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A New Format for REnews

This issue of REnews introduces a new format to help make articles easier to access. Just click on any article headline or "read more" link to go to a full version of the story on KREC's website. All of the articles will be in the traditional newsletter format, with easy access to KREC's other web-based resources. Drop us a line and let us know if you like or don't like the new format! KREC@kppc.org.



Carbon-Dioxide-Devouring Algae Will Soon Be Put to Work in Kentucky

Ninety-eight interconnected tubes of what appears to be a green, bubbling goo sit inside the greenhouse behind the Center for Applied Energy Research lab at the University of Kentucky. The goo might not look like much to a casual observer, but it could be one important answer to the nation's energy problem -- it's carbon-dioxide-devouring algae. And it can be used to sequester the harmful greenhouse gas and thus make coal a more environmentally responsible option.

The algae research is a partnership between East Kentucky Power Cooperative, UK and the Kentucky Energy and Environment Cabinet. The \$2 million project started a little more than two years ago.

"We started with algae in petri dishes," said Czarena Crofcheck, a UK faculty member in the department of Biosystems and Agricultural Engineering who's working on the project.

"The project is an example of how our partnerships ... can advance clean energy in the commonwealth," said Kentucky Energy Secretary Len Peters. He sees coal as an undeniable and unavoidable fact of energy use in Kentucky and the nation.

"It's important to use the state's resources in an environmentally sensitive way," he said.

Center Asks
KY Farm
Producers
About
Switchgrass

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Crofcheck credits the state with being proactive in coming to the university to stay ahead of federal regulations in carbon-dioxide mitigation.

As the algae grows, it takes in light and carbon dioxide to create food for itself, the same way a plant does in photosynthesis, Crofcheck said. The tubes provide a productive environment in which the algae can grow quickly and constantly. In so doing, it removes carbon dioxide from the atmosphere. When placed near coal plants, the algae can reduce the amount of carbon dioxide that remains in the environment.

Next week, the algae tubes will be moved to a power plant in Clark County. This will be the algae's first real-world test, Crofcheck said. The tubes should start reducing the carbon dioxide emissions of the Dale Power Station owned by East Kentucky Power. The test will start with 135 tubes, but officials hope to have 10 times that by early next year.

The next step will be determining what to do with the algae the process produces. According to Crofcheck, technology exists to convert algae oil into liquid fuels such as diesel. Algae could also be used for feed. But no one has enough algae to determine whether these processes are financially feasible or practical in other ways. That's a question for further down the line.

"Our main focus has been the CO₂ mitigation," Crofcheck said. "We want growth. The byproduct is that we have a lot of algae."

From: McClatchy-Tribune Regional News - Kelsey Sheridan, The Lexington Herald-Leader, Ky.

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Kentucky Companies Benefit from a Portion of \$44 Million Advanced Biofuel Bump from USDA

The U.S. Department of Agriculture (USDA) announced in October \$44.6 million



in payments for 156 advanced biofuel producers across the country to support the production and expansion of advanced biofuels.

"This funding will help local producers increase the production and availability of renewable energy and thus help our nation begin to reduce its reliance on foreign oil," said Agriculture Secretary Tom Vilsack. "Just as importantly, USDA's support will help to further develop the nation's growing biofuels industry and generate green jobs and economic growth."

The funding is being provided through USDA's Bioenergy Program for Advanced Biofuels program, which makes payments to eligible producers to support and ensure the expanding production of advanced biofuels. Payments are based on the amount of biofuels a recipient produces from renewable biomass, other than corn kernel starch. Eligible examples include biofuels derived from cellulose; crop residue; animal, food and yard waste material; biogas (landfill and sewage waste treatment gas); vegetable oil, and animal fat. Through this and other programs, USDA is working to support the research, investment and infrastructure necessary to build a biofuels industry that creates jobs and conserves natural resources across America, officials say.

For example, in Dubuque, IA, Western Dubuque Biodiesel LLC received a \$487,871 payment. This biodiesel production facility produces 30 million gallons per year using soybean oil, canola oil and tallow esters as feedstock. And in Kinsale, VA, the Potomac Supply Corporation received a \$36,530 payment for producing two types of advanced biofuels: fuel pellets and dry kiln. Both are made from clean pine chips, sawdust and shavings feedstock. The department says the payment to the two facilities helped save a total of 28 jobs.

Kentucky companies that will receive USDA funding:

Griffin Industries, Inc.: \$86,099.81 for Biofuel From Waste Products.
Owensboro Grain Company, LLC: \$1,026,463.07 for Biodiesel Trans
Esterification.
Somerset Hardwood Flooring: \$49,449.09 for Pellets.
Southern Kentucky Pellet Mill, Inc. : \$6,572.64 for Pellets.

For more information, visit the USDA's news release web page.

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The Kentucky Division of Forestry Releases Recommendations

Woody biomass, which is material that includes trees, tree branches and other vegetation, can be used as a source of heat or power for the generation of electricity. Technology is also being developed that would allow wood to be converted into ethanol and be used as a replacement for gasoline in motor vehicles.

“Kentucky has nearly 12 million acres of forests that can provide a multitude of benefits to landowners, forest industry and our state’s renewable energy needs,” said Leah MacSwords, director of KDF. “Woody biomass has sparked interest from policymakers and forest industry representatives to energy analysts and others who are looking for new sources of energy. Our recommendations in this new document will help balance the emerging biomass industry with the need to protect our forests and ensure sustainability.”

Forestry officials advise landowners to have a forest management plan prepared by a qualified natural resource professional in place before beginning any timber harvest. Additionally, pre-harvest planning should include a written contract between the landowner and the logger to include all expectations and requirements of both parties.

Recommendations for the protection of water quality, wildlife habitat, native species, and site productivity are addressed in detail in the document and are aligned with key issues in the Kentucky Forest Action Plan and the state’s energy plan. The recommendations were prepared with comments from key partners including the Kentucky Department for Fish and Wildlife Resources, Kentucky Division of Water, Kentucky Department of Conservation, Kentucky Nature Preserves Commission, University of Kentucky Department of Forestry, U.S. Forest Service and U.S. Fish and Wildlife Service.

For more information about woody biomass, timber harvesting regulations or the Kentucky Forest Action Plan, please visit KDF or call 502-564-4496.

From: Hazard Herald (KY)

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Three Louisville Companies will Utilize Kentucky's First Energy Services Biomass Project

A unique three-member partnership utilizing the state’s first active energy services biomass project will bring \$22 million in investment and 14 new jobs to Louisville, Governor Steve Beshear announced on October 25.

He joined community leaders and officials from The Lubrizol Corporation, Zeon Chemicals and Recast Energy to announce the partnership will also keep 340 Kentucky workers on the job.

Lubrizol and Zeon are located adjacent to one another in west Louisville and share the use of steam and other utilities. Both facilities need steam, de-ionized water, waste water treatment and compressed air to operate. But in 2009, the utility provider for the two companies announced plans to close, leaving Lubrizol and Zeon without the steam and utilities they needed to continue production.

Instead of closing their doors or moving production elsewhere, Lubrizol and Zeon

worked with state and local officials to develop a contract with Recast Energy to bring the third-party utility provider to the area – supplying the necessary steam and utilities for ongoing operation of the two facilities.

As a result, both companies will remain operational in their current locations, saving 340 jobs, and Recast will hire 14 new employees to provide services in their new location. Read the entire article in the Lane Report.

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EKU's CRAFT Center Asks KY Farm Producers About Switchgrass



In May 2011, Eastern Kentucky University's Center for Renewable and Alternative Fuel Technologies (CRAFT) conducted a mail survey to determine central Kentucky farmers' opinions on growing switchgrass for the production of biofuels. The survey was sent to 1,025 randomly selected farmers, who owned greater than 20 acres within a 50-mile radius of a potential biodiesel plant located in Winchester, KY, during the 2007 Kentucky Agricultural Census. The survey consisted of 18 questions regarding farming operation, knowledge of and interest in growing switchgrass for energy, and demographic characteristics.

So what were the results? The survey had a response rate of 16%, with 93% of respondents having owned or leased farmland in 2010. Overall, producers were not familiar with switchgrass as an energy crop. When asked if they would consider growing switchgrass on their farm, 24% stated that they would consider growing switchgrass, 34% were not sure, but would be interested in more information, and 42% would not consider growing switchgrass. Of the respondents who said they would not consider growing switchgrass, satisfaction with their current operation ranked highest (31%), with pending retirement from farming (18.5%) and better use for the land (10%) ranked second and third respectively. Those producers willing to establish switchgrass as a bioenergy source indicated they would produce on average 29 acres on their farm.

The results of this study reveal that the majority of the agricultural producers were not familiar with switchgrass as an energy crop and were more willing to grow switchgrass if they operated a larger farm and had a higher total gross farm income. If switchgrass is to be grown on local farms, outreach programs will need to be developed to educate farmers about switchgrass. This is evident as 63% of the survey respondents stated they never attended an extension workshop or field day during 2010. There may also be need of different avenues for educating farmers about switchgrass, as most producers obtain their information from a combination of newsletters, local newspapers, and workshops.

Does this report mean we'll have enough farmers to support a commercial facility? Amber Goff, one of CRAFT's researchers who piloted the project answered this question:

"From the report we were able to determine the acreage the producers were willing to convert to switchgrass production based on a net income of \$110/acre. Using the suggested yield of 50 gallons of algal oil from 1 metric ton of switchgrass, we would be able to supply switchgrass to a 50 million-gallon-per-year facility at a distance of 40 miles from the facility. Producers at the 40-mile radius would produce switchgrass on 309,217.6 acres, with a theoretical yield of 84,155,200 gallons of algal oil."

Amber also added that, "Although our survey shows that people are willing to produce switchgrass and it would be a sufficient amount, we will need to continue educating the public about switchgrass as a source of energy. I believe that keeping an open dialogue with those in the community about our research and plans for a biodiesel facility will allow us to more easily move forward with our goals."

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Submit an Article to REnews!

KREC would like to publish your thoughts on renewable energy and energy efficiency in Kentucky in the "Members' Forum". Please send your opinions, articles or news about RE happenings in the Commonwealth to KREC@kppc.org. A short piece is preferable (300 or fewer words work best).

Make your voice heard – we want to give KREC members a forum to spread the word about renewable energy efforts and issues.