

July 2009 Issue

PENNSTATE



Cooperative Extension
Renewable and Alternative Energy



ENERGY UPDATE

July, 2009

IN THIS ISSUE

Penn State Works to Improve Farm Energy Efficiency

Community Scale Bioenergy Short Course

Greensburg Thermal Plant Goes Green to Stimulate Demand

Energy Efficiency Claims Not Substantiated

Monitor Your Electricity Usage

Central PA Biomass Workshop

UPCOMING EVENTS

Central PA Biomass Workshop
21 July, 2009 at Penn State University, State College PA. Contact Greg Roth at gwr@psu.edu

Community Scale Bioenergy Short Course
27 July, 2009 at Penn Stater Hotel and Conference Center, State College, PA. Contact Dan Ciolkosz at dec109@psu.edu

WELCOME!

This month's newsletter features topics that we think are critical for Pennsylvania's energy future: Energy efficiency and Distributed, Community Renewable Energy Production. Both are examples of sustainable approaches to reducing our dependence on imported oil. According to the Energy Information Administration, we still import 9.4 million barrels of crude oil each day, down from 10.2 million the same time last year. So we are making progress on energy efficiency, but still have a long way to go. This year there should be some exciting progress as we see new projects coming on line through the state. We will be continuing this theme with more events in July and at Ag Progress Days, which will be held August 18-20 this year. Take time to join us at one of these informative events.

Sincerely,

Greg W. Roth
Program Leader
Renewable and Alternative Energy
Penn State Cooperative Extension

Penn State Works to Improve Farm Energy Efficiency

Workshops a Success



LINKS

[PSU Renewable & Alternative Energy](#)

[Steel City Biofuels](#)

[Coping with High Energy Prices](#)

[Biomass Energy Center](#)

"The most renewable energy is the energy you never use." While Benjamin Franklin may not have said that, he undoubtedly would have agreed. Energy efficiency is arguably the most effective way to combat rising energy costs and dwindling availability of fossil fuels. Unfortunately, when it comes to farming, not many people understand the unique energy aspects of modern farm operations, which makes it hard for farmers to find the information or help they need. Recent workshops held by Penn State Cooperative Extension have aimed at addressing this problem.

Two workshops were held in June at the Lancaster Farm and Home Center, which focused on 1) Dairy Farm Energy Efficiency and 2) Greenhouse Energy Efficiency. These one-day workshops covered the fundamentals of farm energy efficiency, and taught attendees the skills needed to perform an energy assessment on a Pennsylvania farm. Attendees included extension educators, energy consultants, and farmers from throughout the state.



One valuable component of the workshops was that, after the lectures and the ample lunch, the workshop moved out to a nearby farm or greenhouse, where the skills that were talked about were put into practice under real farm conditions. Our hope is that, in the coming months, workshop participants will be putting their skills to further use on farms and greenhouses throughout the state, which will in turn help create farms that are more energy efficient, cost competitive, and sustainable over the long run.

The long term goal of the program is to create a community of farm energy experts in Pennsylvania that can meet the needs of our agricultural sector. Energy experts at Penn State will be assisting participants with carrying out their first few farm assessments, and will be on hand for unusual problems that might crop up. If all goes well, the next few years will see real improvements to the energy status of farms in the state.

Dan Ciolkosz, PSU Ag & Bio Engineering Department

Community Scale Bioenergy Short Course

[Making Bioenergy Work for the Region's Communities](#)



Community scale energy projects hold great promise for bioenergy and rural development in America, whether it be a biomass heating plant, a bioenergy crops cooperative, a regional waste digester, or any of the other prospective opportunities available today. However, these projects are often difficult to develop and manage due to the challenging human dimensions of the projects. More often than not, the success or failure of these

project hinges on the manner in which the community understands and responds to the opportunity.

You are invited to join us for an information-rich full-day short course in which experts provide you with the skills to galvanize and transform your community towards a successful bioenergy project.

Date: 27 July, 2009

Time: 9:00 am - 4:30 pm

Place: Penn Stater Hotel and Conference Center, State College PA.

Networking time will be included to allow you to discuss your ideas and interests with the speakers and other attendees. In addition, several examples of community bioenergy projects, both locally and abroad, will be discussed. Speakers for the event include experts from throughout the region, including Kathy Brasier and Bill Shuffstall from Penn State, Dorn Cox from New Hampshire, and F Lee Patterson from the Alliance for Cooperative Innovation.

The event is sure to be extremely valuable for community leaders, development officials, members of local government and others who are interested in seeing their communities benefit from locally produced, renewable bioenergy. To register, visit the Penn State Biomass Energy website (<http://www.bioenergy.psu.edu>) and click on "2009 Bioenergy Short Course Series".

[Dan Ciolkosz, PSU Ag & Bio Engineering Department](#)



Greensburg Thermal Plant Goes Green to Stimulate Demand

[Co-firing renewable fuels](#)

We recently toured the Greensburg Thermal plant in Westmoreland County with members of a team that had traveled Austria with us last summer. The purpose of the tour was to help the participants better understand the role renewable energy resources can play in displacing fossil fuels in centralized combined heat and power applications. The Greensburg Thermal plant provides heat and electricity under contract to the State Correctional Institute of Greensburg. The plant, currently burning waste coal, is undergoing modifications to permit the utilization a variety of blends of woody and agricultural bio-energy fuels in combination with waste coal to diversify the fuel supply and improve air emissions. Once equipment modifications are complete the system will be test fired using switch-grass briquettes so emissions testing can be conducted and the air permit for the plant modified.

Once the plant is approved to "co-fire" renewable fuels the challenge of developing reliable, cost effective fuel sources will begin. To meet the challenge the Cooperative Extension of in Westmoreland County has been working to identify under- utilized forest and agricultural resources that can sustainably be tapped to meet the demand. This will require the development and implementation of a business model that economically harvests, processes and delivers renewable fuels to the facility. Our goal is to develop new market for landowners to sell sustainably harvested materials. In addition, electricity that is produced by the plant will qualify for the creation of Alternative Energy Credits based on the percentage of the renewable fuel that is used in combination fossil fuels. These credits will be sold to electric utilities in the state to meet the requirements of the Alternative Portfolio Standards act of 2004. Still to be determined is how electricity from the co-firing of renewable fuels will be treated under Act 129 of 2008. This legislation requires utilities to promote the generation of electricity from renewable resources among other requirements. So there are legislative incentives in place that will be used to help the economics of plants like Greensburg Thermal make the move to "go Green".

[Ed Johnstonbaugh, Westmoreland County Cooperative Extension](#)

Energy Efficiency Claims Not Substantiated

Beware of Snackwell Energy Effects

Improvements in energy efficiency have long been touted as "the low hanging fruit" for greening our environment, saving money, and gaining independence from foreign suppliers of energy. I have frequently cited that one-quarter to one-third of our current energy consumption can be reduced by implementing energy efficiency into all facets of our homes, businesses, and industries.

A marketing survey earlier this year found that one-third of respondents who made energy-efficiency improvements saw no decrease in their energy bills. This phenomenon is termed the "Snackwell Effect." Just as dieters might binge on Snackwell's low-calorie cookies and smokers might over-indulge on low nicotine cigarettes, people who make energy-efficient improvements in their homes might sabotage their good intentions to save energy. Examples include using appliances more often with lighter loads, leaving lights on more hours per day because the lights are compact fluorescents, and setting the thermostat to a lower temperature during cooling periods because the house is energy efficient. The same effect applies to purchasing a hybrid vehicle but then driving more miles and at higher speeds because it is energy efficient.

Businesses and industries are not immune to this phenomenon. People will not be uncomfortable for a long period of time, even with the goal of saving energy (and dollars). If the boss or owner of a company wants to save on energy, the thermostat may be set at 78 F and then locked during the air conditioning period. People will quickly learn that the way to get it cooler without manipulating the thermostat is to direct the heat from a lamp on the thermostat. In the winter, it is not uncommon to see an ice pack on a locked thermostat if the occupants want the space to be warmer.

These less-than-expected savings do not mean that emphasis on improving energy efficiency is misguided. It does mean that the stated standards on energy reductions with appliances and other measures will not be fully realized because of human behaviors.

Human behavior has the potential to make or break any well-intended efforts to increase energy efficiency. Consumer education is vital so that all the people realize the impacts and consequences of their behaviors.

In addition to education, another solution to this Snackwell Effect is to equip each appliance with a small device indicating how much energy is being used (and how much the energy is costing) hour-by-hour and cumulative for the month and year.

Dennis Buffington, Department of Agricultural and Biological Engineering

Monitor Your Electricity Usage

Identify your energy hogs

The Kill-A-Watt™ electricity usage monitor (shown above) is an easy-to-use electricity usage monitor to identify the "energy hogs" in your home, farm or business. This monitor has a large LCD display indicating the following:

Volts	KiloWatt Hours (kWh)
Amps	Power Factor
Watts	Time Duration
Frequency	



I have used this electricity power monitor in my extension education programs for about the past five years to show the difference in electricity consumption of a compact fluorescent lamp versus the traditional incandescent lamp providing the same light output. This type of meter can be used for many, many other applications, such as:

- kWh electricity consumption of a TV when it is "on" and when it is "off". You may be surprised at the high electricity consumption when the TV is turned "off" because it is not really off but in a hibernation mode
- kWh electricity consumption of a new refrigerator versus the old refrigerator you keep in the garage for your

watermelons and favorite beverages

· Voltage and frequency (in Hertz or cycles per second) of your power supply. The normal voltage should be about 110-120 volts and the frequency should be about 60 Hz. Checking the voltage and frequency is especially important if you are relying on an on-site generator to provide your electricity supply

The Kill-A-Watt™ is available at Ace Hardware stores and most electronics stores. The cost is in the range of \$30-35. This article is not intended to be an endorsement of this particular product. The intention of this article is to point out the benefits of a monitoring system like this for use in our extension outreach programs.

Dennis Buffington, Department of Agricultural and Biological Engineering

Central PA Biomass Workshop

Growers and Project Developers Encouraged to Attend

The Central Pennsylvania Biomass Energy Workshop to be held at Penn State's University Park campus on July 21st will offer a mixture of speakers, discussion, exhibits and tours of actual biomass crops including switchgrass and mobile grass pelletizer. Penn State hosts Greg Roth and Dan Ciolkosz state that, "we are very excited to share the knowledge of Penn State's Biomass Energy Center and Cooperative Extension in an event targeted directly towards Central Pennsylvania. Anyone interested in the agricultural, environmental, and economic aspects of biomass crops should attend this workshop."

Partner host Headwaters Resource Conservation & Development Council Coordinator Adam Dellinger concurs saying that, "wood based biomass energy projects like those in place under the Fuels for Schools & Beyond Program already have a track record of positive local economic development in a number of northern Pennsylvania communities. Switchgrass and other dedicated biomass crops have the potential to extend those benefits throughout the region." Andy Bater, of Biomass Connections, also a collaborating host adds that, "as a Centre County switchgrass grower I am thrilled that we were able to put this workshop together. It will be of great value getting fellow central Pennsylvania farmers and landowners in the same room with potential end users to discuss how we can further the growth of the biomass energy marketplace."

Registration for the July 21st workshop is \$20 which covers lunch and transportation to Penn State's biomass crop field trials. Sign up information is available at www.HeadwatersPA.org, or by contacting the Headwaters Resource Conservation & Development Council at 814-375-1372 extension 4 or [headwatersrod \(at\) yahoo.com](mailto:headwatersrod@yahoo.com).

About Renewable & Alternative Energy

For more information on Cooperative Extension's Renewable and Alternative Energy Resources at Penn State visit our home page at <http://energy.extension.psu.edu/>

© 2009 College of Agricultural Sciences

For copyright, alternative media and affirmative action information use the following links: [Copyright](#); [Alternative Media](#); [Affirmative Action](#).

[Forward email](#)

✉ [SafeUnsubscribe](#)®

This email was sent to dec109@psu.edu by gwr@psu.edu.

[Update Profile/Email Address](#) | Instant removal with [SafeUnsubscribe](#)™ | [Privacy Policy](#).

Email Marketing by



Penn State University Extension | Penn State University | 116 Asi Building | University Park | PA | 16802