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Message from the President

More than 150 people gathered at the state capitol July 12 for the first in a series of public stakeholder meetings CCEF plans to host at locations across the state. The meeting was designed to give members of the public, including clean and renewable energy stakeholders, an overview of existing and proposed CCEF programs and provide a forum for public comment as we begin our strategic planning process.

We received some excellent input from those who attended and very much appreciated all the ideas people raised.

Some new CCEF programs that are just in the formative stages elicited a positive

High Performance Schools Program Plan and Funding Approved

CCEF Investment Committee approves $1.4 million for multifaceted initiative.

Schools across Connecticut will be more energy efficient and environmentally friendly in years to come thanks, in part, to an innovative program being launched by the Connecticut Clean Energy Fund.

The High Performance Schools Program (HPSP) aims to transform how Connecticut schools are designed and built and to motivate towns to include energy efficiency features and clean distributed energy generation as standard components in newly constructed schools or major renovation projects. The program will reach out to school boards, facilities managers, municipal officials, architects and other stakeholders and decision-makers to increase their awareness of the benefits of high-performance design, construction and operation. It will also provide technical assistance to targeted communities and develop case studies on existing high-performance schools. The program is made possible by $1.4 million in funding from the Connecticut Clean Energy Fund, whose Investment Committee approved the allocation this summer.

"With this new program, we hope to dramatically improve the energy performance of Connecticut schools," says CCEF president Lise Dondy. "Currently, Connecticut schools' energy performance ranks near the lowest quartile when compared with other facilities across the U.S. Our goal with this program is to have 50 percent of all new school construction or major renovation projects in targeted communities incorporate clean, renewable energy systems."

Some Connecticut schools have already taken steps to incorporate clean, renewable energy generation into their facilities. Barnard Environmental Magnet School of New Haven has installed a solar array, and South Windsor High School has installed a fuel cell. Other schools are preparing to follow suit. Greenwich Academy, Middletown High School, New Canaan Country School and Plainville High School all have been approved for funding from CCEF for clean energy installations.

CCEF crafted the detailed plan for Connecticut's HPSP after gaining the perspectives of several organizations and individuals, including the Institute for Sustainable Energy (ISE) at Eastern Connecticut State University, the Connecticut Green Building Council, consultants and stakeholders. ISE will play a key role in the program's implementation by identifying new school construction or renovation opportunities, becoming involved in the planning

response from the group. These newer programs included the High Performance Schools Program you'll read about in this issue, as well as two programs the legislature created during the last session: a municipal grants program and a state buildings program. We also received positive feedback regarding the expansion of the technology areas that the fund supports to include geothermal and solar thermal.

If you'd like to know more, a transcript of the public commentary from the meeting is available on CCEF's website.

After our comprehensive strategic plan for 2008-2011 is developed, we will host additional public meetings. We'll be sure to notify you of the dates and locations once they're confirmed. As always, we welcome your participation.

Lise Dondy
President
Connecticut Clean Energy Fund

Solar PV Installation Dedicated at Yale Divinity School

CCEF-funded installation will provide 17 percent of Fisher Hall's electricity.

A dedication ceremony was held July 24 to mark the installation of a 40.29-kilowatt solar photovoltaic array on the roof of Fisher Hall dormitory at the Yale Divinity School in New Haven. The installation, which comprises 225 solar panels, was made possible in part by a grant of $187,298 from the Connecticut Clean Energy Fund's On-Site Renewable Distributed Generation Program.

The array is expected to generate approximately 45,200 kilowatt-hours of electricity annually, which represents about 17 percent of the building's process and educating decision-makers about the program.

HPSP is intended to dovetail with existing CCEF initiatives, such as the On-Site Renewable Distributed Generation (DG) program, which provides financial assistance for commercial and nonprofit customers that install clean energy systems such as solar arrays and fuel cells. CCEF will also seek to leverage its funding with grants offered by the Connecticut Department of Education, Connecticut Energy Efficiency Fund and others.

Celebrating Success

Innovative hydrogen production technology performed well in demonstration project.

Members of the energy technology community gathered for a festive luncheon on September 6 to celebrate the success of a new technology with the potential to make hydrogen an affordable alternative to fossil fuels for transportation and industrial uses.

Participating in the ribbon cutting ceremony are from left to right: Lise Dondy, president, CCEF; Keith Frame, associate director, new technologies, CCEF; Pinakin Patel, director of special systems and research, FCE; Trent Molter, research scientist and business development officer, CGFCC; Christopher Bentley, exec. vice president, FCE; Ned Bowman, chairman, Connecticut Innovations.

The Electrochemical Hydrogen Separator (EHS) technology was developed by Danbury-based FuelCell Energy (FCE). EHS technology involves the separation of excess hydrogen generated by high-temperature fuel cells through a process that requires relatively low energy consumption, involves no moving parts and is less expensive than existing mechanical separation technologies. With a $600,000 grant from the Connecticut Clean Energy Fund's Operational Demonstration Program, FCE was able to mount a demonstration of the technology at the Global Fuel Center at the University of Connecticut's Storrs campus. The results were impressive, indicating that EHS technology could potentially make the cost of hydrogen competitive with that of gasoline. Based on initial results, the U.S. Department of Defense entered into contracts with FCE totaling $2.6 million.

In the subscale demonstration, operators used a combined fuel cell/EHS system consisting of a stack of 25 cells and the separator equipment. In the power mode, the unit produced 2 kW of power, and in the hydrogen mode, the unit separated enough hydrogen to refuel up to three fuel cell vehicles per day. The unit has been operating for more than 6,000 hours with practically no change in its performance. Results have also shown that significant operating cost savings of 30 to 60 percent are possible when compared with today's commercially available hydrogen separation systems.

CCEF Funds UConn/UTC Applied Research Project

Project aims to advance fuel cell systems.

The Connecticut Clean Energy Fund (CCEF), through its Yankee Ingenuity Technology Program, has provided $176,000 to the University of Connecticut

electricity requirements.

Technical data regarding the array, such as the amount of energy being generated by the system and the greenhouse gases avoided, is available to the public through Yale's Energy Conservation at Yale web site: www.yale.edu/energyconservation.

Speakers at the dedication included Lise Dondy, president of CCEF; Harold W. Attridge, Ph.D., dean of Yale Divinity School; Lillian Claus, professor of New Testament at the Yale Divinity School; John Boiler, associate vice president of facilities operations for Yale University; and Paul Israel, president of Sunlight Solar Energy.

New Program Makes Fuel Cell Stats Accessible

Web-based performance monitoring program will help prospective users make informed choices.

Extensive data about the performance of the 11 CCEF-supported fuel cell installations now operating in Connecticut will ultimately be available online, thanks to a new program being initiated by the Connecticut Clean Energy Fund.

Plans are under way to create a web-based fuel cell performance monitoring program. The one-year design phase of the project was recently initiated by PMC, the consulting firm CCEF selected through an RFP process for the assignment.

Once the project is completed, potential customers evaluating fuel cell technology for specific applications will be able to access the performance data online.

"Having this information should help alleviate prospective users' uncertainty about the value, costs and benefits of fuel cell power systems, giving them the confidence they need to make the

to support a collaborative applied research project with UTC Power. The partners will use the CCEF funding and matching support from UTC Power to develop advanced optical diagnostic tools to aid in the development and reliable operation of proton exchange membrane (PEM) fuel cell systems. PEM fuel cells are used in autos, fleet vehicles, such as buses, and portable and stationary power systems.

The goal of the project is to develop fiber-based laser sensors to measure the chemical composition and temperature in the gas streams within fuel cells. Using the optical diagnostic tools rather than the commonly used physical probes will allow developers to obtain more accurate, more extensive data in real time, so that design improvements can be made much more quickly. This will help accelerate commercialization of PEM fuel cells. The sensors would also be used to monitor fuel cell operation.

Bar Mitzvah Project Results in Solar Array

CCEF and scores of donors join forces to make young man's vision a reality.

As a 7th-grader preparing for his bar mitzvah, Tsvi Benson-Tilson sought to pursue a project that would promote good citizenship and help Congregation Beth El-Keser Israel (BEKI) comply with the biblical law *bal tashhit*, which prohibits destruction of the natural environment and wasting of resources. His idea and his plans came to fruition on Sept. 18, when CCEF, BEKI and Sunlight Solar Energy Inc. hosted a dedication ceremony for a 10.5-kilowatt DC solar photovoltaic (PV) system installed on the roof of the synagogue.

Tsvi Benson-Tilson (left) and Paul Israel of Sunlight Solar on the roof with BEKI's 10.5 kW solar array

Installation of the system was made possible by a rebate of $48,768 from CCEF's Solar PV Rebate Program and contributions from more than 150 donors led by Tsvi.

The array's 48 solar panels will generate approximately 12,000 kilowatt-hours of electricity annually—about 10 percent of the synagogue's electricity requirements.

"This solar project is the expression of a confluence of values," said Rabbi Jon-Jay Tilsen, Tsvi's father. "We have a religious duty to protect the environment, a civic duty to reduce the stress on our local grid, a patriotic duty to lessen our reliance on imported energy, and a financial duty to cut our expenses." He added, "This project has generated a great deal of interest in our community. I am certain that our positive experience will give our neighbors and congregation members the confidence to develop their own solar projects."

Staff Spotlight - Jillian Carbone

Jillian Carbone is the administrative assistant to the president of the Connecticut Clean Energy Fund, Lise Dondy, and she supports CCEF's energy market initiatives and its Operational Demonstration Program. Her diverse responsibilities include organizing materials and logistics for meetings of the Clean Energy Investment Committee and Clean Energy Advisory Committee; managing distribution of request for proposals and tracking proposals submitted; assisting with administrative aspects

purchase," says Lise Dondy, president of the Connecticut Clean Energy Fund. "We anticipate that sharing this information will ultimately help bring about a market transformation."

Staff Spotlight – Rick Ross

Rick Ross is one of the newest members of the CCEF team, having joined in July as project manager for the On-Site Renewable Distributed Generation Program.

Rick is responsible for reviewing on-site distributed generation project applications. Rick evaluates the project's compliance with the program's eligibility criteria as well as its economics to determine whether the project is financially viable and a good value for Connecticut rate-payers. He determines what level of funding from CCEF is appropriate and ultimately is responsible for presenting the project for approval to the Connecticut Clean Energy Board.

"I'm delighted to be a part of such a terrific team of professionals working together to promote renewable clean energy technologies and help ensure a sustainable energy future for Connecticut," says Rick.

Rick is a seasoned project manager, having spent more than 20 years in project development and management in the energy industry. Prior to joining CCEF, he worked for UTC Power as a project development manager in the commercial on-site power division. He has also worked for other UTC-related entities.

Rick has a bachelor's degree in electrical engineering from the University of Connecticut, and he's put it to good use: He holds three design patents relating to commercial, stationery fuel cell technology. He also holds a master of business administration degree from Western New England College.

of CCEF's community-based initiatives; and organizing special projects – most recently the CCEF's public meeting held at the state capitol in July.

"Working for the fund has been a very rewarding experience," says Jillian. "It's great to be among this team of individuals working to bring about a change for the future. Knowing that I support this effort is a great motivation."

Prior to joining CCEF in 2006, she worked as a sales assistant and administrative manager for a 3M window film dealer serving commercial and residential markets in Connecticut. While working there, Jillian earned her bachelor of arts degree in English from Southern Connecticut State University.

Event Calendar

Date	Event	Location
Oct 15-19	2007 Fuel Cell Seminar & Exposition	Henry B. Gonzalez Convention Center - San Antonio, Texas
Oct 17	What's the Deal VIII	Crown Plaza Hotel, Cromwell, CT
Oct 21-24	12th Annual Renewable Energy Marketing Conference	Philadelphia, PA
Oct 24	CCM's Annual Convention & Exposition	Connecticut Convention Center, Hartford, CT
Feb 28	EnergyTech 2008: The Northeast Energy Summit	Connecticut Convention Center, Hartford, CT

For complete details of these and other events, please visit the Events page at www.ctinnovations.com.

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