

# GO! Green Outreach

SHARING SUSTAINABILITY NEWS, EFFORTS AND IDEAS WITH THE PEOPLE OF CAMPUS

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## HO! HO!

Ho! Ho! Hold on to your pennies and go green this winter season! We've already seen the first dusting of snow in Fayetteville and certainly there's more to come.

The Environmental Protection Agency offers lots of ideas for being energy efficient and using sustainable resources to make the best decisions for your life. Check out their tip sheet here:

<http://www.epa.gov/epahome/hi-winter.htm>



## YouTube? You Learn!

We all love videos on You Tube. From funny to educational to precious family moments, there's something for everyone.

It's amazing what you'll find if you simply search "sustainability." Countless ideas and perspectives await --- it's as simple as clicking ENTER.

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Story ideas? Email Danielle Strickland at [stick@uark.edu](mailto:stick@uark.edu) or give us a call at 479-575-7346.

# Peer Review: Texas A&M

Texas A&M has taken a new approach to sustainability with many of their campus initiatives. The Aggies have developed a number of programs for students to get directly involved.

One program, the Aggie Green Fund, is a student-initiated and student-controlled fund that helps students to take action through sustainable projects. All projects aim to create visible and measurable sustainability impacts, create student employment opportunities through internships and assistantships, and improve campus infrastructure by funding recycling, energy efficiency, renewable energy, transportation and other sustainability programs.

Another opportunity for students is the Association for Social Entrepreneurships (ASE). This organization provides resources to help apply entrepreneur-based principles to community service projects. Students



have an opportunity to do a variety of activities from making organic paper to learning where our food actually comes from.

In addition to these projects, Aggies also participate in Replant Day. This event is a one-day environmental service project which strives to improve the Bryan/College Station community, bring students together through tradition, and provide an avenue for environmental service and action through a yearly tree planting event.

This fall, nearly 1,000 people took part in planting 295 trees at 10 different sites throughout College Station.

Through these innovative projects, Texas A&M will continue to be impactful and bring about novel and creative sustainability initiatives to their community. Learn more by visiting <http://sustainability.tamu.edu/student-initiatives.aspx>

# New Bike Trail = New Way to Get to Campus

The Oak Ridge Trail is the latest addition to a new bicycle path and hiking trail that connects the city of Fayetteville trail system and the University of Arkansas campus. The trail is intended to provide a safe, alternative transportation connection from the city's Frisco Trail to the university and Fayetteville High School.

The trail starts at the city's Frisco Trail where it crosses Center Street, parallels Center Street to Harmon Avenue and then follows an undeveloped right of way through woods on the south of campus before ending at a campus service road near the newly built Phi Gamma Delta fraternity house.

Kevin Santos, a senior campus planner responsible for coordinating the long-term planning processes, maintains databases on the use and condition of campus facilities.



He worked alongside Matt Mihalevich, the trails coordinator for the city, in order to coordinate the grant application for this new trail.

“This trail is part of a larger effort to provide alternative transportation routes for students and the broader community” said Santos.

The city's [bicycle and hiking trail system](#)

extends south to Martin Luther King Boulevard and north nearly as far as the Northwest Arkansas Mall. Connectors run even farther north to the trails around Lake Fayetteville and are planned to be part of the [Razorback Greenway](#), a bicycle and pedestrian route that will connect Fayetteville with Bentonville.

The portion of the Oak Ridge Trail funded by the grant has been completed, but the campus plan calls for the trail to be extended

north to Maple Street in the future. The timeline for the extension depends on the schedule for future construction near the proposed trail route.

Along with the trail, bicycling on campus is supported by the Outdoor Connection Center, which provides [bicycle maintenance and rentals](#) at the Health, Physical Education and Recreation Building.

# Battery System Saves \$\$\$

An energy storage device and energy management system based on windmills and tricycles now help power the newest building in the Arkansas Research and Technology Park.

LGW, Inc. has developed a battery storage device based on small wind turbines and inspired by an electric powered “trike.” The company also has developed an energy management system that uses a company’s generating capacity to meet peak electric power demand without having to pay peak-demand rates.

This system, developed in the Arkansas Research and Technology Park, currently is used in the park’s newest building. The Enterprise Center, which opened in 2010, is a 65,000-square-foot facility housing a mix of office, lab and high-tech manufacturing space. Phil Stafford, president of the University of Arkansas Technology Development Foundation, which manages the park, anticipated a heavy energy demand load when the building was fully occupied and made some initial adaptations to it to improve energy usage.

First, the \$16 million LEED Silver certified facility was equipped with a 13.5 kiloWatt rooftop solar array. Then Stafford went a step further and had LGW install an energy management system for the building. The system is custom designed to offset a portion of the growing energy demand. It stores energy during the evening, and then helps meet the Enterprise Center’s energy needs during peak times.

“One thing we strive to do in the park is support our affiliates,” Stafford said of his decision to use the company’s technology.

“We believe that technology developed in the park should stay in the park, to be utilized by the park.”

Along with providing systems for business and industrial clients, LGW also provides residential systems as well. For more information regarding the company, please visit [www.lgwenergynow.com](http://www.lgwenergynow.com). For information regarding the Arkansas Research and Technology Park, contact Phil Stafford at [psstaff@uark.edu](mailto:psstaff@uark.edu) or 575-8411.



# Safer Travel Thanks to Anti-Icing Research

Engineering researchers at the University of Arkansas are developing an anti-icing system that could make airport runways safer and less expensive to maintain during winter months. The approach uses a conventional photovoltaic system to supply energy to a conductive concrete slab that would function as a surface overlay on runways. Energy conducted throughout the slabs allows them to continually maintain temperatures above freezing and thus prevent accumulation of snow and ice.

“Major U.S. airports do a good job of keeping runways safe and clear of ice and snow,” said Ernie Heymsfield, associate professor of civil engineering. “But this is a labor-intensive and expensive process, especially for northern airports. The St. Paul, Minnesota, airport, for example, budgets approximately \$4 million annually for snow removal. For various reasons, including the fact that it is grid-energy independent, our system could put a huge dent in this budget.”

After initial design, Heymsfield now leads a team of researchers who are testing the slab at the university’s Engineering



Research Center in south Fayetteville. The slab consists of two layers above existing soil and a gravel base.

The bottom layer – the first layer above the gravel base – is a 20-foot by 24-foot base slab that does not contain any conductive properties. Above the base slab is a surface layer that consists of twelve overlay panels, each 4 feet by 10 feet. Ten of these panels are made with a special concrete mix that conducts heat much like a cast-iron skillet exposed to a stove burner. Two control panels made of conventional concrete mix provide a basis for comparison to the conductive panels.

The photovoltaic system supplies DC power to electrodes embedded within the conductive concrete panels. The components of the photovoltaic system include an array of cells that convert sunlight into energy, a battery storage bank and a regulator to control energy between the array and the batteries. Energy is transferred from the batteries to the electrodes. The intrinsic thermal-mass properties of the concrete mix also enable the slab to absorb large

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# Sustainability Consortium – Hard at Work

Don't forget! The University of Arkansas and Arizona State University are working every day to collaborate with business leaders, researchers and interested parties around the world to improve sustainable practices.

Here's why they formed:

Increasingly pressure is being felt by multiple stakeholders to reduce the environmental and social impacts associated with global consumption. Retailers, manufacturers, suppliers, governments, NGOs, researchers and consumers all hold a stake in the sustainability of global product production and use.

As global citizens, we face extraordinary challenges: complexity

of global trade and supply networks, world population growth expected to reach 9 billion by 2050, diminishing resources, worker safety and fair treatment, human health and safety.

At the core of multiple stakeholders' interests and at the center of such challenges we find the need to more accurately quantify and communicate the sustainability of products. The challenge before us, then, is to work collaboratively together, developing an approach that drives better understanding, standardization, and informed decision making.

Learn lots more by checking out their website - <http://www.sustainabilityconsortium.org/>

## Anti-Icing

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amounts of heat from ambient temperature conditions, which minimizes the cost of the photovoltaic system.

Preliminary tests showed that although heat flow was non-uniform and concentrated on an area near the energy source, the conductive panels responded much faster to extreme surface temperature reductions after the researchers applied a thin layer of ice. Heymsfield said the non-uniformity and concentration of heat flow will be corrected by modifying the electrode configuration. The researchers will continue testing the system through the 2011-12 winter season.

If successful, the modified pavement could be an alternative to current snow and ice-removal methods, which include plowing, blowing and applying chemicals. There are various pavement de-icing methods, including chemical, thermal, electric and microwave, but these methods are expensive because they rely on grid power or require a high number of airport personnel.

Since 1978, slush, ice or snow has contributed to approximately 100 accidents and incidents on U.S. runways involving jet or turboprop aircraft weighing more than 5,600 pounds.

Initial results of the study will be presented at the Transportation Research Board's annual meeting in January 2012.

# Visitor Satisfaction @ Largest Arkansas State Park

Gregory M. Benton, University of Arkansas assistant professor of recreation, presented results Nov. 17 in Las Vegas of a survey taken earlier this year that found high visitor satisfaction with the largest state park in Arkansas.

Benton, who joined the faculty of the College of Education and Health Professions in 2007, has conducted extensive research into park interpretation and has presented his findings both nationally and internationally. The survey done this year at Hobbs State Park-Conservation Area in Benton County illustrated the benefits of a collaborative effort between academia and state park employees to help park managers in better meeting the needs of visitors while upholding the mission of the park, according to Benton's presentation to the National Association for Interpretation.

The Hobbs site added a LEED-certified sustainable-design visitor center less than two years ago to provide a gateway to the park's extensive resources and environment, Benton wrote, and managers were seeking feedback about facilities, interpretive programs and staff. The survey examined satisfaction with facilities and sites, asked about locations explored by visitors, sought information about specific activities in which visitors participated and collected demographic data. The survey also asked visitors how they learned about the park and their motivation for visiting.

A total of 68 surveys was collected across two months of late spring and summer between the times of 1 and 5 p.m. at the park. The findings indicated that visitors were extremely satisfied with

the park overall and with park facilities and park staff. The visitor center was the most frequently visited and highly rated site with the Van Winkle Homestead second in the ratings.

Visitors spent the most time exploring the visitor center, which includes an exhibit hall, followed by viewing scenery by car, attending a program, walking a trail, cycling on a trail and horse-back riding on a trail. The survey also found that word-of-mouth was the most frequent source of publicizing the park followed by the websites of the Arkansas Department of Parks and Tourism, the Hobbs park itself and, last, a park brochure.

In addition to designing the survey with input from state officials and distributing surveys at the visitor center and five secondary recreation sites at the park, Benton advised park managers at the outset to consider assessing satisfaction of visitors rather than asking them whether the park met their expectations.

"Expectations are a fluid attitude people hold based on previous information and experiences," according to Benton. "Expectations can change quickly even as visitors begin experiencing the park. It was suggested that satisfaction would be a more robust and useful attitude to 'measure' with a descriptive survey than expectations. Satisfaction is understood to mean a positive valuation of the park's facilities, activities and staff as experienced firsthand by visitors. Therefore, one of the first decisions made between the university and the park was to ask visitors questions about satisfaction."

# Go Green for the Holidays!

The Sierra Club offers great tips for going green this holiday season. Here are just a few; get the full list at <http://www.sierraclub.org/tips/holidays.aspx>.

## Make Your Own Wrapping Paper

Most mass-produced wrapping paper you find in stores is not recyclable and ends up in landfills. Instead, here's a great chance to get creative! Wrap presents with old maps, the comics section of a newspaper, or children's artwork. Or use a scarf, attractive dish towel, bandana, or some other useful cloth item. If every family wrapped just three gifts this way, it would save enough paper to cover 45,000 football fields.

## Buy Energy-Saving Holiday Lights

Now you can decorate your house with LED lights that use 90 percent less energy than conventional holiday lights, and can save your family up to \$50 on your energy bills during the holiday season! LED lights are available at many major retailers, including Target, Costco, and Ace Hardware.

## Add Organic and Local Foods to Your Holiday Feast

Support local family farmers who grow sustainable meat and produce. Not only does it taste better, you'll be doing your part for the planet too. Looking for an organic turkey or ham for

Christmas dinner? Find out where to get local green products in your neighborhood.



## Stocking Stuffers: Test Your Eco-Knowledge

Do you have a family member who loves the outdoors? Stuff their stockings with Sierra Club Knowledge Cards, which come in a variety of outdoor themes ranging from survival skills to baby animals. Another great stocking stuffer is "guilt-free" chocolate! Give the gift of organic, fair-trade chocolate and you can eat your way to a better planet.

## Recycle Your Christmas Tree

Ninety-eight percent of Christmas trees were grown on farms, not in forests, so at least it's not as if you're cutting down an ancient tree. Each

year, 10 million Christmas trees end up in the landfill. While your tree won't fit in the recycling bin with your newspapers and bottles, you can recycle your tree: many cities offer programs to turn your tree to mulch or wood chips. Call (800) CLEANUP or visit [www.earth911.org](http://www.earth911.org) to find the tree-recycling program near you.

## Do a "Cool Home" Tour with Our Energy-Saving Checklist

Take a pledge this New Year's to reduce your home energy use by buying energy-efficient light bulbs. Installing only 6 compact fluorescent light bulbs will save the average American family \$60 per year. You can also use our handy "Cool Homes" checklist to see what easy things you can do in your home to save energy. If there's a fire in your fireplace this Christmas, turn down that thermostat! Lowering the temperature even five degrees can take 10% off your energy bill.

## Recycle Your Old Cellphone

Getting a new cell phone for Christmas? Not sure what to do with the old one? Now, you can drop off that old phone at any Staples store, as part of the Sierra Club cell phone recycling program. Each year, 130 million cell phones are thrown out, weighing approximately 65,000 tons. Recycling your old phone prevents hazardous elements like mercury, cadmium and lead from ending up in our landfills.