

# The Oklahoma WinCharger

O k l a h o m a   W i n d   P o w e r   I n i t i a t i v e

## OWPI:

A collaborative project between the University of Oklahoma and Oklahoma State University that investigates and promotes wind energy resources in our state.

November/December 2007

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### Steve Stadler Interviewed about Wind Power

On November 12, Steve Stadler, OWPI's principal investigator at OSU, gave an invited talk marking Geography Awareness Week for the Geography Department at Western Illinois University in Macomb, Illinois. His talk was attended by over a hundred people and he spoke about wind power in Oklahoma and Illinois. He also conferred with the Western Illinois rural development crew working on Illinois wind power mapping and gave an interview to Tri-States Public Radio.



Photo courtesy of Tri-States Public Radio at Western Illinois University.

### OWPI says Goodbye...

On December 12<sup>th</sup>, I will start my new job as a Project Coordinator with Horizon Wind Energy in Edmond, OK. I am very excited about this opportunity with the company. Not only will I remain in Oklahoma, but I will also be working with the landowners in the state which is something I have grown very fond of. Although it is going to be difficult to say goodbye to everyone here at OWPI and those that I have met, I am eager to learn new things and meet new people. Thank you to everyone who made working with OWPI so enjoyable!

—Stephanie Buway

### Tower Installations

OWPI is currently installing new met towers across the state of Oklahoma. On October 20, a 20m tower was installed in Prague, OK with instruments at both 10 and 20 meters. This tower will be in place for at least one year while the data is collected. Two other towers are going to be installed in Norman, OK and Stone Bluff, OK. Both towers will have instruments at 10 and 20 meters as well.

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# OWPI News & Events

## GROWing Switchgrass

The second annual GROW: Oklahoma Biofuels Conference was held on October 16th and 17th in Oklahoma City. This year saw the return of several notable speakers, including Oklahoma native and former CIA director James Woolsey. All was not the same at this year's conference however. The Oklahoma legislature passed legislation creating the Oklahoma Bioenergy Center (OBC) in the year since the first GROW conference, giving a \$40 million boost to biofuels research in the state. The center will be a collaboration between researchers at Oklahoma State University, the Noble Foundation in Ardmore, and the University of Oklahoma.



Dr. Joe Bouton with switchgrass.  
Courtesy of [www.growok.com](http://www.growok.com)

While the focus of the OBC seems to be on converting cellulose from Switchgrass to ethanol, some speakers at the conference urged leaders not to forget other biofuels. Corn currently supplies the bulk of ethanol produced in the United States. The same technology can be used to make ethanol from grain sorghum, which can be more readily grown in Oklahoma.

Other speakers and guest raised questions about the long term viability of any means of ethanol production. Issues such as water consumption by production facilities, the food versus fuel debate, rising commodity prices, biodiversity concerns about new monocultures (Switchgrass) all offer serious challenges to the biofuels industry. Oklahoma Secretary of Energy David Fleischaker calls these "pushback issues", and expressed his desire to see advances in technology to answer these tough questions.

Oklahoma farmers won't be switching to Switchgrass en masse just yet. The U.S. Department of Energy has given grants to several pilot projects across the country, but none are in Oklahoma. It appears that it will take several years of development to see commercial scale cellulosic ethanol production. In the meantime, the researchers associated with Oklahoma Biofuels Center will have plenty of problems to solve and research to do.

## OWPI at Earlywine Elementary

On November 7 & 8, OWPI personnel traveled to Moore, OK to Earlywine Elementary. Three classes were given a presentation where the 5th graders listened to the latest information on wind energy and had the opportunity to ask very inquisitive questions. After the presentation, the students were able to play with a model turbine. They tested the electricity output in different wind speeds, what happened with different configurations of the blades, and what happened when blades were removed or added. At the end of the activities, the students got to take home fun things such as buttons and posters.



# P o l i c y



## **Major Farm Bill Passes Through the Senate Agriculture Committee**

On October 25<sup>th</sup> the Senate Committee on Agriculture, Nutrition, and Forestry passed the 2007 Farm Bill. The 2007 Farm Bill continues and improves farm income protection and makes investments for the future in energy, conservation, nutrition, and rural development initiatives. The bill now has to be considered by the full Senate.

"This is a forward-looking farm bill with greatly strengthened initiatives to support renewable energy, conservation, nutrition, rural development, and to promote better diets and health for all Americans," said Chairman Tom Harkin (D-IA). "It maintains a strong safety net for farm producers, and strengthens programs that will help agricultural producers of all kinds across our nation."

The bill provides investments in farm-based energy by creating initiatives with financial incentives to help farmers make the transition to biomass crops, and supports the construction of biorefineries with a loan guarantee program that will provide up to 80 percent of total project cost with a maximum loan value of \$250 million. The bill expands markets for biobased products, and invests in farm-based energy research and development. The bill also works to help farmers, ranchers, and rural small businesses move toward renewable energy and efficiency.

*Editor's Note: The above is a summary from [www.renewableenergyaccess.com](http://www.renewableenergyaccess.com) from October 29, 2007.*

## **American Electric Power and SemGreen to Use CO2 Captured from Oklahoma Plant**

American Electric Power (AEP) and SemGreen L.P. have signed an agreement of understanding regarding the delivery and use of carbon dioxide that will be captured by a commercial-scale carbon capture system on the Public Service Company of Oklahoma's Northeastern coal-fired power plant. AEP intends to "significantly reduce carbon dioxide (CO2) emissions from existing coal-fired power plants by implementing the first commercial-scale technologies."

In the agreement, AEP and SemGreen have agreed that CO2 captured at Public Service Company of Oklahoma's (PSO) Northeastern Station will be transported to SemGreen through pipeline and technology provided by SemGreen. SemGreen will then use or sell the CO2 for enhanced oil recovery.

"This agreement with SemGreen represents an important step toward our goal of taking carbon capture technology to commercial scale," said Michael G. Morris, AEP's chairman, president, and chief executive officer. "SemGreen and AEP will work together to develop and integrate an efficient system to compress and transport carbon dioxide captured at the plant."

"Technology for carbon capture will continue to develop, but perhaps a more significant challenge is what to do with the CO2 once it is captured," Morris said. "Permanently storing it underground is one solution, but it would be best to find productive uses for the captured gas. Using the CO2 for enhanced oil recovery – where gas is injected into older oil wells to improve production, then remains underground afterward – is a logical step for coal-fired plants near oil fields."

In a March announcement, AEP said they plan to install a commercial-scale carbon capture system on one of the 450-megawatt coal-fired units at Northeastern Station in Oologah, Oklahoma by early next decade. The system is expected to capture about 1.5 million metric tons of CO2 a year, which will be used for enhanced oil recovery.

"PSO is excited about the installation of this new technology at our Northeastern Station here in Oklahoma," said Stuart Solomon, president and chief operating officer at PSO. "It will benefit the environment by reducing carbon dioxide emissions and also provide jobs and tax revenues through the use of captured CO2 for enhanced oil recovery."

*Editor's Note: The above is a summary from an American Electric Power Press Release on October, 16, 2007.*

## **GAO Report Shows Renewables Receive Small Amount of Energy Subsidies**

The Government Accountability Office (GAO) issued a report that compares federal electricity subsidies by fuel type. The report shows that renewable energy, such as wind, still only receive a small share of the overall subsidies given to the energy sector.

The GAO report specifically examines research and development and tax expenditures for fossil fuels, nuclear, and renewable energy from 2002 through 2007. The following is an excerpt from the report's cover letter that emphasizes the importance of federal subsidies in terms of energy's crucial role within society: "Because of electricity's importance to producers, consumers, and businesses, the federal government has undertaken a wide range of programs to develop the electricity sector, which includes fuel supplies, electric utilities, and others in the electricity industry."

The report shows total research and development expenditures from 2002 to 2007 to be \$11.5 billion which was distributed among nuclear (\$6.2 billion), fossil fuel (\$3.1 billion), and renewable energy (\$1.4 billion). Total tax expenditures for the energy sector from 2002 to 2007 were \$18.2 billion, with fossil fuel receiving \$13.7 billion and renewable energy receiving \$2.8 billion.

"These programs have sought to, among other things, develop the nation's electrical infrastructure, influence the types of fuels used to produce electricity, increase the use of renewable energy, and limit the harmful effects of electricity production," the report states.

"This report shows that technologies that have existed for 50 years or more continue to receive significantly more federal support than recent renewable technologies that are better suited to solving the nation's electricity supply, energy security, and environmental challenges," said AWEA Manager of Policy Analysis Elizabeth Salerno.

"This is more justification for Congress to pass a full value, long-term production tax credit extension," said AWEA Legislative Director Jamie Steve.

*Editor's Note: The above is a summary from AWEA's Wind Energy Weekly # 1265.*



# W i n d P o w e r



## Wind Turbines and Bats

As the wind energy industry continues to develop and mature, there is increasing concern about the impacts wind turbines have on wildlife, specifically bats. Many wind energy companies support wildlife research and hope to find ways to help bats and wind turbines coexist peacefully.

The Bats and Wind Energy Cooperative (BWEC) is a collaborative research effort made up of the American Wind Energy Association (AWEA), Bat Conservation International (BCI), the Department of Energy's National Renewable Energy Laboratory (NREL), and the U.S. Fish and Wildlife Service. BWEC recommends, funds, and reviews scientific research aimed at understanding how bats and wind turbines interact and how to minimize negative impacts to bats at wind energy projects.

During the wind industry's first two decades, research was conducted to monitor the number of bird fatalities caused by wind turbines. These studies ended up finding that some bats were being killed as well, but the low numbers did not promote any immediate action.

An avian study in 2003 at a wind project in West Virginia discovered higher numbers of bat fatalities and the issue quickly became the most significant wildlife concern for the wind energy industry. It was at this point that BWEC was formed to resolve the issue through conducting research studies.

The first priority of BWEC was to understand how bats were being killed by turbines. The researchers wondered if bats were running into the stationary towers or the spinning blades. They wondered what conditions bats were being killed under and if the bats were attracted to the turbines in some way. Slowly researchers began to put the puzzle together, but not all of the answers became clear immediately.

BWEC began an intensive fatality monitoring program at the Mountaineer wind project in West Virginia in 2004, as well as a second project about 60 miles away over the Pennsylvania border. Thermal imaging cameras were used to record the bats near turbine blades and it is thought that about 2,000 bats were killed during the six-week research period. This information made way for research aimed directly at reducing bat fatalities at wind energy projects to move forward.

The next phase of research in 2005 and 2006 focused on new questions such as whether or not turbines produce ultrasonic sounds that attract bats, if there is data that can be collected before a project is constructed that shows whether a site is risky for bats, and if ultrasonic acoustic devices can be developed to turn bats away from turbines.

In regards to the first question, studies revealed that ultrasound levels recorded at the base of the turbines were quite low and not likely to attract bats. There may need to be further studies to measure ultrasound emissions at the top of the turbines.

Pre/post construction data collection and analysis began at one site in Pennsylvania and has now been expanded to other sites under development. Developers are usually required to study bird species in an area before developing a wind project to determine

if the turbines will be a threat to the birds. Studying bats in an area is more difficult than studying birds because specialized equipment is required to monitor their activity, and the kind of information that needs to be collected is not as consistent across sites.

Acoustic monitors have been placed throughout potential sites in different habitats and at varying heights to record bat calls over many months. This information will help to determine how much activity among different species of bats occurs at a particular site. That information can then be compared to weather data and post-construction fatality monitoring. The results of these studies should be able to help researchers determine which sites are the riskiest so that development can be avoided.

"It is critical for everyone involved to make sure that the pre-construction data being collected actually answer the questions being asked," said Ed Arnett, project coordinator for the Bats and Wind Energy Cooperative. "The industry and permitting agencies need to know how to determine risky sites for bats."

BWEC is involved in developing a possible acoustic deterrent that may be able to turn bats away from wind turbines. A prototype mechanism was created and tested in the laboratory and field in 2006. The device is designed to emit ultrasonic acoustic stimuli at a level that would not attract bats but rather flood them with noise and prevent them from hearing anything else.

It is expected that a bat would avoid the area around such a device. Early results showed this was the case for some bats, and a decision to test some different prototypes on wind turbines was made.

"It is far too early to claim that this acoustic deterrent is a solution," said Arnett. "But it does warrant more investigation, and so that is why we are pursuing it further."

A technique known as "feathering" turbine blades in lower wind speeds is expected to be examined as early as 2008. Feathering a turbine means turning it out of the wind, which greatly slows or even stops the blades from turning. Studies in 2004 found that bats were more likely to collide with turbine blades during low wind conditions, and that no bats were killed when turbines were not operating.

The idea behind feathering is that turbines could be curtailed during times of low wind in order to reduce the number of bats killed. The economic impact of turbine curtailment to wind facilities is unclear at this point and research is still to come.

"I think the lesson we have all learned from BWEC is the importance of collaboration," said AWEA's Communications Director and BWEC Oversight Committee member Tom Gray. "By working with BCI, the U.S. Fish and Wildlife Service, and NREL we are seeing high-quality research that not everyone agrees is necessary to allow wind turbines and bats to coexist. We know it can be done, but not without the cooperation of these parties and the support of the industry. I might add that BCI has been a very effective partner, contributing a significant portion of the research funding."

## **OG&E Announces Plans to Quadruple Wind Power Production**

On October 30<sup>th</sup> OG&E Energy Corporate Chairman, President, and CEO Pete Delaney announced OG&E's plans to quadruple the company's wind power production and help open western Oklahoma for development of more wind power projects.



Photo courtesy of OG&E

"The significant amount of wind in western Oklahoma is a largely untapped resource that is increasing in demand in Oklahoma and across that nation," said Delaney. "We have been working on plans for some time now to significantly increase OG&E's wind power production over the next four years."

OG&E already has 170 megawatts of wind power and could have about 770 megawatts if their goal is accomplished. The investment in wind energy development could move Oklahoma from being sixth in the nation to as high as third in wind power production. There are also many other developers interested in western Oklahoma wind projects.

Delaney also announced a major transmission line project in western Oklahoma that will allow OG&E and other companies to deliver wind-generated power from western and northwestern Oklahoma to the rest of the state and beyond. The transmission line would stretch from Oklahoma City to Woodward, and eventually to Guymon. "OG&E stands ready to build these lines and we are preparing to begin the Oklahoma City-Woodward line shortly after the first of the year," said Delaney. "But it will require the approval of the regional transmission authority and the support of our elected officials to become a reality."

Delaney said implementation of the company's plans should give more OG&E customers the choice of being up to 100 percent "green power" users in the next few years. "This is an idea we are still working on but we know from our existing wind power program that many of our customers are interested in using power generated from renewable sources," said Delaney.

*Editor's Note: The above is a summary from an OG&E Press Release on October 30, 2007.*

## **2007 Wind Installation Projections Raised**

AWEA reports that the U.S. wind energy industry is on track to shatter its 2006 record of 2,454 MW of new capacity, and generate enough new electricity to power the equivalent of over one million homes. Previous projections for new wind power capacity in 2007 were 3,000 MW but that projection has now been surpassed.

In its third quarter market report, AWEA reported that the industry has already added over 2,300 MW of generating capacity to the nation's electrical grid so far this year, and that more than 5,000 MW of generating capacity are in various stages of construction. The total wind power generating capacity in the country is now 13,885 MW. On average, one megawatt of wind power produces enough electricity for 250 to 300 American homes.

"The U.S. wind energy industry is going to exceed what was already a record projection for installations this year," said AWEA Executive Director Randall Swisher. "This is great news because it means that new, readily available, clean generation is reaching consumers at a time when electricity demand and global warming concerns are both on the rise. The not so good news is that, even as we face these twin challenges (climate change and growing energy demand), our country does not have a long-term, national policy in place to promote renewable energy development, and Congressional leaders are reportedly backing away from efforts to establish such a policy."

AWEA also noted that the federal production tax credit (PTC) for renewable energy will expire in December 2008, and that there is no national renewable electricity standard (RES) or other long-term policy in place.

"A national long-term policy to promote renewable energy, like the renewable electricity standard approved by the House of Representatives in August, is essential for wind and other renewable energy industries to grow successfully and cost-effectively. The U.S. wind energy industry urges Congressional leaders and the President to work together and bring to the finish line energy legislation that extends the production tax credit and establishes a national standard for renewable electricity," said Swisher. "In addition to strengthening energy security and fighting global warming, more wind power and renewables will help stabilize electricity costs, and create economic opportunity in both industrial and rural America."

AWEA pointed out that wind power is delivering a generous return on public investment: since 2005 the PTC has spurred new generating capacity and investment in manufacturing facilities and services across the country, even in states that do not have significant wind resources. Other benefits include lower pollution costs, and increased income from communities where wind farms are installed.

"We're hoping to continue expanding the information that we are providing to members and the public about the wind industry," said Kathy Belyeu, AWEA manager of industry information.

AWEA now has a new projects site that provides information on completed and under construction wind projects. The new projects website and the full Third Quarter Market Report can be viewed online at [www.awea.org/projects](http://www.awea.org/projects).

*Editor's Note: The above is a summary from AWEA's Wind Energy Weekly #1265.*

## **Texas CREZ Plan Could Become National Model**

On October 2 the Public Utility Commission of Texas (PUCT) issued an interim final order in its "CREZ" case, designating five "Competitive Renewable Energy Zones" in West Texas and the Texas Panhandle and authorizing development of transmission lines necessary for delivering electricity produced in those windy areas to customers throughout Texas.



The interim order elaborates on further details of what the PUCT agreed on when it met in July. A final order, transmission plans, and budget are still pending before the PUCT but are expected to be finalized in early 2008.

CREZs are Texas' designation, for transmission planning purposes, for suitable land possessing a renewable resource. CREZs could become a national model to solve the transmission dilemma in which wind power developers are hesitant to build projects in areas that have strong wind resources but lack transmission, while transmission developers do not want to put in lines to such wind-rich areas without any generation facilities present. The order could enable construction of up to 22,800 MW of new wind power in Texas.

"While many states are talking about ways to bring more clean energy to customers and improve air quality, Texas is doing it," said Mike Sloan, managing consultant of the Wind Coalition. "Texas' proactive transmission process is drawing a lot of attention; we expect the CREZ process to become a model for the nation."

The Electric Reliability Council of Texas (ERCOT) has initiated a "Transmission Optimization Study" to develop options for delivering wind power from the five CREZ zones to customers throughout the ERCOT power grid, including Dallas, Houston, and San Antonio. According to ERCOT studies, total wind capacity from new and existing projects will range from 10,000 MW to 22,800 MW. The Wind Coalition said each megawatt of wind power provides enough electricity to power approximately 225 Texas-sized homes.

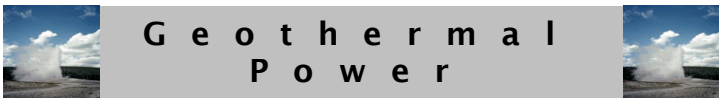
*Editor's Note: The above is a summary from AWEA's Wind Energy Weekly #1260.*



### **DOE Invests \$21 Million in Next-Generation Solar Cell Research**

On November 8<sup>th</sup>, DOE announced that it will invest \$21.7 million in researching the next generation of photovoltaic (PV) solar cell technology. DOE selected twenty-five research projects, led by fifteen universities and six companies, to receive an average of \$900,000 over the next three years. Nanotechnologies, dyes, organic solar cells, multiple-layer solar cells, and unique manufacturing techniques will be used in an attempt to create the next generation of solar cells. By 2015, the research projects are expected to produce prototype cells and processes, which may be available for commercialization shortly thereafter.

*Editor's Note: The above is a summary from EERE Network News on November 14, 2007.*



### **Geothermal: Oklahoma's Next Energy Industry?**

Oklahoma is the largest manufacturer of geothermal heating and cooling systems in the U.S., but the state offers no incentives to residents or businesses for installing geothermal systems.

On October 30<sup>th</sup> Dan Ellis, president of the Oklahoma-based geothermal heat pump manufacturer ClimateMaster, encouraged lawmakers to consider a state tax incentive to encourage the use of geothermal energy in Oklahoma. "I consider this Oklahoma's next energy industry," Ellis said.

Ellis explained that geothermal heating and cooling systems use existing energy in the earth to heat and cool buildings through a water-piping system buried in the ground. Ellis said that geothermal units reduce the amount of energy used, therefore reducing energy costs and carbon emissions.

Only twelve states in the U.S. offer tax incentives for geothermal energy. "Our industry has made it without incentives, but with them we could really make a difference. Economics aside, this issue is about the environmental impact geothermal energy could have on the state," Ellis said.



According to ClimateMaster:

- Anywhere from 500,000 to 1 million geothermal units have been installed in U.S. homes and businesses.
- At least 800 were sold in Oklahoma last year.
- The Oklahoma Capitol uses more than 600 geothermal heat pumps to heat and cool.
- More than 70 percent of the energy consumed by a typical home is used for heating, cooling, and water heating.
- When a geothermal unit is installed in a home, 49 percent of the energy comes free from under the earth's surface.
- A geothermal unit can cost about \$15,000 to install in a new home, compared to a traditional furnace and air conditioning unit setup of about \$6,000.

*Editor's Note: Above is a summary from NewsOk.com written by Jennifer Mock on October 31, 2007.*

### **New Report Concludes Improved Technology Key to Achieving Full Potential of Geothermal Energy**

On November 14<sup>th</sup> The Geothermal Energy Association released a new report that looks at geothermal energy technology. The report concludes that improved subsurface technologies are the key to developing the vast potential of the resource base. "To utilize most of the geothermal resource base subsurface technologies need to be improved, new exploration technologies developed, and costs for drilling significantly reduced," Mark Taylor, author of the report said.

"There is significant, untapped geothermal potential that can be effectively developed with today's technology," said Mark Taylor, "but to unlock the vast potential of the resource – involving hundreds of thousands of megawatts of energy – will require an investment in developing new technologies that allow us to find hidden resources and utilize unconventional sources of heat."

The report, *The State of Geothermal Technology, Part I: Subsurface Technology*, examines how companies are currently trying to locate and exploit geothermal heat under the ground. The report outlines the series of steps from exploration to resource confirmation that are involved in a geothermal project. Interviews and site visits with companies currently developing geothermal energy projects were conducted, and the report reflected the companies' views on geothermal energy. The report cites development of new exploration tools, better resource characterization, advances that reduce drilling costs, and better tools to predict reservoir behavior as critical in order to fully and successfully develop geothermal energy resources.

The report also discusses new and emerging geothermal technologies, such as Enhanced Geothermal Systems (EGS). The report states: "Enhanced Geothermal Systems (EGS) are those in which low or non-producing resources are engineered to become commercially viable. Although there have been several successful tests examining parts of EGS technology, what is needed is the significant commitment of funds to determine if EGS is technically feasible by building a facility that produces electricity over a period of time."

The potential of producing energy from hot water co-produced from oil and gas wells, deep volcanic or supercritical resources, and geopressured systems that hold both hot water and natural gas are also discussed as possible energy sources for the future.

*Editor's Note: The above is a summary from a press release from Geothermal Energy Association on November 14, 2007.*



### **Biofuels Have Great Potential in Oklahoma**

The following is a summary of an article written by Governor Brad Henry:

As our dependence on foreign oil increases, it is important for the United States to develop alternative fuels for our cars and trucks. Some U.S. states are beginning to capitalize on naturally growing crops to make biofuels. States in the corn belt have attracted biorefineries, federal and private investment and research programs to process corn into ethanol for transportation fuels.

Oklahoma is in an excellent position to produce crops that can be made into biofuels. Oklahoma's agricultural base, highway system, knowledge of petroleum refining, and transportation infrastructure make the state capable of becoming a leader in the biofuels industry.

Switchgrass and other native Oklahoma prairie grasses show great potential for alternative fuels and can offset some of the downsides of corn. According to studies, the United States will need many renewable products to create transportation fuels and decrease the country's reliance on foreign oil.

The naturally growing perennial grasses in Oklahoma are drought resistant, require only modest amounts of fertilizers, can be harvested multiple times in a growing season, and regenerate yearly. These grasses could be more effective for making biofuels than corn because corn requires more water, fertilizers, and labor.

In addition to these downsides of using corn, some farmers, ranchers, and American consumers are concerned that using corn as an alternative fuel source drives up food and animal feed prices. Concerns about the availability of water have sparked debate about the use of water to produce biofuels. Oklahoma has already started research and development of perennial grasses that require few inputs, including water.

The development of a biofuel industry in Oklahoma depends on the farmers and ranchers. The Oklahoma Biofuels Conference, held October 16-17 in downtown Oklahoma City, showcased research efforts and current biorefining projects and a forum for exchange between policymakers, scientists, farmers, and representatives from the biotechnology, auto, and petroleum industries.

*Editor's Note: The above is a summary from The Edmond Sun on October 9, 2007.*

### **Oklahoma Could Lead Non-Corn Biofuel Switch**

According to experts at the recent Oklahoma Biofuels Conference, "Oklahoma is at the leading edge of a new generation of ethanol research to create transportation fuel from switchgrass."

State lawmakers pledged \$40 million to establish the Oklahoma Bioenergy Center earlier this year. The facility conducts research on cellulosic biomass and how it can be converted into ethanol.

"I believe Oklahoma is uniquely well-positioned to be a natural leader in the biofuel industry, and it would be foolish if we didn't pursue that opportunity," said Governor Brand Henry at the Oklahoma Biofuels Conference.

Henry explained that the state's abundant natural grasses, especially switchgrass, show enormous potential for being converted into ethanol. He discussed some of the benefits of using switchgrass instead of corn, including the facts that switchgrass is more energy efficient than corn and that it doesn't compete for scarce food resources.

Oklahoma State University estimates that a single biorefinery in Oklahoma could create \$40 million for the state economy. In the last 15 months biorefineries have been announced in Shattuck, Guyton, Enid, and Blackwell.

"We have an opportunity not just to help the nation, but to revitalize the economies in our rural areas," Henry said.

The Bioenergy Center is a collaboration among researchers and policymakers at OSU, the University of Oklahoma, and the Samuel Roberts Foundation. Oklahoma has already committed \$10 million to the facility of an expected \$40 million over four years.

"Oklahoma has the opportunity to develop and invest in ways to produce biofuels that don't affect food, feed, or fiber," Ray Huhnke, professor of biosystems and agricultural engineering at OSU, said in a statement. "Evaluating the best types of biomass to grow, the best conversion processes to use, and the best



Photo Courtesy of NREL

places to locate conversion facilities in our state will create an industry that is successful and sustainable, without the negative impacts of using an already dedicated food source to produce biofuel."

Other presenters at the conference mentioned the need for more supportive federal energy and agricultural policies in order to help the biofuels industry reach mass-market status.

"It's easy to get excited about this, but this isn't an industry. It doesn't exist, it's an aspiration," said Curt Rich, an attorney with the energy law firm Van Ness Feldman in Washington. "All we have is a lot of smart people at the starting line. We're all at the beginning of a new industry."

Rich also said that a distinction should be made between the more mature corn-based ethanol industry and the emerging cellulosic ethanol and biofuel industries. He said that concerns over an ethanol glut in the Midwest, rising corn prices, and higher food prices because corn is being diverted to ethanol production are already making headlines.

"We've got to be ready for the bad stories and be ready to accept failure and move on quickly," Rich said.

*Editor's Note: The above is a summary from The Oklahoman on October 17, 2007.*

## R e n e w a b l e N e w s

### DOE Launches New K-12 Energy Education Website

At the beginning of October DOE announced the launch of the "Get Smart About Energy" website, a new educational website that provides more than 350 lesson plans and activities on energy efficiency and renewable energy for grades K-12. The website includes hands-on activities that address energy basics, energy efficiency, sources of energy, and the environmental impacts of energy use. The National Science Education Standards are incorporated into all of the activities and lesson plans. Teacher guides are included with many of the lessons, and all of the materials are free and can be reproduced. The DOE hopes that the website will help provide today's students with the knowledge and resources to develop cutting-edge energy technologies in the future. The "Get Smart About Energy!" website can be viewed at <http://www.eere.energy.gov/education/lessonplans/>.

The "Get Smart About Energy" website is part of DOE's EnergySmart Schools Program, which also promotes energy efficient schools. More than \$8 billion is spent on energy annually by K-12 schools, making energy the second highest operating cost for schools after personnel costs. The EnergySmart Schools program promotes the building of new schools that exceed code by 50% to help lower the costs. The program also promotes the addition of technologies to existing schools that improve energy efficiency by 30% or more. The program is endorsed by the National School Boards Association and offers tools and resources to assist school decision makers in planning and financing energy-efficient high-performance schools. In addition, the program offers education and training for building industry professionals. The newly updated EnergySmart Schools website can be viewed at <http://www.eere.energy.gov/buildings/energysmartschools/>.

*Editor's Note: The above is a summary from EERE Network News on October 17, 2007.*

### New Energy Goal: 25% of Energy from Renewable Sources by 2025

On October 15 the U.S. House of Representatives adopted a resolution that calls for 25 percent of the nation's energy to come from renewable resources by the year 2025. This is another step towards America's renewable energy future.

House Agricultural Committee Chairman Collin Peterson (D-MN) and ranking member Bob Goodlatte (R-VA) were lead sponsors of the resolution and helped the full House to join the Senate in setting an energy policy that calls on America's farms, ranches, and forestlands to provide a fourth of the energy consumed by 2025. Biomass, biofuels, wind energy, solar power, geothermal energy, and hydropower will all become important aspects of America's energy future while continuing to provide a safe, affordable, and abundant supply of food, feed, and fiber.

The resolution was unanimously adopted by the Senate in June and developed from an expanding coalition that now includes 600 agricultural, forestry, environmental, energy, business, labor, civic, and government organizations. Partners of the coalition include the American Farm Bureau Federation, the Forest Resources Association, the Natural Resources Defense Council, and the "Big 3" U.S. automobile manufacturers, as well as 27 governors and 12 state legislatures.

"The 25x'25 resolution is a statement of our national commitment to support the development of renewable energy sources," Peterson said. "I believe that we can not only meet but exceed the goal of 25 percent by 2025, but every journey starts with a first step, and this resolution is a very important first step that we can take to achieving energy independence."

"I commend the House for recognizing the important role American agriculture plays in domestic energy production and I look forward to working with my colleagues and the industry as we work to turn the goal of 25X'25 into a reality," Goodlatte said.

"This resolution has enjoyed bipartisan Congressional support representing rural and urban constituencies," said 25x'25 Steering Committee Co-Chair Bill Richards. Recognizing that the resolution had a third of the Senate as co-sponsors and more than 70 House members, Richards said the resolution "defines a new energy future for our nation."

"We're grateful to the leadership of the House, including Speaker Nancy Pelosi (D-CA) and Majority Leader Steny Hoyer (D-MD), for moving the resolution," said 25X'25 Steering Committee Co-Chair Read Smith. "Our elected officials in Washington understand its importance to the nation's energy future," Smith said, "but the adoption of the resolution is simply the first step in achieving the 25x'25 vision for America."

The 25x'25 Steering Committee handed the 25x'25 Action Plan: Charting America's Energy Future off to congressional leaders in February. The action plan contains 35 recommendations that would cost just 5% of what America spent on imported oil in 2006, but would result in dramatic increases of up to 5 million new jobs and \$700 billion in new economic activity annually. The recommendations would also help reduce oil consumption, our dependence on foreign oil, and global warming emissions.

"We look forward to working with Congress to advance the enabling policies that will bring the 25x'25 vision to life," Smith said. Efforts are currently focused on facilitating national

partner dialogue and planning around important renewable energy transition issues including measures to protect and enhance the environment.

*Editor's Note: The above is a summary from [www.grainnet.com](http://www.grainnet.com) from October 16, 2007.*

### **40 Million 'Green Collar' Jobs by 2030**

According to a new jobs report from the American Solar Energy Society (ASES), one out of four workers in the United States will be working in the renewable energy and energy efficiency industries by 2030.

"The green collar job boom is here," said Neal Lurie, Director of Marketing of ASES.

If the ASES job report proves to be true, up to \$4.5 trillion in U.S. revenue could be generated by the renewable energy and energy efficiency industries by 2030. This will happen only with the appropriate public policy including a renewable portfolio standard, renewable energy incentives, public education, and research and development.

The 40 million jobs that could be created by 2030 are not just engineering-related. There could also be millions of new jobs in manufacturing, construction, accounting, and management. There are currently 8.5 million jobs that originated from the renewable energy industries.

According to the ASES, the renewable energy and energy efficiency industries generate nearly \$1 trillion in revenue in the U.S. today. This contributes more than \$150 billion in tax revenue at the federal, state, and local levels.

*Editor's Note: The above is a summary from [renewableenergyaccess.com](http://renewableenergyaccess.com) on November 8, 2007.*

### **2007 Oklahoma Energy Summit**

The first Oklahoma Energy Summit will take place on November 29<sup>th</sup> at the Oklahoma History Center. The event is sponsored by the Oklahoma Corporation Commission, AARP Oklahoma, and the state Energy and Environment Secretaries and will bring together consumers and industries in an effort to plan for the state's energy future.

"It's my hope that this summit will spark the conversation in the state for consumers and the industry because we have a complicated, but bright future," Commissioner Jim Roth said. "I think this year starts the conversation."

Topics such as wind power, utility costs, production, and incentives will be discussed at the summit. While the summit will focus on one of the state's largest industries, the entire focus of the summit is not on industries.

"In every panel there is going to be someone with a consumer point of view," said Sean Voskuhl, associate state director of AARP Oklahoma. Voskuhl also said that the summit will include various consumer issues including energy efficiency, available programs to assist with increasing cost, and funds for weatherization. "These are pocketbook issues," he said.

Voskuhl said that consumers are going to see that gasoline prices

are not the only energy prices that affect them as the weather gets colder. Roth pointed out that the conversation the summit is hoping to initiate cannot happen without participation from consumers and industry leaders.

"Every single aspect of energy is a consumer issue," Roth said. "The future of energy in Oklahoma is going to require every voice to be heard."

Miles Tolbert, state Environment Secretary, said the summit is the beginning of a statewide energy plan. He said looking at what the state's energy needs are, how those needs can be met, and how the state can help provide energy globally are the key components of that plan. "What that really means is how can we make the most of our traditional resources – oil and gas – and what can we do with our new resources, like wind," Tolbert said. "Oklahoma is the Saudi Arabia of wind, anyone who's been outside can attest to that."

*Editor's Note: The above is a summary from [The Oklahoman](http://TheOklahoman.com) on November 9, 2007.*

### **Submit a Story to the WinCharger**

Do you have a story, comments, or photos that you would like to share with the rest of the Oklahoma WinCharger readers? Visit our website at [www.ocgi.okstate.edu/owpi](http://www.ocgi.okstate.edu/owpi) and click on the "OWPI Newsletter" and submit your story to us!

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HAPPY HOLIDAYS FROM  
ALL OF US AT OWPI!

## Calendar of Events

- NOV 29**     **2007 Oklahoma Energy Summit**, 7 a.m.—5 p.m. Oklahoma History Center, 2401 North Laird Ave, OKC.
- DEC 4-6**     **Green California Schools Summit & Exposition**, Pasadena Conference Center, Pasadena, CA. For more information, please visit [www.green-technology.org/gcschools](http://www.green-technology.org/gcschools).
- DEC 11-13**   **Tulsa Farm Show**, Tulsa State fairgrounds, Tulsa, OK. For more information, please visit [www.farmshowsusa.com](http://www.farmshowsusa.com) or call (507) 437-7969.
- DEC 12**     **Oklahoma Renewable Energy Council**, 10 a.m.—noon, Department of Commerce, Gallery 1-2. For direction's please visit [www.ocgi.okstate.edu/orec](http://www.ocgi.okstate.edu/orec).
- JAN 9, 2008**   **Oklahoma Renewable Energy Council**, 10 a.m.—noon, Department of Commerce, Gallery 1-2. For direction's please visit [www.ocgi.okstate.edu/orec](http://www.ocgi.okstate.edu/orec).
- FEB 14-15**   **American Wind Energy Association Wind Power Project Siting Workshop**, Austin, TX. For more information, please visit <http://www.awea.org/events/>.
- FEB 19-21**   **POWER-GEN Renewable Energy and Fuels 2008**, Rio All-Suite Hotel and Casino, Las Vegas, NV. For more information, please visit <http://pgre08.events.pennnet.com/fl/index.cfm>.
- APR 10-11**   **Emerging Energy Technology Conference**, National Center for Employee Development, Norman, OK. For more information, please call Clayton Robinson at (405) 815-5249.
- MAY 3-8**     **Solar 2008**, San Diego, CA. For more information, please visit <http://www.ases.org/solar2008/>.

Oklahoma WinCharger  
November/December 2007



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