially since energy technology is a growing area of future employment in Connecticut and nationally."

"Every student can get involved in Con-

necticut Energy Day, as energy affects every thing we do," said Laurel Kohl, energy education specialist at the Institute. "Language arts, math, social studies, science, art, music, foreign language and technology are just a few of the subjects where teachers can use lessons they have already planned to look at topics from an energy point of view."

"In addition to traditional energy sources, renewable energy sources are important to Connecticut's future," said Joel Rinebold, Executive Director of the Institute.

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Energy Study for Southwestern CT Completed

The Institute for Sustainable Energy at Eastern Connecticut State University completed a report on energy transmission, generation, and usage in southwest Connecticut, developed by a Task Force and Working Group established by Governor John G. Rowland and the 2002 Connecticut General Assembly.

Joel M. Rinebold, Executive Director of the Institute and Chairperson of the Task Force and Working Group stated "The group hosted five public hearings and over eighty technical presentations ranging in topics from protection of environmental resources to regional planning initiatives. These hearings and presentations have prepared members of the Task Force and Working Group to respond to the specific provi-

sions raised by Executive Order 26, and Public Act 02-95, and issue recommendations on how to simultaneously protect environmental resources and meet the energy needs of our state".

In reaching its conclusions, the Working Group stated that southwest Connecticut is a load pocket requiring additional resources in order to maintain grid security and reliability objectives. The current energy infrastructure in southwest Connecticut is not adequate to serve this area as it continues to experience economic expansion.

The existing transmission system and limited available generation has required

(CONTINUED ON PG 2)

Biodiesel for New England

A Regional Workshop on the potential for creating a market for bio-diesel fuel from recycled fats, oils and greases will be held at Eastern Connecticut State University on March 26, 2003. CT Department of Environmental Protection, US Department of Energy's Clean Cities Program, MA Division of Energy Resources, RI State Energy Office, and the Northeast Regional Biomass Program are sponsoring the workshop. This event is hosted by the Institute for Sustainable Energy.

The workshop will be a forum to dis-

cuss the issues surrounding the collection and conversion of waste fats, oils and greases into marketable biodiesel fuel for transportation in New England. Biodiesel is considered a renewable fuel, producing cleaner emissions than fossil-fuel based diesel. Blended biodiesel is currently used for vehicles and heating fuel in New England, however most of the oil is virgin soy based oil, not recycled oils.

The state biomass working group members, food processors, restaurant and food service facilities, municipalities,

fleet operators, schools, community officials, entrepreneurs and other interested parties are encouraged to attend. Speakers will include representatives from NREL, BIOPEC, Wright-Pierce, and the EPA. The event will run from 8:30 A.M. to 4 P.M. and will be held in the Betty Tipton Room of the Student Center at Eastern Connecticut State University. Admission is free and includes lunch. Pre-registration is required. To register please email Laurel Kohl at KOHL@easternct.edu or fax 860-465-0261.

What is Sustainability?

The Institute for Sustainable Energy at Eastern Connecticut State University was established in November 2001 to identify, develop, and implement the means for achieving a sustainable energy future for Connecticut and the region.

So, what is **Sustainability**? Many believe sustainability means to never deplete the existing supply. Others believe depleting the existing supply while developing substitutes to meet future needs is still achieving sustainability. A more inclusive definition might be "using, developing and protecting resources at a rate and in a manner that enables people to meet their current needs but also provide that future generations will be able to meet their own needs as well."

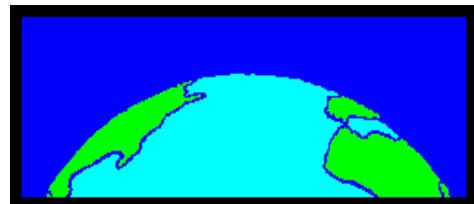
The complexity of defining sustainability lies in the understanding that sustainability requires the careful balance of three independent variables: the needs of

communities, the impact on the environment, and the economics of the available options. In a community where all three variables are considered in combination with equally importance, there can be sustainability.

The way we use energy significantly impacts our region's sustainable future. History has demonstrated that when reliable energy is readily available at a reasonable price, the culture and economy of that area will flourish. When energy supplies are disrupted, reliability becomes questionable, or when energy is not available at reasonable prices, the community is severely limited in its ability to sustain quality of life and economic growth.

Areas throughout our nation, including within our own region, are experiencing problems in securing adequate, reliable energy as the current infrastructure is strained to its limits. The uncontrolled

growth of energy use, the resistance to adopting renewable "green" energy sources, along with mounting evidence of the detrimental impact of energy use on air quality and the environment, have drawn the attention of government, business, the scientific communities and the public at large. Solutions require changes to public policy, providing energy education for a better understanding of the issues and options, enhanced energy management to achieve energy cost reduction, resolve difficult environmental issues and provide outreach to the community.



Update on Energy Studies for Southwestern Connecticut (continued from pg.1)

that system operators be prepared for load shedding to prevent cascading system outages and voltage collapse. Furthermore, the area is subject to uncertain local generation availability due to economic and environmental concerns. Merchant plant development opportunities are restricted by local transmission and interconnection constraints. Necessary additional resources may comprise a variety of supply and demand-side initiatives, including new transmission, conventional generation, distributed generation, conservation and load management, and price reforms. While the Working Group did not attempt to reach a consensus for a specific transmission option, the members do

agree that transmission relief is necessary.

In setting forth its recommendations, the Working Group outlined a process for the development of a new Connecticut Energy Coordinating Authority that could:

- assist in the comparative analysis of competing energy projects;
- analyze the potential cumulative impacts of energy proposals;
- improve the participation of Connecticut within regional energy planning activities; and
- improve public participation, municipal involvement, and protection of environmental resources within the decision-making process for manage-

ment of energy resources.

Other recommendations include:

- the development of environmental preference standards;
- the development of a transmission options manual;
- an expanded life-cycle analysis;
- the administration of a natural gas conservation charge;
- initiatives for development of new generation in southwest Connecticut;
- the development of a state-wide energy plan.

The report may be reviewed at www.state.ct.us/dpuc/database.htm and www.sustainenergy.org.

DOE and ICLEI Plan Conference for Municipal Officials

Community leaders interested in saving money, reducing pollution, and taking action to mitigate climate change are invited to a workshop sponsored by the US Department of Energy and International Council for Local Environmental Initiatives (ICLEI) on Thursday March 27, 2003 at the North Haven Holiday Inn. The goals of the session are to; (1) detail existing resources that can be provided to local governments, (2) identify problems that local governments experience when implementing energy efficiency, sustainable transportation and greenhouse gas reduction plans, and (3) build stronger relationships between local governments, DOE, EPA, state agencies and resources like ICLEI and the Institute for Sustainable Energy.

Communities in Connecticut can improve their energy sustainability through participation in a portfolio of energy conservation, environmental and renewable energy programs currently available to municipalities, business customers and

residential energy users. These programs are typically publicly funded and designed to save money, improve energy efficiency and protect the environment. Through participation in these programs, the community can move forward with environmental and energy solutions to secure a sustainable energy future while reducing costs and freeing up funds necessary to support financially strapped budgets.

The Institute for Sustainable Energy at Eastern Connecticut State University provides organizational and technical assistance to Connecticut communities interested in developing action plans for energy sustainability. Participation will help communities develop broad support from the residents and businesses, as sustainability addresses a number of common concerns, including:

- Reduces unnecessary energy use, while helping residents, businesses and the municipality cut energy costs,
- Improves lighting and space condi-

tioning in public buildings with minimal impact on taxes,

- Reduces regional dependence on foreign oil,
- Encourages the use of renewable energy sources (e.g. solar, wind, biomass, fuel cells, etc.)
- Reduces "greenhouse" gases, believed to be the leading cause of climate change and global warming,
- Improving air quality, necessary for good health especially in children and the elderly, and
- Promote a community spirit of sustainability that can translate into energy and dollars saved, and an improved business climate.

For information on the Conference or assistance from the Institute contact William Leahy at leahyw@easternct.edu or call him at (860) 465-0252.

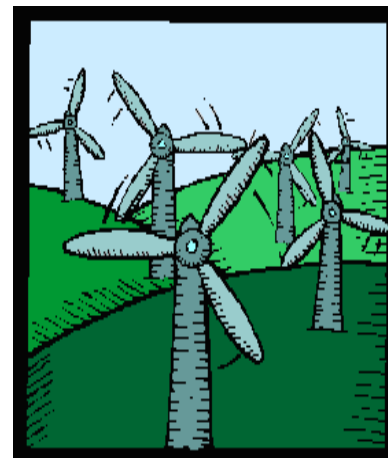
Distributed Generation Report Completed

The Institute has completed a report entitled "An Assessment and Report of Distributed Generation Opportunities in Southwest Connecticut". The study found that the potential for Distributed Generation (DG) use among commercial/institutional and industrial customers in southwest Connecticut is over 650 MW. However, only 20.70 MW of new DG is projected to be installed by 2013, based on use of current DG technologies and a "Base Case" for market penetration. An "Accelerated Case" using advanced DG would allow for the development of up to 186 MW by 2013.

Joel M. Rinebold, Executive Director of the Institute for Sustainable Energy at

Eastern Connecticut State University stated, "This report is intended to present information about distributed generation technologies and the role distributed generation can provide in shaping the energy infrastructure of southwest Connecticut and the region". The report is on the Institute's website at www.sustainenergy.org.

Companion reports on the Conservation and Load Management Opportunities and Demand Response Opportunities in Southwest Connecticut are expected to be released in early spring, in addition to a detailed energy audit for the City of Norwalk, all associated with the response to Executive Order 26 and Public Act 02-95.



Connecticut Campuses for Climate Protection

The Connecticut Department of Environmental Protection (DEP) and Clean Air – Cool Planet (CA-CP) are offering a workshop at the Connecticut Agricultural Experiment Station in New Haven on Friday March 28, 2003 from 9:00 A.M. to 4:00 P.M. for university personnel and energy professionals interested in participating in the Connecticut Climate Change Action Plan (CCAP) initiative. The CCAP

is an initiative that is supported by Governor Rowland and a component of the greenhouse gas reduction initiatives planned by the Conference of New England Governors and Eastern Canadian Premiers. The workshop will include speakers from agencies and organizations that offer tools, resources, and services or can share experiences on how to "green" Connecticut's university campuses. Clean Air-Cool

Planet is one of the region's leading non-profit organizations dedicated to finding and promoting solutions to global warming. William Leahy, Associate Executive Director from the Institute will be a presenter at the workshop.

For more information contact William Leahy at leahyw@easternct.edu or by phone at (860) 465-0252.

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Connecticut Energy Day March 21, 2003 (continued from PG 1)

"Renewable energy sources in Connecticut that can be further developed include use of solar, wind, biomass, and hydrogen-based fuel cells. Development of these technologies will increase the region's energy independence, protect the environment, and stimulate economic development," said Rinebold.

Institute personnel along with a dedicated committee of educators and concerned citizens, have compiled a collection of classroom activities that will assist teachers in Connecticut to include energy in their lessons including stories, songs and slogans, energy audits, experiments, artwork, energy poetry, and involvement with government.

"For instance, elementary school teachers could have their class read stories such as *Mike Mulligan and His Steam Engine*," said William Leahy, associate executive director at the Institute, "and discuss what fuels most construction equipment today. Math teachers might have students calculate the electricity consumed by the lights in their classroom and compute the annual cost for lighting the classroom. High school social studies

teachers could investigate the impact of world energy markets, starting with the impact on the clothes students wear. A middle school science teacher could have the class make a solar cooker. Art teachers can have students create recycled artwork. The list goes on and on."

Some school systems have taken the lead on studying energy and the environment. In Cheshire, the project had a huge townwide impact. Three fifth graders from Doolittle School in Cheshire, participating in a CEED (Connecticut Energy Education Development) activity, initiated a project in their classroom to recycle white paper. The project grew into a town-wide program.

The Windham schools have adopted the eeSmart energy education program for all their elementary schools. This program teaches students about energy conservation and renewable energy sources. It was created by the Connecticut Energy Conservation and Load Management Fund and is sponsored by the local electric companies.

South Windsor has installed a 200 kW fuel cell at its high school to provide

heat and hot water and serve as a demonstration site for this emerging green power alternative. This site will be used for educational purposes, and with its own power source, will serve as a regional emergency shelter.

Governor Rowland, in his proclamation, noted "the importance of the development of a future generation of energy-aware workers, consumers and citizens, to work and partake of a future predicated on sustainable energy development." He said, "all of Connecticut's children should learn about the innovative energy choices supported by renewable energy, intelligent use and conservation of available resources."

There will also be displays on educational initiatives by energy organizations and agencies at the legislative office building in Hartford between 10:00 A.M. and 2:00 P.M. that day.

For more information about the Institute and Connecticut Energy Day, please visit the Institute for Sustainable Energy's web site at www.sustainenergy.org or call Laurel Kohl at (860) 465-0256 or email her at kohl@easternct.edu.