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The Appalachian VOICE

October/November 2011

Sustaina-Builda-bility

No matter how you say it, the “green” building economy is growing more popular — and more creative — each year

ALSO INSIDE: The Solar Decathlon • Cooking Mountain-Style • A Creepy Crawly You Can't Help But Love

The Appalachian VOICE



A publication of
AppalachianVoices
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Appalachian Voices is committed to protecting the land, air and water of the central and southern Appalachian region. Our mission is to empower people to defend our region's rich natural and cultural heritage by providing them with tools and strategies for successful grassroots campaigns. Appalachian Voices sponsors the Upper Watauga Riverkeeper® and is also a Member of the Waterkeeper® Alliance.

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A Note From the Executive Director

Dear Readers,

Individually and as communities, we can choose green building practices as a means of creating and promoting energy efficiency. And while this kind of lifestyle activism can help create a culture of efficiency and conservation in the Southeast, we must also influence our energy providers to make bold moves toward energy efficiency.

South Carolina rural electric cooperatives are setting a good example by testing a pilot project to make low-interest micro-loans to members for energy efficiency upgrades that they repay with energy savings on their electric bills. Their goal is to weatherize and upgrade 225,000 homes over 10 years and save ratepayers up to \$4 billion, creating a model for future programs throughout the Southeast and beyond.

This solution will create new jobs, save money, reduces greenhouse emissions and decrease the demand for more power plants. Whether on an individual or regional scale, energy efficiency is the best solution.

We invite you to join Appalachian Voices in our work to create a cleaner energy future!

Willa



SUSTAINA-buildability

From boosting the national economy to saving us money at home, sustainability is a virtue. The following features explore how green building and energy efficiency are creating a better world.

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ABOUT THE COVER

Appalachian State University's student-designed entry into this year's Solar Decathlon, known as the Solar Homestead, featured a large outdoor living space, also known as the OM, or Outbuilding Module. See our story on page 8. Photo by Jim Tetro / U.S. Department of Energy Solar Decathlon



Putting the ABLE in Sustainable: One Homeowner's Foray into Green Retrofits

Story and photo by Jamie Goodman

After years of dreaming about building or buying a home I finally took the plunge into mortgage ownership this summer.

We decided on a favorable compromise of our lofty fantasies, aspirations and budget; a home originally built in 1979 within easy walking distance of our work, grocery shopping and favorite restaurants and coffee haunts on a quiet, tree-strewn street with just two other houses. The home was in good shape for a member of the 20th century, but it needed a green shot-in-the-arm. First on the list: pull up, take out and recycle the 15-year-old carpet. Then replace it with what?

There were 12 choices in all. Bamboo floors (five distinct types), natural linoleum, marmoleum, recycled milk jug carpeting, reclaimed wood from old buildings, tile made with recycled content, natural stone and cork. Eventually, we went with yet another option, discontinued oak, maple and cherry hardwood flooring from a local wood products vendor. We installed and applied the finish (a non-carcinogenic oil-based sealer with no volatile organic compounds) with the help of some knowledgeable friends.



Mission accomplished.

After that we went searching for low-flow plumbing supplies for the bathroom. We found a kit on Amazon.com that transforms an older toilet into a modern "two-button flush" water-conserving model. And to remediate our crawl space moisture problem? Back to Google, where we found a dizzying number of vendors offering heavy-duty plastic vapor barriers.

It all seems easier now, but at the time our heads swam with the many choices and the endless list of pro-and-cons with each option.

Five years ago I searched for the proverbial needle-in-the-haystack when trying to find green sustainable materials for home repair or furnishings — if such a product even existed.



Nowadays, I seem to have the opposite experience. In fact, there are so many choices that it becomes hard to run an apple-to-apples comparison among the twenty or more options.

What a great green problem to have!

We've been thinking and planning this issue for a year and a half now. While the Southeast and Appalachia lag behind many regions of the United States in terms of the sustainable economy, the green movement in our region is growing. With this issue, we've tried to capture the often unsung efforts of our neighbors, entrepreneurs, non-profits, communities, people of faith and local governments inspiring and leading this momentous undertaking.

We hope it will confirm your many positive suspicions and gut feelings about green living, inspire your wildest sustainable dreams and feed your enduring drive for ecologically sound living within our beautiful Appalachian communities.

So what's next for our house? Recycled plastic bottle insulation for our attic and floor, replacing our fossil-fuel powered heating system with a wood-waste pellet stove, laying local, recycled Tennessee tile, setting up a greywater/rainwater catchment system, and so on... I imagine it will keep us busy for at least a year or two.

We look forward to meeting you on our shared path of Sustain-a-build-ability.

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Hiking the Highlands

Elk Knob Summit Now Accessible

Story and photos by Molly Moore

The Elk Knob Summit Trail begins with a casual amble through canopied woods. The 1.8 mile trail is all uphill, and after rising gently for the first quarter mile, carves a series of switch-backs up the mountainside, eventually meeting an old dirt road at the summit. At the top, hikers are greeted by stunning panoramic views of the Blue Ridge and Black Mountains to the south, the Amphibolite Mountains and Virginia to the north, and west into Tennessee.

The summit trail, completed in September 2011, is the first at Elk Knob State Park, one of North Carolina's newest parks. More than that, the trail is distinguished by the hands that built it — most belonged to volunteers.

"People climb mountains to get to the top," says volunteer trail builder Tom Layton. "The reason we built the trail the way we did is to make the top of the mountain accessible."

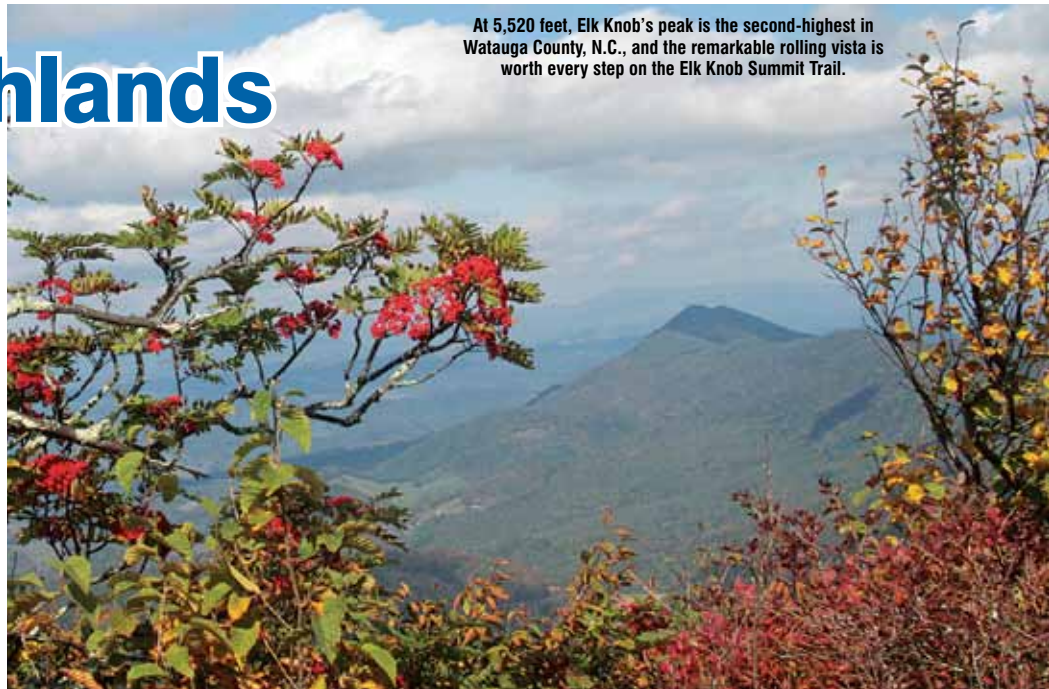
On Sept. 4, about 30 volunteers from the past five years finished the trail to the summit. The first volunteers came from a South Carolina youth group. Over the following years, groups ranging from high school clubs and college classes to Boy Scouts and Mountain

Alliance members ripped out roots, leveled ground, and moved rocks — some the size of a small car. Weekly workdays attracted a core group of about 10 area residents and regular High Country vacationers. Park Superintendent Larry Trivette enjoys former volunteers showing the trail to their families. "They feel like they have an investment in the trail and in the park," he says.

Winding upward

What could be a strenuous climb is made into a pleasantly physical hike by the trail's steady grade, gravel tread and steps cobbled with stones from the mountain. Several benches, composed of trailside rocks, provide opportunities for snack breaks or meditations with nearby lichens.

Along the trail, patches of sunlight filter through buckeye and beech branches. Some areas are carpeted with drooping grass, in other spots the moist earth is cloaked in moss and mounds of fall leaves. Elk Knob is one of 10 peaks in the Amphibolite Mountains



At 5,520 feet, Elk Knob's peak is the second-highest in Watauga County, N.C., and the remarkable rolling vista is worth every step on the Elk Knob Summit Trail.

of northwestern North Carolina. The Amphibolites, part of the Appalachian Mountain chain, are composed of a dark metamorphic rock and break down into a sweet soil that supports rare plants.

The structural strength of the trail is apparent even to an unobservant hiker. A level gravel tread is banked on the down-slope side by a stone crib wall to thwart erosion. In steep places, the trail crew dug a trough, installed rocks plucked from the surroundings, created a rock wall, and then built the trail tread on the uphill side. Trivette discovered that the trail became slick rather quickly, and decided to invest in a gravel trail surface. Volunteers spread a barrier of geo-textile fabric on the trail bed to keep the gravel from sinking into the mud and then raked the gravel over the fabric.

During my career I designed and built products with a short life cycle," volunteer Kim Mitchell says. "In retirement, I was yearning for a chance to be involved in a project that would produce something more permanent."

Still, nothing in nature is static. A rainy September washed out sections of trail that weathered four years of storms, and in one spot an audible rivulet spilled out from the base of the trail. Trivette notes that Elk Knob is a particularly wet mountain. Water doesn't just hit the trail

during downpours, it seeps out of the banks and builds up before washing down the path.

"You can't just build a trail and leave it alone," says Trivette. "If we want the trail to last for generations to come, we have to spend time in this generation working on it, continually correcting it."

Trail Cents

Estimated contract construction labor per foot: **\$45**

Length of Elk Knob Summit Trail: **10,032 ft.**

Estimated contract trail design: **\$49,660**

Total estimated contract construction cost: **\$501,100**

Tools and gravel: **\$43,055**

Estimated employee salaries: **\$33,045**

Estimated amount volunteers saved the state: **\$425,000**

Volunteers are still needed for trail maintenance.



ELK KNOB SUMMIT TRAIL

WHERE — Elk Knob State Park, 5564 Meat Camp Rd. in Todd, N.C.

LENGTH — 1.8 miles base to summit

GETTING THERE — From Boone: Take 194 N 4.3 miles, turn left on Meat Camp Rd. and follow 5.5 miles. Elk Knob State Park will be on your right.

WEB — www.ncparks.gov/visit/parks/elkn

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Drifter AC

Duke Energy Proposes Rate Hikes

Duke Energy is planning a rate increase that will impact electricity bills and the cost of consumer goods. In these difficult economic times, many North Carolina residents are concerned about a 17.4 percent increase in residential power bills.

The N.C. Utilities Commission will hold a public hearing in Charlotte, N.C. on Tuesday, Oct. 11, at 7 p.m. in Room 267 of the Charlotte-Mecklenburg Government Center, located at 600 East Fourth St.

EPA Cleans Mining Waste in N.C.

The Ore Knob Mine Site in Ore Knob, N.C. has its share of pollution problems, including a failed dam at the end of a tailings impoundment and acid mine drainage into the Ore

Knob Branch, part of the New River watershed. But the Environmental Protection Agency has restored the dam and rerouted the stream by a half mile to give it a cleaner run into the Little Peak Creek.

With the cooperation of the National Committee for the New River and donations from Foggy Mountain Nurseries, the EPA planted test plots of different native trees and shrubs to determine which plants most effectively minimize sediment runoff.

Smokey Can't Prevent This Forest Fire

In a move that stunned some in North Carolina's renewable energy and environmental community, the N.C. Court of appeals ruled that "whole" trees, timbered solely for burning in electrical power plants, can be considered a renewable energy resource. The contentiousness of the decision centers

It's Sad To Say, Fracking's Here to Stay

A new series of proposed natural gas pipelines will give many states better access to natural gas reserves of the Marcellus Shale, a formation of sedimentary rock that covers much of the Appalachian Basin. The pipelines will connect to larger interstate lines to reach more customers in the northeastern United States and possibly Canada. The price tag for the proposed system is around \$2 billion.

Since 2008, major drilling companies have exploited the large natural gas reserves of southwestern Pennsylvania. The epicenter of the fracking movement, 3,000 wells have been drilled there in the past three years,

with thousands more planned for the future.

Hydraulic fracturing has quickly risen to the forefront of environmental agenda. The horizontal drilling method's destructive effects on forests, wetlands, streams and habitat are widely publicized.

In other fracking news, the U.S. Geological Survey recently slashed the estimates of recoverable gas in the Marcellus Shale from 410 to about 84 trillion cubic feet. The previous guess by the oil and gas industry-friendly federal Energy Information Administration was only off by 80 percent.

around the concern that allowing newly fallen timber, instead of waste wood product, as fuel in combustion power plants will lead to clearcutting and increased pressure on Appalachian and Southeastern woodlands. Detractors of the move believe the court's ruling violates the spirit and intent of N.C.'s renewable energy portfolio standard.

ARC Grant Supports Environmental Education

Bluegrass PRIDE (Personal Responsibility In a Desirable Environment), a central Kentucky environmental

education nonprofit, and Congressman Ben Chandler announced \$40,000 in grants from the Appalachian Regional Commission to support environmental education in central Kentucky.

Amy Sohner, executive director of Bluegrass PRIDE, says environmental education "makes students understand they have a choice and a voice about the state their environment is in."

She says schools appreciate their curriculum because it uses real-world situations to teach core skills. "We've proven that environmental education can improve test scores for the subjects we teach," she says.

Soaring Back to Protection

A federal judge restored endangered status for the Virginia northern flying squirrel, stating that the U.S. Fish and Wildlife Service violated the Endangered Species Act by removing the animal's protected status. The ruling concluded that the service violated their own recovery plan by removing the species, and implies that recovery plans for other endangered and threatened species cannot be ignored or revised without public input, according to a statement by the Center for Biological Diversity. The center, along with Friends of Blackwater, the Wilderness Society, Heartwood, the Southern Appalachian Forest Coalition and WildSouth, filed suit in 2009 over the squirrel's delisting.

This flying squirrel appeared on the planet 30 million years ago and is native to the high-elevation hardwood forests of West Virginia and parts of Virginia. Mostly, these squirrels are known for their aerial acrobatics propelled by underarm skin flaps.



Among the 2011 AMPC Finalists (from left): Laura Varney-Watts, "Turk's Cap"; Amber Brown, "Airstream"; Dale King, "Goldenrod Sunrise"; Kristian Jackson, "Not Fit for Man or Beast"; Tommy White, "Boone Fork Bridge" - Photos Courtesy of ASU Outdoor Programs

Shooting Our Ecological Footprint Appalachian Mountain Photo Competition Taking Submissions

By Molly Moore

Beauty isn't limited to blue skies. Sometimes a photograph captures the resilience of a besieged hemlock or the bleak gray of a mountaintop removal site and reveals beauty in the midst of ecological turmoil.

With that in mind, Appalachian Voices is again sponsoring the Our Ecological Footprint category of the ninth annual Appalachian Mountain Photography Competition. This year, Mast General Store joined Appalachian Voices in sponsoring this category. As a result, the winner's prize for Our Ecological Footprint submissions is now \$500.

"The Our Ecological Footprint category encourages photographers to document threats to Appala-

chian ecosystems," says Willa Mays, executive director of Appalachian Voices. "As a society, we have had a visible effect on the landscape."

Though only photographers have a shot at the prize money, the competition is as much about the public as it is about the artists. Selected works will be displayed at the Turchin Center for the Visual Arts in Boone, N.C., and the public will have nearly two months to view the exhibit and cast their votes for the annual People's Choice award next February.

Other award categories include: Best in Show; Blue Ridge Parkway; People's Choice; Culture; Adventure; Flora and Fauna, and Landscape. All submissions are due by 5 p.m. Nov. 18.

The photography competition is a partnership between Appalachian State University Outdoor Programs, Turchin Center for the Visual Arts, and the Blue Ridge Parkway Foundation. AMPC is made possible through the sponsorship of Boone-area businesses, particularly Virtual Blue Ridge and Mast General Store. Other contributors to AMPC's \$4,000 prize pool include the Blue Ridge Parkway Foundation, Footsloggers Outdoor and Travel Outfitters, and Appalachian Voices.

Since it began in 2002, the competition has grown in size and prestige. Last year, there were 600 submissions, and the exhibit was viewed in person by more than 10,000 people at the Turchin Center for Visual Arts.

Haunted Walking Tours

Haunted History Walk, Summersville, W.Va. — Oct. 29 at 8 p.m. \$10/adult, kids 10 and under free with adult. Visit www.hauntedhistory.net or call (330) 412-6114.

Appalachian Ghost Walk, Abingdon, Va. and other locations — Nightly, start times vary. Varies from \$13-\$30 depending on group size, kids 5 and under free. Visit www.appalachianghostwalks.com or call (423) 743-9255.

Elizabethton Historic Ghost Walks, Meet at Bonnie Kate Theatre Elizabethton, Tenn. — Oct. 22 at 10 a.m. and noon. \$12/person for ages 12 and up. Call 423-542-9360 or email fpstorytellers@hotmail.com.

Haunted Asheville's Classic Ghost Experience walking tour, Asheville, N.C. — Nightly based on reservation. Cost: \$20/adults, \$15 age 14 and under. Call (828) 335-6764 or (828) 398-4678.

Gatlinburg Ghost & Haunt Tour, Gatlinburg, Tenn. — Nightly at 9 p.m. through Oct. 31; Nov. 1-31 Fri. & Sat. at 7 p.m.; Dec. 26-31 nightly at 7 p.m. \$18/adults, \$10 kids 8-14, 7 & under free. Visit www.gatlinburgghosts.com or call (865) 366-5834.

Ghostly Legends Rooted in History

By Molly Moore

As fall creeps into Appalachia, a smoky fog drifts through the hollows and wraps trees and church steeples in a ghostly haze. At this time of year, it's wise to pay attention to the human stories buried in the region's historical towns and landmarks.

Elizabethton, Tenn., one of the earliest permanent settlements west of the Appalachian Mountains, possesses haunted tales tied to the town's distinguished history. The first independent government formed by settlers in North America, the Watauga Association, resided in Elizabethton. In 1772, thirteen men assembled beneath a landmark sycamore tree and held the first court of the fledgling government under its branches. Though the tree succumbed to disease and age, its stump still stands beside an old covered bridge.

"Stories circulate in the area where that tree was," says Elizabethton storyteller Chad Bogart. "People have seen the tree and 13 men under the tree deliberating."

Bogart and the other two members

of the Front Porch Storytellers will guide Elizabethton's Historic Ghost Walk, an event held in conjunction with the town's Fall Fling Festival. Since the Front Porch Storytellers began their walking tours of Elizabethton in 2005, they have woven ghostly legends into their historical journeys.

The Front Porch Storytellers aren't the only chroniclers of southern Appalachia's ghostly tales. Joe Tennis, author of six books including *Marble and Other Ghost Tales of Tennessee, Virginia and Haunts of Virginia's Blue Ridge*



Highlands and a freelance writer for *The Appalachian Voice*, has written about Elizabethton's haunted Carter Mansion.

"This is a story largely rooted in history and tells of a little girl who might be seen in the window of the historic Carter Mansion home," Tennis says. "I actually am just

Continued on page 25

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Solar Decathlon *Students Build Tomorrow's Homes Today*

By Jeff Deal

Those weren't space-ships on Washington D.C.'s National Mall in September — they were entries for this year's U.S. Department of Energy Solar Decathlon.

Every two years, the competition challenges teams of college students to design, build and operate solar-powered homes that are affordable to build and maintain, energy-efficient and beautiful. The winner is the group with the highest combined score across 10 categories that evaluate the efficiency, sustainability and the livability of the students homes.

This year, two teams from Appalachia were invited to participate with just 18 other universities from around the world in the creation of these forward thinking homes.

Solar Homestead - ASU

The 2011 Solar Decathlon People's Choice Winner, Appalachian State University, has garnered a lot of attention recently. The student-led team's modular creation, called the Solar Homestead, tied for first in the water heating competition, placed second in the communications category and third in the architecture contest.

The students' housing concept was based on the traditional Appalachian homestead: a family, home, outbuildings and land functioning together to produce an independent livelihood.



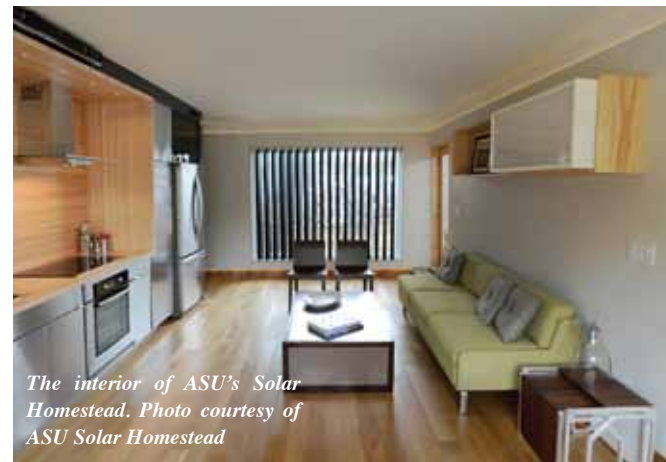
SUSTAINA-buildability

ASU's 21st century homestead features a solar energy collecting "trombe" wall in the main house that can absorb and radiate solar warmth in the winter but can be shielded from the sun during summer months, allowing the wall to absorb additional heat inside the dwelling.

Other green features include: roofing constructed from an 8.2 kW solar electric system capable of providing all electricity for the home; innovative dynamic modular construction allowing living space to be added or subtracted on demand; a cutting-edge phase-change solar water heating system; day-lighting galore; and a 900-square-foot, covered breezeway for outdoor living and "porch sitting."

Living Light - UT

Another team of Appalachian students also found a bright spot in this year's Solar Decathlon. The University of Tennessee at Knoxville's entry, Living Light, placed eighth overall in



The interior of ASU's Solar Homestead. Photo courtesy of ASU Solar Homestead



The enhanced lighting design of Tennessee's Living Light. Photo by Jim Tetrol/US. Department of Energy Solar Decathlon

the competition and took third place honors in the engineering and appliance categories.

The home's exceptional lighting engineering utilizes programmable blinds sandwiched between two panes of insulated glass to help passively heat the home in winter and cool it in summer. The same structure also provides rich day-lighting to the interior living space.

The Living Light home is powered by a 10.9 kW solar electric system comprised of easily installed cylindrical solar collectors that passively track the sun throughout the day while maintaining a lower operating temperature to increase electricity production. Air quality within the space is maintained by a high

efficiency ventilation system that harvests heat from the air in colder months and cools inside air in hotter weather.

In the end, all entries in the 2011 Solar Decathlon brought unique design and vastly different innovative technology solutions to the table, proving an important point — that variety is an attainable spice of sustainable life.

If You Could Only See Them Now

If you didn't make it to Washington, D.C., to see these "future-is-now" student home designs, you will still have a chance. ASU Chancellor Ken Peacock plans to permanently install the Solar Homestead on the Boone, N.C. campus, while the UT team will take Living Light on a state-wide tour of Tennessee.

Visit solardecathlon.gov to learn more about the 2011 contestants.

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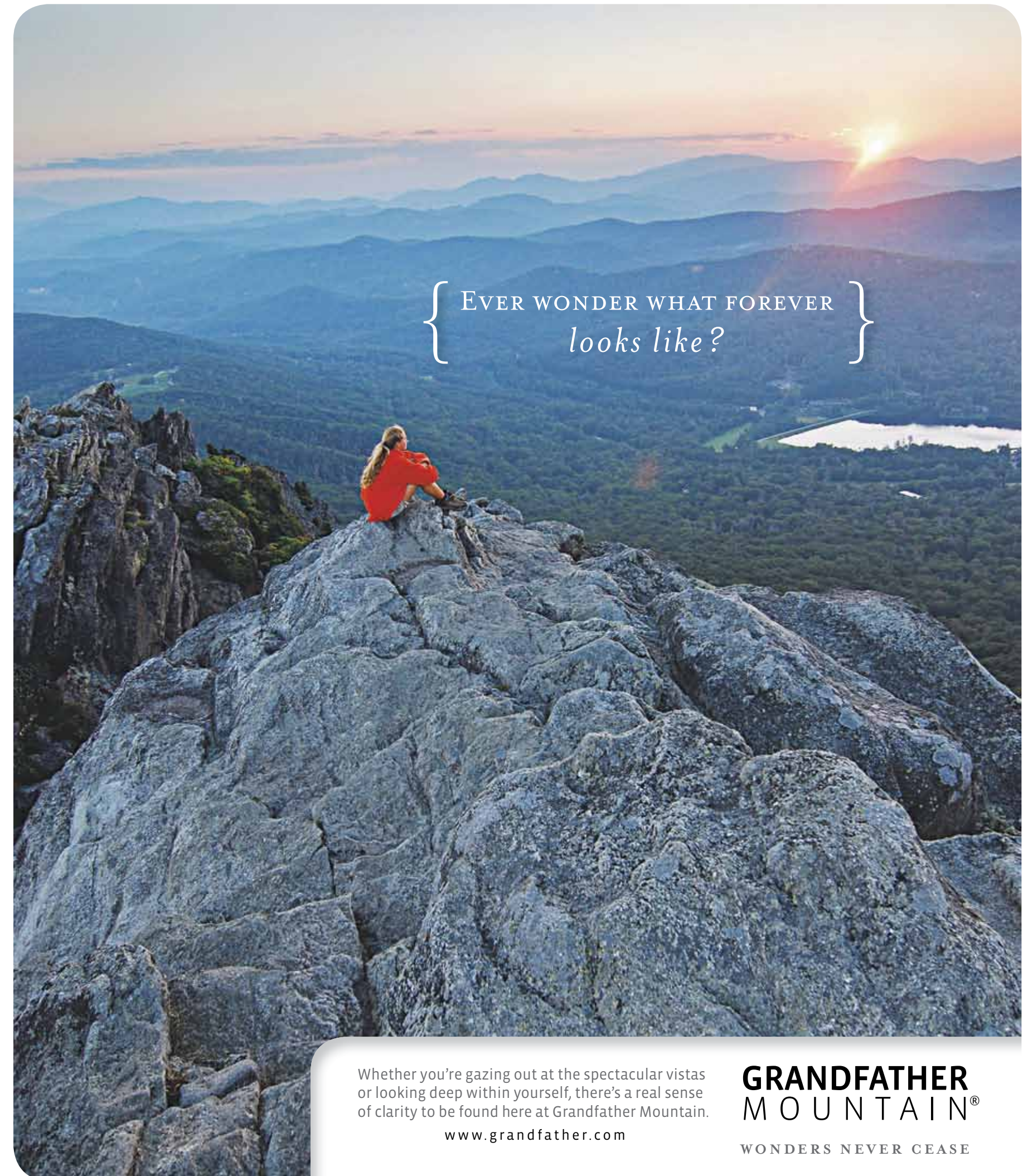
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ENERGIZING the Clean Economy

How Efficiency Creates Jobs and Saves Money

Political speeches, the nightly news and newspaper headlines are filled with reminders of the battered economy and the millions unemployed or underpaid. But as energy efficiency and renewable technologies advance, more domestic jobs are created that foster a sustainable economy, save money at home, and benefit human health and the environment. It's an ambitious goal, but across Appalachia, many forward-thinkers and industry leaders have already seen the light.

By Brian Sewell

Mike McKechnie keeps both a lump of coal and a piece of silicon, the main component in solar cells, on his desk.

He knows the direction of the nation's energy future comes in part from knowing its past. The owner of Mountain View Solar & Wind in Berkeley Springs, W.Va., McKechnie has spent years promoting energy efficiency and the benefits of solar and wind power.

"We've always been concerned in giving the consumer education," McKechnie says. "It helps them manage the utility bill that is so important to them. Once we have their attention, we can show them the energy saving components and translate that to dollars."

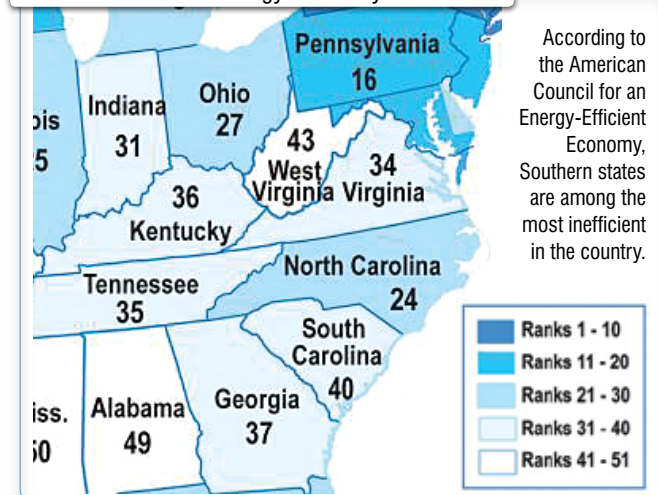
When McKechnie and his wife purchased a home from the U.S. Department of Energy Solar Decathlon in 2005, they began hosting energy efficiency, solar technology and green building trainings in their backyard. "We're middle class folks," McKechnie says. "It was our way of showing how

people like us can afford an efficient, healthy home." Before focusing solely on renewable energy, McKechnie operated Mountain View Builders, using his knowledge of green building practices. "We had our most successful years in 2008 and 2009, when most builders were suffering or completely out of business," he says. "The reason we were busy is because of the products and services we offered: a healthier place to live that uses significantly less power."

McKechnie and others give credit to the federal and state incentives, loans and grant programs that encourage homeowners to retrofit their homes and invest in energy efficiency, weatherization and green job training. But in order to keep energy efficiency and clean en-



ACEEE's 2010 State Energy Efficiency Scorecard



ergy growing, McKechnie says, the tax credits must stay at the consumer level.

Every state has its own tax credits and incentives to motivate energy efficiency. North Carolina residents and businesses receive a 35 percent tax rebate for installing renewable energy systems. In Kentucky's Appalachian counties, the Mountain Association for Community Economic Development offers loans to small and mid-sized businesses, non-profits, schools and municipalities through its Energy Efficient Enterprises program. Tennessee's Green Energy Tax Credit encourages the clean economy by providing large tax breaks to industries in the clean energy supply chain.

Federal tax credits for energy efficiency also exist, though in smaller

amounts than previous years. Home efficiency retrofits, the purchase of many Energy Star-rated appliances and installation of renewable energy all come with incentives put in place by the Department of Energy.

But it was the controversial and oft-criticized American Reinvestment and Recovery Act of 2009 that rejuvenated research and investment in clean energy. A total of \$27.2 billion was doled out by the Department of Energy, including \$5 billion for weatherizing modest-income homes, \$300 million for energy efficient appliance rebates. The Department of Labor gave grants of \$500 million to fund the training of "green-collar" workers. The Brookings Institute cites that, in addition to creating jobs in a recession, loan programs generated \$4 to \$8 of private lending for every dollar of public investment and by scaling up important clean energy technologies, began financing the long-term restructuring of the economy.

Community Housing Partners, a non-profit in Christiansburg, Va. that creates affordable, sustainable housing for low-income families, was awarded \$3.8 million through the Recovery Act's Department of Labor "Energy Training Partnership" grant to provide green job training in emerging industries. From

Continued on next page



Industry leaders like Mike McKechnie (far left) are defining the clean economy. Photo courtesy of Mountain View Solar

Community energy plans are gaining support for sustainable solutions from community members like the Green Team in Alderson, W.Va. (center). Photo courtesy of Downstream Strategies

Grant funds help provide essential training in emerging industries. Photo courtesy of CREATES

that grant, the Construction, Retrofitting, and Energy-Efficiency Assessment Training and Employment System (CREATES) program began.

Virginia Tech University, a CREATES partner, approached Community Housing Partners prior to applying for the grant to discuss developing training initiatives for workers already involved with or interested in green construction fields.

"Virginia Tech worked with the local community colleges to look at their current construction curriculum," the employer outreach specialist for CREATES, Jackie Pontious, explains.

Community Housing Partners is then responsible for adding a "green shell" to the curriculum already in place. An example would be a solar energy component added to an electrical engineering course.

"We recognize the need to train them for the needs of today and prepare them for the needs of the future," Pontious says.

The partnership's trainings are rooted in a collaboration between community colleges, each specializing in a different aspect of green construction. New River Community College in Dublin, Va. concentrates on Wind and Solar Technology training; Virginia Western Community College in Roanoke focuses on energy management training; Wythesville Community College, located in a town with several contractors, is most fit to train in building compliance. Trainees pursue associate degrees and industry certifications in courses ranging from electrical engineering to weatherization fundamentals. The end goal? A job in the clean economy.

Pontious identifies employment opportunities for CREATES trainees by meeting with local trade organiza-



tions and hosting job fairs with existing green construction firms in southwest Virginia. A CREATES trainee may find work as a weatherization technician with a non-profit like WAMY Community Action, a western North Carolina organization that fights poverty in four counties through grassroots approaches that help people help themselves.

In a recent report, WAMY documented that in the 258 homes they weatherized with support from the Recovery Act, energy costs were reduced by nearly 30 percent annually — a critical difference for families who once spent an average 15 percent of their annual income on energy costs.

But the prolonged success of regional initiatives in the clean economy depends on more than government funding and well-trained workers. Communities suffering from the rising cost of electricity from fossil fuels are also rallying find clean energy solutions.

Rory McIlmoil, a project manager at Downstream Strategies, an environmental consulting firm in Alderson, W.Va., is concerned with the need for economic diversification and intelligent approaches to creating a more energy-efficient future in Appalachian coal regions. Using a grant from the Appalachian Regional Commission, McIlmoil is working with residents of Alderson on a community energy plan to invest in cleaner, more sustainable energy sources and systems.

"My experience in Alderson has proven to me that folks in rural areas are deeply concerned about rising energy costs," McIlmoil says. "They see the

growing impact it has on their disposable income."

The Alderson plan calls on residents to assist in outlining goals and creating a vision for greening the community, with McIlmoil and Downstream Strategies providing technical support.

"Small towns have small budgets," says McIlmoil. "But towns like Alderson are a perfect place to focus and plan initiatives. The buildings are aging and utilities costs are rising. There is a lot of opportunity and a willingness on the part of the people and local government."

"I see this growth happening pretty rapidly," he says. But is it going to help save West Virginia's economy? I don't know."

Across the state, Mike McKechnie shares McIlmoil's sense of urgency. Collaborating with the Williamson, W.Va.-based JOBS Project on a broad initiative called Sustainable Williamson, McKechnie recently began training local residents, some of whom are second- and third-generation coal miners.

"It's not an accident that we train coal miners," McKechnie says. "They want their children to learn about solar and energy efficiency. They know it's the future. The West Virginia coal miner put the nation on the map during the first industrial revolution. They should get a shot at the next one."

Nick Mullins was a fourth-generation Virginia coal miner before he left the industry for a new life.

"When I graduated high school the highest paying jobs around were coal industry jobs," Mullins says.

It was after becoming an electrician

in the mines that Mullins saw a new side of mining.

"The damage to the economy and the environment lit a fire in me," Mullins says. "When I saw the high concentration of cancer and my community's health suffering, I knew it was time to think about a life beyond coal."

Mullins, now living in Berea, Ky. with his wife and two children, received financial aid from the Kentucky Solar Partnership and, with the help of Eastern Kentucky University, is starting Power Savers, LLC while he pursues other trainings in building performance.

"Efficiency is the quickest, easiest way to save money on energy," Mullins says. "If we continue on this path, it's easy to see how we can turn the economy around. But we need to learn how to live more healthy, efficient lives. It's not just about saving money and the environment. It's about saving coal miners too."

With regional initiatives, development and support for green-collar jobs, a more economically and environmentally sustainable future is within reach. A future everyone in Appalachia — and America — can be proud of.

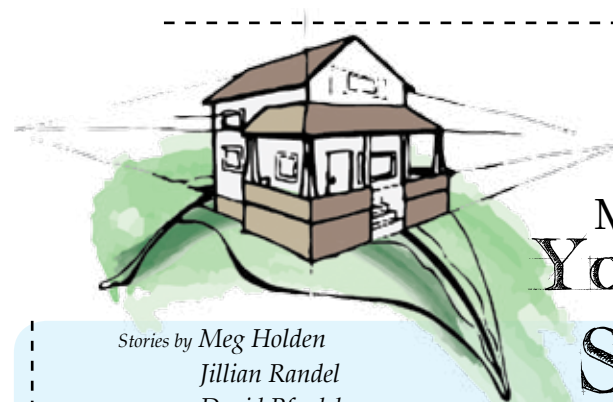
Resources

To learn about your state's incentive programs, head to the Database of State Incentives for Renewables & Efficiency at www.dsireusa.org.

Feeling Competitive? Visit the U.S. Department of Energy at www.energy.gov and see national ranks of per capita energy usage and costs.

For the latest on all things energy efficiency, check out American Council for an Energy-Efficient home website, www.aceee.org.





Making Your Home More Sustainable

Stories by Meg Holden
Jillian Randel
David Pferdekemper

In sustainable building and remodeling, terms like “conservation” and “efficiency” are thrown around a lot. But how does the difference between efficiency and conservation affect the sustainability of your home?

Simply put, conservation is using less of a resource. Efficiency is using the same amount of that resource to get a higher output. Think of it in terms of water. Not running the sink while you brush your teeth is an example of conservation. Collecting your dishwashing water and using it to flush your toilet — using the same water twice for different uses — is efficiency.

Conservation and efficiency are both important to consider in sustainable building, but neither one is necessarily better than the other. It all comes down to your sustainable building goals and practices. What matters is using your budget, time limits and space constraints to create a more environmentally responsible home.

On the Web: Tax Incentives, Credits and Rebates

City and state utility rebates on toilets, faucets and shower heads: epa.gov/Water-Sense/rebate_finder_saving_money_water.html

2011 federal tax credits and incentives on items such as solar energy systems, biomass stoves, geothermal heat pipes, insulation, roofs, small wind turbines and more: energystar.gov/index.cfm?c=tax_credits.tx_index

Residential energy efficiency tax credits for items such as insulation, doors, windows and heating systems: dsireusa.org

Doing-It-Yourself Workshops

Transition Initiatives is a great way to get involved in do-it-yourself energy efficiency activities. They host workshops for free or nominal prices and neighbors often work together to complete projects. Find an initiative near your community at transitionus.org.

The North Carolina Wind Energy program at Appalachian State offers a variety of energy efficiency home-improvement workshops. Visit wind.appstate.edu.

Warren Wilson College in Black Mountain, N.C., is a hub for green campus initiatives and the school offers a variety of year-round energy efficiency projects for homeowners: warren-wilson.edu/~elc/New_ELC_Website/_Green_Calendar.php

Getting Green Machines

According to the U.S. Department of Energy, lighting, refrigeration, and cooking are responsible for over 40 percent of a home’s energy use. If you add in a washer and dryer and other large appliances — well, it’s a good thing many new appliances help conserve more energy than ever. But what should you look for in a new appliance to make sure it’s as green as possible?

The most important element is energy use. Products with an Energy Star sticker are at least 20 percent more energy-efficient than the national standard and have performance consistent with consumer expectations. Some appliances even go above and beyond Energy Star specifications. Many Bosch appliances have a “Sabbath Mode,” a feature that enables an oven to keep pre-cooked foods hot for extended periods — such as the Jewish Sabbath — without being actively on.



An appliance’s size plays a huge role in how much energy it uses. Compact washing machines use much less water than full-sized machines and are perfect for those who live alone or just don’t wash their clothes often. By using more energy-efficient appliances, thousands of people have shrunk their carbon footprint. Follow their example, and yours will shrink, too.

Start Conserving and Stop Flushing Your Money Away

Remember the explanation of conservation versus efficiency? Buying low-flow shower heads and toilets and an aerator for the sink can save thousands of gallons of water each year. According to *National Geographic*, a seven-minute shower with a low-flow shower head uses only 14 gallons of water. New, water-conserving dishwashers are also eco-friendly alternatives to old water wasters.

In the kitchen, many appliances combine energy efficiency and conservation. To prevent heat loss, induction cooktop stoves use electromagnetic energy to disperse heat throughout the pan rather than just through the bottom.

And finally, the ultimate efficient appliance: The one you don’t have. Going without a microwave, coffee maker, dryer or other appliance is more space- and energy-efficient than using one. Plus, it’s free.

Getting Rid of Old Appliances

What should you do with those energy hogs after replacing them with their more efficient cousins? Don’t drop them off at the dump — put it back to work! Goodwill and other thrift stores often take old appliances as long as they are in working condition.

Even broken appliances are worth something. Someone might be interested in your old dryer for parts, an art project or to repair it themselves. Check with your local landfill or visit www.recycle-steel.org to learn how to recycle appliances in your area.



Improving your Prefab’s Performance

By Molly Moore

Mobile homes typically use more energy per square foot than their conventional counterparts. But because these manufactured homes are often built similarly, energy-efficiency retrofits are just as attainable.

Jackie Rader is Weatherization Coordinator for Coalfield Community Action, one of thirteen West Virginia community-action agencies working to increase efficiency and lower energy bills for low-income residents. Of the 434 homes her

agency has weatherized, 200 are mobile homes.

According to Rader, the most common weaknesses are the sub-floor insulation and bellyboard. Bellyboards are strong tarps that keep insulation wrapped tightly to the heating ductwork beneath a mobile home. Some older mobile homes lack bellyboards altogether, and others are torn by rodents. Once a bellyboard is compromised, insulation begins to fall out. Eventually, the heating system can be breached and the ductwork itself can fall.



SUSTAINA-buildability

Rader’s team is trained to work on bellyboards and insulation, but some homeowners are capable of doing these repairs themselves. She cautions that this work needs to be done carefully, however; insufficient insulation around the ductwork will cause condensation to build up within the structure and lead to future problems.

Some steps concerned residents can take to control air leaks include weatherstripping around doors, sealing mobile

home windows with window clips (available at most hardware stores), and closing gaps around pipe entry points with foam sealant. Dryer vents should be securely attached and operate completely outside of the home to prevent moisture buildup.

Federally-funded weatherization agencies such as Coalfield Community Action offer free weatherization services to qualifying low-income residents. On average, homeowners see their energy usage drop by about 25 percent.

Take a Sunshower!

Few hygiene routines are as refreshing as watching butterflies flit by while you scrub yourself under the summer sun. Solar showers can be as simple or complex as your bathing fantasies, and plenty of designs and prefabricated options are available online. But you can construct the most basic models with little more than scrap wood, household tools, a black trash can, a garden hose, and a nozzle with a “shower” setting. Consider that routing a shower’s drainage toward a garden patch waters the plants every time you bathe, and you might find yourself more motivated to get clean.



Johnny Scores a Royal Flush

By Jillian Randel

According to the U.S. Environmental Protection Agency, toilets account for nearly 30 percent of an average home’s indoor water consumption, which makes them the biggest culprit of a homeowner’s water usage. There are many options when shopping for eco-friendly toilets. But it is also possible to keep things simple and make a toilet at home, like Foscoe, N.C. resident Cory Alexander Kornegay did with his sawdust composting toilet.



“To make our toilet we took a five gallon bucket and built three pieces of wood around it and added a toilet seat on top,” says Kornegay.

Kornegay recommends *The Humane Handbook* by Joseph Jenkins as a reference. The book details the science behind composting human waste and includes a guide to building your own composting toilet.

“The key is to rotate out the buckets,” explains Kornegay. “Dump them onto your compost pile over the course of a year. Every time you dump it, cover it up with straw or more sawdust. After the compost pile sits for another year, it is ready to use as humanure.”

For homeowners who are not quite ready to take the extreme toilet approach, there are plenty of other options available on the market. Low-flush toilet models boast a water-usage as low as 1.25 gallons per flush (compared to 3.5 gallons per flush or more on older models). New low-flush toilet prices

range from \$196 to \$264.

Dual flush toilets, used widely in Europe, are designed with two flush options — one for solid waste and one for liquid waste. They save up to 67 percent more water than an average toilet. Prices start at \$219.

For homeowners who want to go green but are worried about costs, low-priced conversion kits are available. A dual flush retrofit conversion kit can be purchased for as low as \$40.

Many local utility companies offer rebates and vouchers for water-related appliances — an added bonus for consumers. Low-flow shower heads, energy efficient washing machines, dishwashers and low-flow sink appliances are all available with tax incentives.

Whether you are ready to start composting or invest in a low-flush toilet, there are plenty of options. Below is a list of websites to help make your shopping experience a bit cheaper, or visit www.humanehandbook.com to start building your own toilet now.

Weatherization Helps Low-income Families Save Money

WAMY Community Action Network, based in Boone, N.C., has a program designed to help low-income families save on their energy bills. Their Weatherization Assistance and Heating Appliance Repair and Replacement programs, like similar programs around the country, help families replace insulation, heating and air conditioning systems, apply caulking and weather stripping to windows and doors, tune-up water heaters and assess efficiency of home energy appliances. The U.S. Department of Energy estimates that weatherization reduces heating bills by 31 percent and overall household energy bills by \$358 per year.

To find a program like WAMY in your county, visit the National Community Action Foundation website, ncaf.org or call 202.842.2092.

MNHM
2nd Annual Rock, Mineral, Gem, and Jewelry Show
 November 11-15
 10:00 AM- 6:00 PM
 Admission
 Adults - \$5.00
 Children - \$1.00
 Under 5 - Free
 Weekend pass for all 5 days: \$6.00
 Mystery Of Natural History Museum
 521 Broad Street Kingsport
 (423) 565-9900
lpnmuseum@usa.com



The solar array at the First Congregational United Church of Christ (left) is connected to the grid, generating 10kW from 42 panels.

Congregations Put Faith in Solar Power

By Brian Sewell



On a sunny day in April at the First Congregational United Church of Christ in Asheville, N.C., the Reverend Joe Hoffman welcomed his congregation with an unusual liturgy. "Today we celebrate a particular act of faith with the dedication of solar panels on our roof," he announced from the pulpit.

The event, dubbed a "Solarbration," marked the completion of a collaborative project between The Appalachian Institute for Renewable Energy, North Carolina Interfaith Power & Light and Sundance Power Systems of Asheville, that installed a 10 kilowatt system of 42 solar panels,

Across the country, groups like Interfaith Power & Light are working with communities of faith, recruiting them to a common cause to help reduce their carbon footprint. As the price of solar falls and its popularity grows, more and more congregations are putting faith in solar power.

"We want to communicate to people that it is the business of the faith community to care for the environment," Hoffman says. "That is what it means to be a person of faith."

For nearly five years, Hoffman nurtured an interest in installing solar panels on the roof of the church's education building.

"When we moved into our new space, we had the perfect roof for solar panels," Hoffman says of the building that is attached to the gothic-style cathedral recently purchased by the United Church of Christ.

Hoffman wasn't alone in his mission. The Boone, N.C.-based organi-

zation The Appalachian Institute for Renewable Energy (AIRE), partnered with N.C. Interfaith Power & Light's outreach coordinator, Richard Fireman, to develop and promote an innovative solar finance model in which congregations create a limited liability company. "When Richard started coming to see me about five years ago, he was looking for a church to take the lead and to show that we care about the sources of energy we use and how they effect the environment," Hoffman says.

"Churches are very stable organizations," Fireman says. "Investing in a solar array on a church is different than any other business that could shut down."

When the state's Renewable Energy Portfolio Standard passed in 2007 and allowed individuals who donated to renewable energy projects to receive renewable energy credits or "RECs," Fireman and Hoffman hit the ground running to create a solar project for the United Church of Christ.

The United Church of Christ was the first congregation to use AIRE's innovative solar finance model. Working with nine investors, AIRE helped the church organize "First Church Solar, LLC" to raise the capital investment for the project. Fireman says the new company envisions donating the system to the church in about six years, depending on the price of electricity and other elements in the marketplace, at which point many of the investors will have made their money back, and some a little extra.

"In this model, since the LLC owns the system, the church doesn't directly benefit from decreased power bills," says Fireman. "But the church receives community goodwill, understanding that the congregation is now supplying green energy and they're seen as a model for caring for creation."

The United Church of Christ's solar array is connected to the grid and sells their RECs to Progress Energy. The investors receive tax credits and pay a small amount to lease the church's roof space.

"In six years, once the church owns the system and depending on the price of electricity and other elements in the marketplace, the church may decide to net-meter and use the electricity itself," Fireman says.

While continuing to develop the AIRE model, Fireman is working on a clearinghouse document to describe the three finance models and exhibit congregations who've been successful in completing renewable energy projects.

Churches that have adopted solar like the United Church Christ are also doing their part to spread the good word. "We continue to tell our story and how we accomplished this in an inexpensive way and remind others that our faith tradition supports caring for the earth and using resources wisely," Hoffman says.

As the "Solarbration" concluded, the modern additions to the stone cathedral gathered the sun's energy. Squinting into the light, the congregation responded: "Take these solar panels and through them shine the light of Your way into our hearts and minds. Amen."



Richard Fireman works with congregations to install renewable energy projects like this one at his home in Mars Hill, N.C.

FINANCE MODELS FOR RENEWABLE ENERGY

The Donor Model: In this model, individual donations allow congregations to own the system outright and benefit from the electricity. Donors receive a 35 percent N.C. state tax credit and a tax deduction on their federal return for a charitable donation.

- Myers Park Church in Charlotte
- Temple Emmanuel, Greensboro

AIRE Model, Create an LLC: In the model used by the First Congregational United Church of Christ Asheville, the investors in the LLC own the system and benefit from the tax credits, depreciation and revenue from selling the electricity and Renewable Energy Credits. After a period of six or seven years, depending on price of electricity and other elements of the marketplace, the LLC donates the system to the congregation.

- United Church of Christ
- Other Projects in the works: First Lutheran Church Albemarle, Elon Community Church

Third-party Payer Power Purchase Agreement: Investors install an array and make an arrangement with the church to sell electricity at a specified rate. Investors benefit from the depreciation, tax incentives and sale of electricity. This model is not used for solar electric in N.C. because only Duke and Progress Energy can sell electricity. However, First Light Solar in Asheville developed a similar Solar Energy Purchase Agreement model, selling BTUS and Therms, since hot water is not regulated by the Utilities Commission.

- Montreat Conference Center

The Business of Building Green

What's good for the earth is good for the bottom line

By Molly Moore

When dentist Kendalyn Lutz-Craver decided it was time to move out of her leased, musty office and build her own structure, she had three building goals in mind. She didn't want the building to be square, she wanted all patients to face a window, and she wanted to minimize her office's environmental footprint.

Now Lutz-Craver and her Cornerstone Dental Associates staff practice in a graceful white stone building that is also the first building with Leadership in Energy and Environmental Design (LEED) certification in Cleveland County, N.C.. Architect Mark Patterson estimates that greening the building added just 5 percent to the overall tab, an investment he expects will be returned within five years because of increased efficiency.

Carolyn Dankowski, plant manager at PepsiCo's Blue Ridge Gatorade facility, enjoyed the LEED process. Facility designers originally targeted LEED Silver but were pleasantly surprised to achieve Gold. Gatorade's facility in Wytheville, Va., manufactures four products including Propel Fitness Water and Sobe Teas, a workload that requires heavy water use and heating and cooling massive quantities of liquid. Dankowski says energy-efficient water features, including state-of-the-art water heaters and coolers and a regeneration system that captures heat to reuse later, have taken a bite out of energy bills as well as saving 100 million gallons of water annually.

"We're using 15 percent less gas, 30 percent less electricity, and 20 percent less water per gallon of Gatorade produced," Dankowski says, using the plant's favorite unit of measurement.

In addition to lowered energy bills, businesses are finding that green buildings bring not-so-obvious benefits. Mountain States Health Alliance — an



Appalachian hospital system with 13 healthcare centers — will open their third LEED-certified facility in April. Franklin Woods Community Hospital in Johnson City, Tenn., their first green facility, includes among other features an emphasis on natural light, which according to Herbert is conducive to healing. "We hope that patients will enjoy their visits as much as possible and think of us when they're choosing an elective surgery or having a baby," says Ed Herbert, Vice President of Communications and Marketing at MSHA.

At Cornerstone Dental, Lutz-Craver gave every patient a window seat, a decision which also benefits her employees.

"I don't have a staff member who doesn't have a daylight view, [and] it really improves the day-to-day grind," she says. Lutz-Craver says the building upgrade has translated into fewer allergies among her staff. And Herbert notes that MSHA's employees enjoy the comfort of new cork floors.

"LEED is not just a recognition, it's a great way to measure how much you're helping the environment as you build," Herbert says.

HOW ARCHITECTURE CAN LEAD TO ENERGY EFFICIENCY

"Maximize passive qualities. Use deciduous trees on the side so you have their leaves in summer and light in winter. Let things work without technological fixes." — Luke W. Perry, Adjunct Instructor, Appalachian State University Department of Technology and Environmental Design, N.C.

"By performing. There is no better advocate than a building that actively demonstrates its performance, such as lower utility costs or harnessing energy and water." — D. Craig Rushing, Architect/Builder LEED AP, Lexington, Ky.

"Design a building that optimizes daylight and reduces the need for artificial lighting. That reduces energy bills." — Anj McClain Co-Director, Greenspaces, Chattanooga, Tenn.

"Roof overhangs or window-shading devices on south facing windows can reduce ventilation and air conditioning loads during the summer and decrease heating loads during the winter." — Brian Bumann, LEED AP, The FWA Group, Charlotte N.C., Chair of the USGBC Southeast Regional Committee

"We can design responsibly by specifying materials that require less energy to produce, use, and reuse." — Oscar E. Sorcia, American Institute of Architecture Students member, a Junior at Appalachian State University

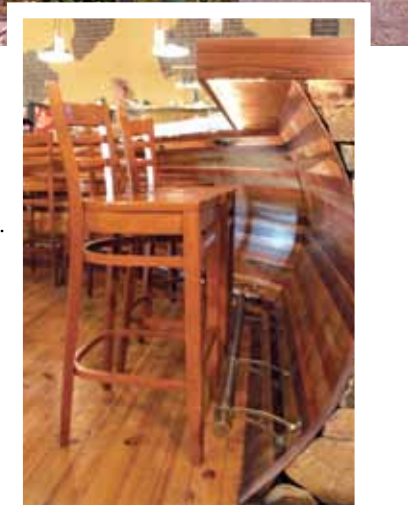
Building green was cost-effective for Cornerstone Dental Associates (above) — photo by Nicole Mosley. Our Daily Bread's bar (right) features four types of wood repurposed from an old homestead — photo by Molly Moore

Of course, buildings can be ecologically responsible without a shiny LEED label. Mountain States Health Alliance appreciated the benefits of natural light at their new green hospitals so much that they have incorporated daylighting into renovations in older facilities.

Recycled renovations

When Sam and Jennifer Parker, owners of Our Daily Bread delicatessen in Boone, N.C., wanted to update their restaurant, they found that unveiling the building's historic features enhanced the space without requiring new materials. Underneath ugly acoustic tile, plaster and drywall they discovered original Italian ceiling tiles and brick walls.

The Parkers chose reclaimed barn wood for the restaurant's tables and used Forest Steward Council-certified heart-of-pine wood to ensure that the cafe floor came from a responsibly-managed forest.



And their new, slip-resistant kitchen floor? It's seamless, durable, fire-retardant and 100 percent recycled thermoplastic PVC, welded to fit the floor space and provide a bathtub-like splashguard at the base of the walls.

Sam Parker said that while the overall renovations to his restaurant were expensive, it didn't cost much more to use sustainable materials. "You'll find some [green building materials] that are pretty comparable and competitive in pricing," he says.

Building budgets

In Chattanooga, Greenspaces co-director Anj McClain says people often assume that it costs 20 percent more to meet LEED standards. In reality, however, it costs a mere two to five percent more to use sustainable materials and construction practices.

Official certification, however, can add significantly to a project's cost — Lutz-Craver paid a hefty fee for a LEED consultant on her building. That's why groups like the Chattanooga nonprofit Greenspaces provides incentive funding to help commercial projects cover administrative costs of LEED construction.

About half of the projects Greenspaces is involved with are renovations and half are new construction.

"We encourage reusing a building," McClain says. "It's really the greenest thing you can do."

These GREEN Houses

Green building might just be the world's oldest construction style. Caves, lean-tos, wattle and daub, mud brick, stone pyramids and temples, wooden post and beam, Devonshire Cob; all are green building styles, some dating back more than 5,000 years. While there's not much new under the sun, the resurgent appreciation of these artisan building techniques is not surprising — they've been sorely missed. Below are just a few of these nature-inspired approaches. Though brief, it's a great jumping-off point into the staggering possibilities these construction techniques present. *By Jeff Deal*



Straw-bale

MATERIALS: baled waste straw, wheat, rice, rye, or oats covered with a lime- and sand-based plaster.

ADVANTAGES: Employs readily available natural and/or recycled materials that provide excellent inherent insulation.

BE MINDFUL OF... A low humidity of the bales must be carefully maintained during construction. Walls must be completely plastered for the life of the house; water should never enter bale walls.

Photo by Frechtschaffen



Cob

MATERIALS: compact mixture of clay, sand, straw, water and earth

ADVANTAGES: Uses readily available materials that are easy to produce and work with. Provides excellent passive cooling and "thermal momentum" for hotter regions.

BE MINDFUL OF... May not be as good for colder climates as the walls must "breathe" and thus do not provide a high level of insulation. Running water must be kept out of walls.

Photo by Gerry Thomasen Nanaimo, Canada



Earthship/Rammed Earth

MATERIALS: reclaimed tires or bags filled with earth or dense reclaimed materials

ADVANTAGES: Utilizes readily available materials that can be easily recovered from local waste streams.

BE MINDFUL OF... As with all buildings, water must be kept out of structural earth walls.

Photo by Gazzat5



Shipping Container

MATERIALS: Shipping containers with batted, blown or sprayed foam, or foam board insulation

ADVANTAGES: Excellent structural integrity and durability. Abandoned containers can often be used.

BE MINDFUL OF... Might need to insulate interior walls with a sprayed-on insulation to avoid condensation in humid climates. Materials are often more industrial and less repurposed than other green systems.

Photo courtesy of High Country Green Boxes | DwellBox



Yurt

MATERIALS: a durable, nimble tent-like frame with a water-shedding outer shell

ADVANTAGES: Inexpensive to build and operate.

BE MINDFUL OF... Exterior walls are not as strong as other green building system and are harder to insulate for colder climates.

Photo by Tkn20, Hardscarf



Structural Insulated Panels (SIPs)

MATERIALS: a dense structural material such as concrete, plywood, OSB or sheet metal with an insulated infill (often foam)

ADVANTAGES: Excellent structural integrity, insulation and "thermal momentum" for heating and cooling.

BE MINDFUL OF... Materials are often more industrial and less re-purposed than other green building systems.

Photo by H. Raab (Vesta)

Green Building 101

Eco-friendly Living in Outdoor Spaces

SUSTAINA-buildability

By David Pferdekemper and Brian Sewell

Considering the changing colors and the crisp air, autumn is as good a time as any to spend outdoors. If you don't have an "outdoor living space" yet, it may be time to create that welcoming, comfortable and eco-friendly addition to your home.

Humans have long incorporated garden spaces, porches and gazebos into their daily lives. Tea in the English garden, meditation on a stone bench and cookouts on the deck present idyllic pictures of days spent at home and outside. But only recently has the awareness of expanding *outside* rather than inside become a popular way to increase a home's square-footage.

First, consider a patio or terrace instead of a porch. Use low-maintenance materials that are also environmentally friendly, such as local stone or scrap marble from a quarry.

If a porch is part of the plan, carefully consider your building materials. Natural wood is eco-friendly if it comes from a properly managed forest but naturally

Recycling Reaches New Heights

At Burton Street Community Peace Garden in Asheville, N.C., a new outdoor community gathering space uses salvaged and repurposed materials and employs a passive solar design. Coordinated by Asheville Design Center and Appalachian State University adjunct instructor Luke Perry, students from ASU, North Carolina State University and Virginia Tech cooperatively designed and constructed the 300 square-foot pavilion during summer 2011. "If you look right to left, there's a sequence of wood, metal, plastic then glass," says Oscar Sorcia, a junior at ASU. "[The pavilion] tells a story of that place, a transition from chaos to order. There was a lot of found trash the owner collected from the area. Now there's landscaping, gardens and a structure."

Photo by Michael Oppenheim



rot-resistant wood is expensive. Composite decking uses recycled materials and waste wood and lasts a long time with little maintenance. Add an awning or roof to create the spatial impression of another "room" on your home.

Let There Be Light: Use solar garden lights with LED bulbs and rechargeable, solar-powered batteries to light up the night with minimal electricity. If you prefer natural lighting, candles are the way to go. Not only do they provide just the right amount of light for intimate

get-togethers, but some repel bugs and eliminate the need for a costly patio screen or an energy wasting bug zapper.

Dinner Time: Cooking with an infrared gas grill uses about a quarter less gas than a conventional grill. If charcoal is a necessity, get a ceramic, fuel-efficient kamado grill. Kamado grills cost more, but because they use less charcoal over time, they save money while helping save the Earth.

Keeping It Warm: Everyone loves sitting around a fire. Use firebowls or

clay ovens on patios and porches to extend the season of your outdoor "living room." Build a rustic fire pit next to your patio by clearing grass and leaves and assembling a rock border to contain the flames. For a more permanent structure, simply cement the stones together.

Create a space you love and you'll quickly find that your unconditioned addition is the place to be, saving you, your friends and family money while conserving energy.

Essential "School" Supplies

Bamboo: The time-tested tried-and-true hearty building material used the world over for floors, sinks, paneling, furniture, and plywood of all grades. If you can build it with wood, you can build it with bamboo.

Radiant Heating: The 2,000 year-old comfy home heating solution that's a sure cure for cold feet. Want a giant heater as big as your house? No problem! Run hot water pipes and heat fins under your sub-floor and inside your interior walls and park your wool slippers for the winter.

Light tubes, Skylights, Windows and Doors: In every part of a home makeover, these efficient, energy-saving devices can improve the ventilation, heating, cooling and lighting of your home. It's the sunniest way to enjoy the outside inside — all while being paid to leave your lights off.

Repurposed Lumber: What do old barns, outbuildings, early 20th-century factories, horse-harvested fallen trees and sunken or landfill timber have in common? They can all be used to create the most beautiful home and furnishings imaginable without cutting down large, carbon-munching trees and forests.

Recycled Plastic Bottles and Jugs: That's right. Your discarded milk jugs and beverage bottles can not only be turned into fleece clothing, they can be recycled into high grade batted home insulation, carpeting, kitchen counter-tops, porch railings and decks. Save landfill space and precious resources while enjoying building materials that last for decades.

Toilets: You don't need a new toilet to save water when flushing (though modern water-conserving toilets do use a mere .8 to 1.26 gallons with each flush!). Check out the water-saving toilet flushing gadgetry from One2Flush and BlueSource that can turn your water-gobbling over-three-gallons-per-flush porcelain terror in to a well heeled one- and two-gallon-per-flush thoroughbred.

Pellet Stoves: Love the feel of using wood to heat your home but can't stand to cut down a tree? Find piles of discarded sawdust and wood waste on its way to your local landfill or incinerator, purchase a wood pellet mill with your neighbors and produce your own reclaimed biomass wood pellets. Why? For your highly efficient EPA-approved wood pellet stove of course! You can also buy the pellets by the bag, if you're not into the whole mill thing.

Biofuel Monitor Heaters: If you like running your automobile on biodiesel, you're going to love running your monitor heater or furnace on it. Check out the direct-vented oil heaters from Toyotomi.

Tile: The stuff of Mediterranean temples, palaces and monuments — and now, your home. And thanks to Crossville of Tennessee, you can get a sustainably-produced product that's as beautiful as it is brilliant.

Natural Linoleum or Marmoleum: It just sounds good doesn't it? Made from linseed, cork, tree rosin, limestone and wood flour, this flooring is non-allergenic, beautiful, long-lasting and oh-so green!

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Denim: It's not just for rock stars and cowgirls anymore. Your house can wear it as batted insulation so that you stay warm and your heating and cooling bills stay low.

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Evolution River by Scott Hotaling, 2010 People's Choice Landscape category. Courtesy ASU Outdoor Programs

Bull Elk at Dawn by Scott Hotaling, 2011 People's Choice Award Winner, Special Mention Flora and Fauna Category. Courtesy ASU Outdoor Programs

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Green Business Directory: Sustainable Builders

Welcome to the Appalachian Voices Green Business Directory - a new feature in the Voice highlighting those businesses and organizations helping you to live a greener more sustainable lifestyle. In coming editions we plan to feature enterprises and groups you're working with to green your home, work and community. We'll also continue to add these institutions to our online directory at appvoices.org/green-business-directory. So please drop us a line and let us know the folks helping you to become a sustainable Appalachian.

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Appalachian Contracting Services
appalachiancontracting.com
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Certified green and EarthCraft home builder

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NORTH CAROLINA

Abby Design and Construction
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Boone, North Carolina
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Blue Ridge Energy Works, LLC
brewgreen.com
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Blue Ridge Innovative Construction Concepts, BRICC
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Asheville, North Carolina
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Enviro-Build

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Highland Craftsmen, Inc.

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homeenergypartners.com
Asheville, North Carolina
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IonCon

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jademountainbuilders.com
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Mountain Construction

mountainconstruction.com
Boone, North Carolina
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MudStrawLove

mudstrawlove.com
Asheville, North Carolina
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Solar Dynamics

soldynamicsnc.com
Asheville, North Carolina
Installers of radiant floor heat, solar electric, solar hot water heating, micro-hydroelectric and wind energy systems

SouthEast Ecological Design

ecologicaldesign.net
Marshall, North Carolina
Green construction, remodeling and landscaping

Spring Green Building and Design Group

springgreenbuilding.com
Boone, North Carolina
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Green Business Directory

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Asheville, sundancepower.com
Regional Installers of radiant floor heating, solar electric, solar hot water heating and wind energy systems

Sunny Day Homes

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builditnaturally.com
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greenmothergoods.com
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bluerockstation.com
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Columbus, Ohio
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asdevelop.org
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Black Dog Salvage

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Green Source Builders

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Kentucky Chapter usgbkentucky.org

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Charlotte Region Chapter usgbcrc.org

Piedmont Triad NC Chapter usgbc-ptnc.org

North Carolina Triangle Chapter triangleusgbc.org

James River Green Building Council jrgbc.org

Historical Woods of America

historicalwoods.com
Woodford, Virginia
Reclaimed timber, wood flooring and paneling

Mountain Lumber Company

mountainlumber.com
Ruckersville and Charlottesville, Virginia
Reclaimed timber, wood flooring and paneling

TENNESSEE

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earthandstraw.com
Franklin, Tennessee
Green design, construction and remodeling

J 2 K Builders

j2kbuildinggreen.com
Nashville, Tennessee
Green design, construction and remodeling

Eco Build

ecobuildtn.com/portfolio
Tennessee
Green design, construction and remodeling

REGIONAL / OTHER

Building Performance Engineering

buildingperformanceengineering.com
Regional
Building performance design, training and consultation

Build.Recycle.Net

build.recycle.net
The Internet
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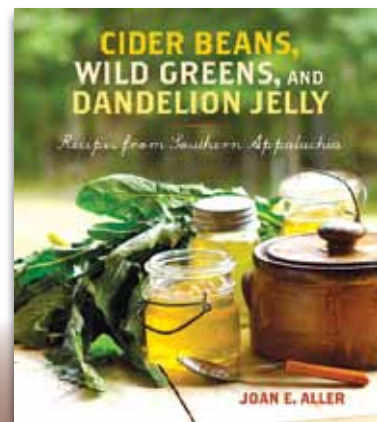
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"Cherokee women traditionally raised crops of corn, beans, squash and sunflowers. These were preserved and saved for winter. They gathered wild fruits like persimmon and mulberry and made bread from dried persimmon flour. Hickory nuts were gathered and the meats removed and added to water, making a drink called hickory milk, or *ganu gwala sti*."

Joan E. Aller in *Cider Beans*

Cider Beans, Wild Greens and Dandelion Jelly

By Molly Moore

After several decades living and eating in the hills of east Tennessee, California native Joan E. Aller proves her love for southern Appalachian cuisine in *Cider Beans, Wild Greens and Dandelion Jelly*.

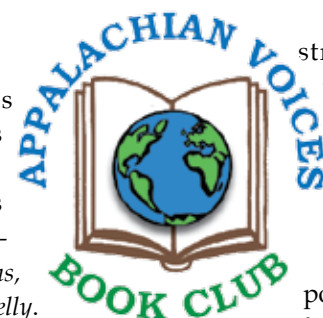
This is a serious cookbook, and Aller has her priorities straight. In it, food is given the respect true cooking deserves. Sure, some of the recipes include such ecologically-smart ingredients as ramps (harvest wisely!) and corncobs, but this isn't a wild foods manifesto. While Aller dabbles in regional background — such as the fact that corncob jelly is an old Cherokee recipe adopted by the early southern highlanders — she stays focused on what matters most, which is corncob jelly's plum-like taste and delightful golden color.

The book's first chapter illuminates the people who settled in the lush mountains of southern Appalachia, perfect for reading while Butternut Squash Soup with Sweet Tea and Ginger simmers on the range.

But Aller doesn't dwell too much on history, and the following nine chapters are stuffed with recipes. Some draw from folk knowledge or the author's friends, but the majority come from regional dining establishments. The breakfast chapter, in particular, relies on inns and bed & breakfasts; with offerings such as Apple-pork Brunch Pie and Lemon-pepper Popovers, it's understandable why Aller turned to the pros.

Aller shows she's in touch with the region's culinary roots with classics such as Grits and Redeye Gravy, Tennessee-Style Corn Pone and Spiced Cranberry Pork Roast. There are several more complex recipes, such as German Bierocks — a dough-wrapped cabbage and meat pie — but, most recipes are straightforward and approachable.

I tried my hand at the Yam Cakes recipe, which Aller describes as a traditional Cherokee dish. Her in-



structions were easy to follow, and even with my minimal baking skills the process was seamless. They were quickly snatched up at a friend's fall-themed potluck, and their popularity had me promising to pass

the cookbook along.

I discovered one inaccuracy in the book — true yams aren't grown in the United States. Rather, they are endlessly confused with their American cousin the sweet potato.

The canned-goods chapter (charmingly titled "Country Store") is devoted to preserving the season's bounty before winter. Aller also explores southern Appalachia's liquid heritage in a chapter devoted to beverages that stars drinks such as Mammy Williams' Dandelion Wine, Winter Spiced Coffee, and Southern Milk Punch.

Cider Beans is not only an excellent cookbook, it is also a cultural project. Musings on topics such as hogs, synchronized fireflies and the history of rye coffee are scattered among its pages. A two-page southern Appalachian dictionary explains regional dialect to the unfamiliar, with definitions for phrases such as "a coon's age" and "mess of."

Ultimately, however, the sidebars about music and moonshine are like the Sausage and Cornbread Dressing that accompanies her Roast Crisp-Skinned Turkey; they're a nice side dish, but the main meal satisfies.



Appalachian Cider Beans serves 8

- 3 cups dried pinto beans
- 3 cups fresh apple cider
- 8 ounces salt pork, thinly sliced
- 2 small yellow onions
- 6 tablespoons sorghum molasses
- 1 tablespoon dry mustard
- 2 teaspoons salt

Pick over the beans and discard any stones and wrinkled beans. Rinse well and place in a large bowl. Add cold water to cover by three inches, cover, and let soak for 12 hours.

Drain the beans and transfer them to a heavy saucepan. Add the cider and bring the beans slowly to a boil over medium heat. Boil gently, uncovered, for about 30 minutes. Remove from the heat and drain the beans, reserving the cooking liquid.

Preheat the oven to 300°F.

Layer half of the salt pork slices on the bottom of a 2-quart ceramic bean pot or other deep baking dish. Spoon the beans into the bean pot, and then bury the onions in the beans.

In a small saucepan, combine the sorghum molasses, dry mustard, and salt and place over medium heat to dissolve the mustard and salt. Pour the hot mixture evenly over the beans, and top with the remaining salt pork slices. Pour in the reserved cooking liquid and add hot water as needed to cover the beans. Cover the bean pot.

Bake for four hours, and then uncover the pot and add more water if the beans seem too dry. Re-cover and continue to bake for 1 to 2 hours, until the beans are tender. Serve hot directly from the pot.

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Creepy, Crawly Centipedes (at a Halloween Party Near You!)

By Jillian Randel

They're creepy, they're crawly and they give you the heebie jeebies. As you gear up for Halloween, consider one of Appalachia's scariest, most squirm-inducing invertebrates: the centipede. These nighttime crawlers may not be the cuddliest creatures, but they are beneficial to our eco-system — especially to those who garden.

Although centipedes come with an "Ewww" factor, they can be helpful in the home because they eat other insects and may be a sign that you have problems with pests — cockroaches, maggots, and other insects — around your house. They will also eat many of the insects that invade your garden and serve as a free, organic pesticide.

As land-dwellers, centipedes prefer moist places in leafy debris and under rocks and logs. The common house centipede (*Scutigera coleoptrata*) grows to about two inches long. Other common centipedes in Appalachia are from the Scolopendridae family and include the *Hemiscolopendra marginata* and *Scolopocryptops sexspinosus*. Around 20 families and nearly 3,000 species of

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But unlike some others in their phylum, they breathe through holes positioned along their body called spiracles. Their bodies are flat and shaped in anywhere from 15 to 177 segments. They have long antennae and many legs that stick out from the sides of the segment in an ascending pattern; each pair of legs is slightly longer than the one before.

These carnivorous crawlers are equipped with a pair of venomous fangs at the front of their body called maxillipeds. The fangs are actually a modified pair of legs evolved to bite and subdue prey. Their prey includes earthworms, crickets, spiders, termites, ants, slugs and other small animals. Most centipedes hunt at night and hide during the day because they are also susceptible to predators such as spiders, birds, toads, mammals and other centipedes. In addition to their venomous "leg" fangs, centipedes grow an odd number of leg pairs and can regenerate any legs that are cut off.

Female centipedes lay about 60 eggs by dropping them in a hole they dig. They often care for the eggs through the duration of the hatchling stage. Centipedes have what is known as an incomplete metamorphosis. The hatchlings look like young adults and molt, or shed their skin, as they grow and enter new stages of life; immature centipedes, known as nymphs, have fewer legs than full-grown adults. Many

centipedes have been identified.

Centipedes are arthropods, meaning they have an exoskeleton, segmented bodies and jointed legs.

species of centipede add new pairs of legs each time they molt.

Centipedes are commonly mistaken for millipedes, but millipedes have two pairs of legs on each body segment, whereas centipedes have one. Centipedes are also much faster than millipedes. They're also often referred to as insects — but insects have three body segments and six legs.

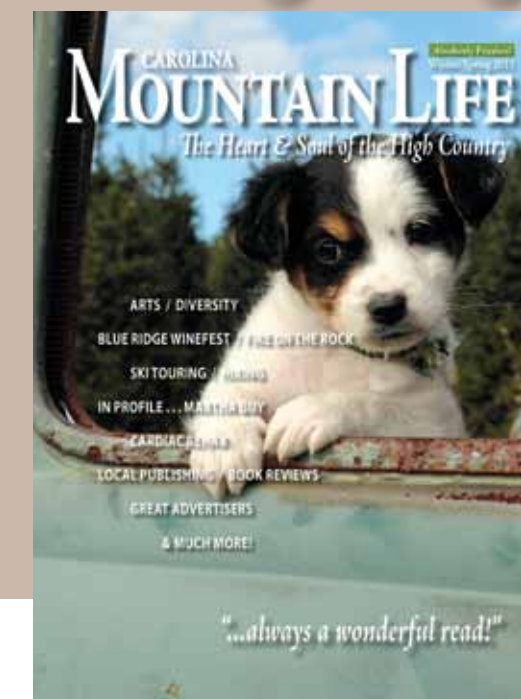
Centipedes rarely bite humans, but when they do, almost all species in Appalachia will produce a bite equivalent to a bee sting. The bites of larger

species that live in the southwestern U.S., Mexico and farther south can be very painful, but not lethal to humans. A bite from a large centipede can be dangerous to children or people with bee sting allergies.

Even though you might not want to cuddle with this wriggly, poisonous creepy crawly, they should not cause a fright. We need centipedes to patrol our gardens and keep other pests at bay in the home. So don't be scared this Halloween. These garden-friendly invertebrates are here to stay.

The common house centipede, *Scutigera coleoptrata*, (insert) is unique because it always grows an odd number of leg pairs. Photo by Bruce Marlin

"What a great magazine!"



"I discovered your magazine while visiting and found it to be uplifting and delightful! I plan on moving to your area and am thrilled to stay in touch through your magnificent magazine online."

—Best,
Karen from California
whose parents live in
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Congressional Hearing on Stream Buffer Zone Neglects Residents

By Jamie Goodman

On Sept. 26, a Congressional hearing took place in Charleston, W.Va. to discuss proposed revisions to the controversial stream buffer zone rule designed to further protect waterways in Appalachia.

Conducted by Representatives Doug Lamborn (R-CO) and Shelley Moore Capito (R-WV) from the Subcommittee on Energy and Mineral Resources in Charleston, W.Va., the hearing featured testimony from eight panelists with ties to the coal industry

on the economic impacts of a buffer zone rule change. Only two panelists were invited to stand up for human health and communities affected by surface mining.

The original rule — created by the Office of Surface Mining in 1983 to outlaw the dumping of mining waste within 100 feet of streams — was changed during the Bush administration to lift restrictions and make dumping easier for mining operations.

But at the hearing, dubbed “Jobs at Risk: Community Impacts of the Obama Administration’s Effort to Rewrite the Stream Buffer Zone Rule,” the mostly

pro-coal committee and panel made the case that the proposed revisions constitute a direct attack on the coal industry and mining jobs.

Only West Virginia natives Maria Gunnoe and Bo Webb — both strongly opposed to the controversial form of mining known as mountaintop removal — urged the Committee to support returning the stream buffer zone to its original form.

A press release circulated by the Committee about the hearing failed to include mention of Webb’s and Gunnoe’s testimony or their appearance on the panel.

Central Appalachian Coal: In Short Supply and Hard to Get To

By J.W. Randolph

Last year, the Mine Safety and Health Administration (MSHA) reported that around 44 percent of United States coal production came from one place — the Powder River Basin (PRB). Spread underneath Wyoming and Montana, PRB coal has significantly increased its share of our national coal production in the last decade. The expansion of western coal has coincided with a steep decline in the production of coal in the region known as Central Appalachia, an area that includes southern West Virginia, eastern Kentucky, Virginia, and Tennessee.

According to MSHA, Central Appalachian coal (CAPP) production is down 20 percent since 2008, and the federal Energy Information Administration expects another 50 percent drop in production by 2015.

The decline in CAPP production is

partially due to the increasing competitiveness of western coal and natural gas. But many experts in the region attribute the drop to the simple fact that Appalachia has been mining coal for more than a century, and that many of the resources are economically unfeasible to recover.

Bill Raney, a prominent coal backer, and the president of the West Virginia Coal Association, recently addressed the forecast, saying “What’s happening is that the easier, thicker, cleaner, higher-recovery seams were mined over the years, and what we’re dealing with now is coal that has to be prepared to a greater extent than it used to ... The recovery percentages are down.”

CAPP production is expected to continue falling — and prices per ton rising — as the cost of mining increases and coal seams become thinner and harder to access.

Mercury Proposal Receives Support, Opposition

This spring, the U.S. Environmental Protection Agency proposed a rule that would reduce mercury, particulate matter and sulfur dioxide emissions from coal plants. According to the agency, the proposed rule would save an estimated 17,000 American lives a year beginning in 2015 and prevent 120,000 cases of childhood asthma.

A campaign motivated by environmental organizations across the country generated more than 600,000 public comments supporting EPA rules to restrict mercury emissions. A final decision on the rule is due from the EPA in November.

Despite the enormous benefits to public health and overwhelming public support, the House of Representatives recently passed the TRAIN Act to delay these rules for a minimum of five years. Many in Senate leadership vowed to stop the bill, and President Obama threatened to veto the TRAIN Act should it pass Congress.

Blair Mountain Community Fights to Keep Mining History Above Ground

The Blair Mountain Community Center and Museum recently opened just two miles from the historic battlefield site of the 1921 coal miner labor uprising. The center is a gathering place for those interested in preserving the history of this momentous event and features artifacts and documents concerning the Battle of Blair Mountain.

Members of the community are also calling for the West Virginia Department of Environmental Protection to seriously study the impacts of the Camp Branch surface mine permit as the strip mining could destroy one of the most historically significant portions of the battlefield.

Coal-fired Power Plants Can Reduce Pollution and Meet Electricity Demand

A study by the Federal Energy Regulatory Commission found that American coal-fired power plants can follow EPA pollution control regulations and meet the demand of electricity for U.S. homes and industries. One member of the commission noted that the country could retire aging, dirtier coal-fired power plants to reduce pollution emissions.

BILLS ON THE HILL

As we reported in the last issue of *The Voice*, fossil fuel advocates in Congress are aggressively pushing a number of provisions that curtail protections for air, water and human health. Below are updates on each of the bills.

The Clean Water Cooperative Federalism Act, H.R. 2018 (Mica R-FL): Undermines the EPA’s ability to enforce the Clean Water Act and puts water quality control in the hands of individual states. It passed the House in July, and awaits action in the Senate, where it has limited support.

Coal Residuals Reuse and Management Act of 2011, H.R. 2273 (McKinley R-WV): Prohibits strong regulation of toxic coal ash. It passed the Energy and Commerce Committee in Sept. and is expected to come to a vote on the House floor in October or November.

Transparency in Regulatory Analysis of Impacts on the Nation Act of 2011 (TRAIN Act), H.R. 2401 (Sullivan R-OK): Delays public health protections regarding emissions from coal-fired power plants. The bill passed the House Sept. 23 by a vote of 249-169 and is awaiting action in the Senate.

American Alternative Fuels Act of 2011, H.R. 2036 (Griffith R-VA): Allows the military to buy fuels such as liquid coal even though current law forbids purchasing alternative fuels that emit more carbon pollution than conventional fuels do. The Defense Department opposes this rider. Update pending

Energy and Water, Homeland Security, Agriculture Appropriations (HR 2354, HR 2017 HR 2112): These bills would defund the EPA’s ability to redefine “waters of the United States,” and block funds for both the Departments of Agriculture and Homeland Security’s climate adaptation program. Update pending.

Interior and Environment Appropriations Act (H.R. 2584): This bill would gut essential provisions in the Endangered Species Act, Clean Water Act and Clean Air Act, and limits public protections from toxic coal ash, mountaintop removal waste, mercury, carbon dioxide and soot, among other things. Update pending

NEWSBITES FROM COAL COUNTRY

by Jeff Deal

The People Versus TVA: The trial to determine whether the Tennessee Valley Authority should pay property owners to settle damages for TVA’s 2008 coal ash spill in Roan County, Tenn. (called “one of the worst environmental disasters of its kind” by the EPA) began Sept. 15. The disaster is expected to cost \$1.2 billion dollars to clean up.

News That’s So Fit to Print, We Can’t: Groups of neighbors in and around Rawl, W.Va. recently reached a settlement with Massey Energy (not long ago acquired by Alpha Natural Resources for \$7.1 billion dollars) in two separate lawsuits alleging pollution of ground water resulting in se-

rious illness. While the details of the settlements are private, one of the lawsuits was reportedly settled for \$35 million dollars.

Taxpayers Secure Right to Clean Up Pollution Abandoned by Past Coal Profits: The West Virginia Department of Environmental Protection may be required to more thoroughly treat polluted water from more than 200 abandoned mine sites after a lawsuit was reopened by the the West Virginia Highlands Conservancy.

EPA: We Want Your Thoughts on Water Protections: The EPA extended the public comment period for proposed regulations governing

water cooling intakes for industrial processes such as electricity generation and wood pulp processing. The proposed statutes intend to safeguard aquatic lifeforms, fisheries and higher order systems that depend on these resources.

EPA Offers \$450 Million to Put Coal Carbon Back In the Ground: The EPA awarded \$450 million dollars to create a carbon capture and sequestration system for a Texas coal-fired power plant after American Electric Power walked away from a similar project in West Virginia. The Texas power plant plans to store 90 percent of the carbon it currently releases to the atmosphere in abandoned oil wells.

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Editorial

Where is our National Media?

I know rants about this particular point have appeared widespread in independent publications, but *The Appalachian Voice* has avoided weighing in. Now it's time to go there.

IS mainstream media on vacation?

The most well-known story of late conspicuous in its absence from big news conglomerates is certainly the weeks-long Occupy Wall Street protest still growing in New York City as we go to press. The action was in its second week before major outlets ran the story, and reports primarily focused on the hundreds of arrests with almost no mention of apparent violence taking place between police and primarily non-violent protesters.

This overt omission of news that casts corporate America in any sort of bad light is, sadly, more and more common.

By-and-large, mainstream media appears to be dropping the ball — but a few reporters are still on the job.

Take the powerful article by Associated Press news reporter Dylan Lovan, published during the last week of September with the simple yet telling headline, "Appalachia Faces Steep Coal Decline."

In the article, Lovan addresses the rapid decline of readily mineable Appalachian coal and cites a Department of Energy statistic that forecasts central Appalachian coal production will "drop to 112 million tons by 2015, less than half of the 234 million tons mined three years ago." He also mentions how the second largest coal producer in the nation, Arch Coal, informed investors last year that central Appalachian coal "is in secular decline — faced with depleting reserves and significant regulatory hurdles."

While not news to scientists and advocates working on coal issues in Appalachia, this fact essentially means that the 37,000-plus coal miners in Appalachia, as well as the tens of thousands of ancillary jobs that accompany coal mining, are at risk — not from EPA regulations, as some have attempted to claim, but from a lack of coal.

So why is the American public still buying into the line that the Obama Administration regulations on coal mining are job killers?

According to Google's aggregate news tool, 22 news sources carried Lovan's AP story, but only three — *The Washington Post*, *CBSNews* and *BusinessWeek* — could be considered top-source media agencies. And of course there is no way of knowing how far into their websites the story was buried or if the headlines even made it to the main page.

With talk of the economy at the forefront of media conversation, how can the potential loss of tens of thousands of jobs over the next ten years in one of the poorest regions of the country NOT be front page news?

In order to make informed decisions about the future, the American public depends on the media. Omissions and partial truths controlled by industry interests will only lead to bad decisions, leaving the fate of our democracy in uncertain hands.

It's high time our mainstream news got back to work.



Viewpoint

Please Don't Trash the Outdoors

Dear Editor,

For my school service project, I picked up trash around the forest. I picked up trash at campsites and on the forest roads. I found a lot of things like beer cans, milk containers, soda bottles, food wrappings, and someone even threw away a broken camp chair. I pulled a lot of trash out of the river also. I filled four large bags in two hours! The places where I picked up trash were in the National Forest. Please do not litter because the forest is so beautiful. Don't you want to keep the forest clean? When you come to the woods to camp or hike don't you want to see a clean forest, a clean river, healthy fish, and beautiful flowers, NOT a trash dump? Throw your trash away in trash cans. Trash your trash, not the forest!

Skyler Williams, Age 7

Mountain Sun Community School, Brevard, N.C.

Putting Damaged Land to Good Use

Dear Editor,

I was reading an article recently about mountaintop removal (MTR) coal mining and got to thinking....

How many square miles have been cleared in Kentucky for MTR? And, if we covered all that space with photovoltaic (PV) solar panels, how much electricity in kilowatt-hours (kWh) would be produced?

According to the Appalachian Voices' website, 574,000 acres (897 square miles) of land in Kentucky has been surface mined for coal and more than 293 mountains have been severely impacted or destroyed.

According to the U.S. Department of Energy website, the total electricity consumption in Kentucky in 2005 was 89,351,000,000 kWh.

The following projection is based on experience from PV solar installations already in place here in Kentucky and from the fact that we get four and a half hours of sunlight per day on average, accounting for clouds. To produce that much electricity in one year, around 190 square miles of land would need to be covered by a 69.1 GW (gigawatt) solar array.

Therefore, if we merely put PV solar panels on 1/5th of our already cleared land, we would supply ALL of the electricity needs for the entire Commonwealth of Kentucky!

If we covered the entire 897 square miles of cleared MTR space in Kentucky, we could supply nearly 10 percent of the electricity needs of the entire U.S.!

Additionally, a total of 1,160,000 acres (1,813 square miles) of land has been surface mined for coal in the central and southern Appalachian region.

According to the Central Intelligence Agency website, the United States consumed a total of 3.873 trillion kWh of electricity in 2008.

To produce that much electricity in one year from PV solar panels in this region, 8,225 square miles of land would need to be covered. Accordingly, roughly 22 percent of the electricity consumed in America could be provided by PV solar panels if the 1,813 square miles of land cleared by MTR in Appalachia were covered.

At this point, you're probably asking yourself: that's great, but how much would it cost? And, what about energy storage so we can use that electricity at night?

Projecting costs for a solar array of this size is pure

Continued on next page

Viewpoint ... Continued from previous page

conjecture, but I'll do my best.

Currently, large scale, megawatt PV arrays cost around \$3 per watt to install without tax subsidies. A GW scale solar array might be closer to \$2 per watt. Using this metric, it would cost about \$138 billion to install the 69.1 GW solar array required to produce 100 percent of the electricity consumed in Kentucky per year. If the solar panels have the industry standard 25-year warranty, the cost of electricity comes to 6.2 cents per kWh. That's cheaper than what consumers in Kentucky pay for electricity right now (LG&E residential customers pay 7.9 cents/kWh).

There are many options available now for grid level energy storage, including, but not limited to: pumped hydro, compressed air energy storage (CAES), sodium-sulfur batteries, lead acid batteries, nickel-cadmium batteries, flywheels, and lithium ion batteries.

Empty, abandoned coal mines in Germany are being looked at for pumped hydro energy storage for renewable

energy systems, something I would assume we have plenty of in Kentucky.

Adding energy storage could cost around \$1 per watt to the solar array. This would increase the cost of the array for Kentucky to \$207 billion with an electricity cost of around 9.3 cents per kWh. That price will soon be on par [with current consumer rates] as LG&E recently requested the Kentucky Public Service Commission to allow rates to increase by 19 percent over the next five years.

Again, the cost projection is all conjecture and does not include grid transmission and maintenance. But it's a start.

This sounds like a lot of money until you consider that, according to a study by the Environmental Law Institute, the fossil fuel industry in the U.S. received \$72 billion in subsidies from 2002 to 2008. Imagine using that money to fund a GW solar project in Kentucky!

Dan Hofmann

President, Regenensolar.com

Ghostly Legends

Continued from page 7

as interested — or more — in the history of the home and Elizabethton and Carter County. I like stories that, even if you took out the ghost element, there was still a good story."

As Tennis delved into southwest Virginia's past for a historical guidebook, he unearthed otherworldly legends associated with locally-known locations such as Honaker High School, Mountain Lake Hotel and the Virginia Creeper Trail.

While Tennis was originally skeptical of the haunted rumors he heard, further investigation convinced him of the truth behind some of the tales.

"I tried to play devil's advocate everywhere I went," Tennis said. In his interviews, he isolated community members and tested their stories with probing questions. Yet, time after time, different people recounted similar happenings.

But sometimes local legends prove more fascinating than the actual hauntings. Tennis recounts the story of Christiansburg Middle School, a contemporary building constructed on the foundation of an all-girls academy that was torn down in the 1930s. Generations have shared sightings of ghostly 19th century women on the property — clicking heels, creaking doors and pale faces in the windows. Even more frightening, however, are the stories of murdered family members, burned homes and graveyard chanting that encircle three women who attended the girls' academy.

Whether it's history or haint — the mountain word for ghost — elements of mystery tie many regional spots to the past.

"If there is no such thing as ghosts, how did all of this start?" Tennis asks.

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Saying Hello to Our 2011-12 AmeriCorps Team

Appalachian Voices is excited to welcome three new members from AmeriCorps Project Conserve to our team for the 2011-12 service year.

Brian Sewell Communications Outreach Associate



Brian graduated from the College of Charleston with a B.A. in Communications and a minor in Religious Studies. He was a freelance writer in Charleston, S.C. before relocating to Morganton, N.C., to serve as the AmeriCorps Outreach & Communications Associate at Foothills Conservancy of North Carolina and work with the organization on communications and public relations outreach in both print and web media. An avid fan of written, musical and visual creative pursuits, Brian will help oversee *The Appalachian Voice* newspaper's production process as the publication's Managing Editor.

Erin Savage Water Quality and Outreach Associate



Originally from Pullman, Wa., Erin earned a B.S. in biology from the University of Washington and a Master of Environmental Science from the Yale School of Forestry and Environmental Studies. She conducted research and studied protected area management strategies in South America and Africa before moving to the Southeast to embark on river conservation.

Erin joined our team earlier this summer to implement our Appalachian Water Watch citizen water monitoring program in Kentucky and Virginia, and began her AmeriCorps term with our Upper Watauga Riverkeeper team in September. An ardent paddler, Erin will manage and preserve the Upper Watauga and Elk river watersheds in Watauga and Avery counties in North Carolina.

Molly Moore Public Outreach & Education Associate

Molly, born and raised near Chicago, Ill., graduated from the University of Missouri with degrees in Journalism and Religious Studies. While in Missouri, she volunteered with local community radio station KOPN, exploring the importance of independent media and the connections between human health, environmental safeguards and sustainable agriculture. Her most recent adventure took her to Moab, Utah, where she provided public relations support for Canyonlands Field Institute.



Molly's role as AmeriCorps Public Outreach and Education Associate will work with our communications team to spread the word about our work; she will also serve as Associate Editor for *The Appalachian Voice* newspaper.

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Appalachian Treasures on the Road Again

This fall, our Appalachian Treasures tour hit the road once more to educate citizens about mountaintop removal coal mining. In September, Appalachian Voices Field Organizer Austin Hall and W.Va. native Adam Hall (no relation), visited the great states of Ohio and Pennsylvania with our Appalachian Treasures slide show. During one week, the team talked with over 200 people from Rotary clubs, churches and civic meeting halls about the devastation caused by mountaintop removal coal mining.

Austin has been with Appalachian Voices for more than five years as one of our top-notch field coordinators.

Adam is a veteran of the Iraq and Afghanistan wars. His family farm was destroyed by the Edwight Surface mine in Raleigh County, W.Va.

In mid-October, the Appalachian Treasures tour will head to Indiana and Illinois. Visit appvoices.org/apptreasures for details, and follow us using the #apptour hashtag on Twitter.

Becoming Wiser about Mountaintop Removal

In September, over twenty-five people from across Appalachia travelled to Wise County, Va., to visit with

Rallying for Ison Rock Ridge

In southwestern Virginia, a mountain known as Ison Rock Ridge — along with several headwater streams — is slated for destruction to access the coal seams inside it. During October, Appalachian Voices, the Southern Appalachian Mountain Stewards and the Wise Energy for Virginia Coalition are hosting two major rallies to save Ison Rock Ridge. **The first rally will be in Richmond, Va. on Oct. 17** at the Governor's Energy Conference and feature a funeral procession for mountains already lost. **The second rally will be in front of the Environmental Protection Agency headquarters in Washington, D.C., on Nov. 16 at noon**, to remind the EPA that the fate of Ison Rock Ridge and nearby communities is in their hands. Visit wiseenergyforvirginia.org for more information.

the Southern Appalachian Mountain Stewards (SAMS) for the fourth annual Weekend in Wise County. People came to see mountaintop removal coal mining, some for the first time, and to learn more about the difficult issues facing those who live in areas impacted by Appalachian coal production. The students, families and individuals who made the trek helped SAMS clean up nearly forgotten graveyards, tested water below strip mines and learned about the history and culture of southwestern Virginia. The schedule combined education, hands-on activities and merriment to encourage the attendants to help make a difference from their homes. Appalachian Voices provided support to SAMS in pulling the event together.

Campaign to Revoke Massey's Corporate Charter Heats Up

Appalachian Voices recently traveled to Delaware to publically deliver over 35,000 petitions to that State Attorney General Beau Biden, who has the power to revoke coal-giant Massey Energy's ability to conduct more bad business in Appalachia. Bobby Kennedy, Jr. also joined the campaign, as did residents of coal-bearing regions whose families are impacted by Massey's disregard for workers and mountains. Massey Energy is now a subsidiary of Alpha Resources, but even with a name change they can't hide from the damage they've caused. Learn more on our Front Porch Blog, and sign the petition at appvoices.org/revoke-massey-charter.



Responding to the Threat on Our Water

In 1969, a fire on Ohio's heavily polluted Cuyahoga River shocked the American public into taking action. Out of that movement, several federal laws, including the Clean Water Act of 1977, were established to safeguard U.S. waterways from industrial pollution.

Now, a mere 30 years later, members of Congress are attempting to undermine the very foundation of the Clean Water Act. Conservative representatives are working to prevent the Environmental Protection Agency from establishing safety guidelines designed to protect the American people from special interests who pollute our water and health for profit.

In September, conservatives kicked off this round of clean water attacks with HR 2041, the Transparency in Regulatory Analysis of Impacts on the Nation (TRAIN)

Act. The TRAIN Act would delay vital protections like the utility mercury standard (still under EPA consideration at press time), and the recently finalized Cross-State Air Pollution Rule. And this was just the first in a series of bills and riders designed to protect industry interests.

"People are shocked to know that Congress is working to dismantle the basic clean water laws that protect our way of life," says Sandra Diaz, coordinator of Appalachian Voices' new Red, White and Water Campaign. "It took a movement in the 1970s to create the Clean Water Act. Now it's going to take a movement to save it."

Appalachian Voices' Red, White and Water campaign will spread awareness of impending clean water



Stand Up for Your Right to Clean Water

threats and grow the movement to protect this basic resource. Read the latest about the ongoing struggle to safeguard our waterways and stand up for clean water by signing the petition at AppVoices.org/Red-White-and-Water.

Higher Fines for Big Coal in Kentucky Clean Water Act Case

By Erin Savage

The Kentucky Energy and Environment Cabinet recently reached a settlement of \$507,000, with Nally & Hamilton Enterprises, Inc., a mountaintop removal coal mining company in eastern Kentucky.

The fine tops previous record-setting fines issued in Appalachian Voices' on-going case against Frasure Creek and ICG coal companies, \$310,000 and \$350,000, respectively. Appalachian Voices, Kentuckians for the Commonwealth, Kentucky Riverkeeper, Waterkeeper Alliance and the Natural Resources Defense Council are suing Nally & Hamilton for 12,000 violations of the Clean Water Act.

On Sept. 14, a conference was held for the Office of Administrative Hearing case between the cabinet and Nally & Hamilton to determine whether Appalachian Voices and its partners may continue with legal proceedings as intervenors in the case. The decision halted legal proceedings, including Appalachian Voices' ability to request additional records from Nally & Hamilton and the cabinet.

The cabinet failed to respond to any previous discovery requests, before the recent conference. Without disclosure of relevant information, it cannot be deter-



mined whether the settlement is based on a thorough investigation or if it will remedy past and deter future violations.

Though the fines represent a major step toward holding coal companies accountable for their pollution, they are still insufficient. Under Kentucky law, Nally & Hamilton could be fined \$300 million.

The settlement provides a low monetary penalty, ignores the potential of fraud, provides little deterrent for future violations and absolves Nally & Hamilton of liability for additional violations already committed.

The cabinet also failed to identify most of the violations uncovered by Appalachian Voices and did not include Appalachian Voices and its partners in the settlement negotiations. For these reasons, Appalachian Voices and its partners continue to pursue Clean Water Act justice as intervenors in this case.

Your Goode Deed of the Day

This fall, Appalachian Voices is excited to collaborate with a regional artist and a socially conscious website for an online art sale and fundraiser.

GoodeDeeds.com promotes art for charity by holding online gallery events. The site provides the opportunity for artists from around the world to display their artwork, and all of the profits are donated to a worthy cause.

In October and November, Appalachian Voices will be featured as a "Goode Deed of the Day" alongside Richmond, Va. artist Mary Nell Jackson, who donated artwork to benefit Appalachian Voices. Jackson specializes in abstract expressionist paintings and handmade, tin-glazed maiolica pottery, and sells her art in shows across the country.

The Goode Deeds online fundraising event will feature Jackson's bold painting "Circus of Happiness." Her work will be available in 11" x 14" prints as well as on recycled, biodegradable gift bags — both perfect for this holiday season! Businesses can support the event by purchasing 100 gift bags at a discounted rate, which includes the custom printed company (or family!) name. All of the profits from online sales will be donated to Appalachian Voices.

If you are looking for a splash of color for your home or a holiday gift and want to support a good cause, GoodeDeeds.com is the place for you. Be sure to check out the ad on page 19 of this issue or visit GoodeDeeds.com to find out how you can benefit our work and take home some great art!



AppalachianVoices BUSINESS LEAGUE

New & Renewing Members — August/September 2011

Abbadabba's, Inc. -- Tucker, GA	Sunrift Adventures -- Travelers Rest, SC
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Thirion International -- Charlotte, NC	Farnum and Christ Travel -- Bristol, TN

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Submissions are now being accepted for the 2012 Appalachian Mountain Photo Competition! The contest features six categories, and amateur and professional photographers alike are invited to submit images relating to life in Appalachia. Submission deadline is November 18, so grab your cameras and snap away! Pictured above is Jeffrey Stoner's photo, Nash, winner of last year's Flora and Fauna Category. *Photo courtesy of ASU Outdoor Programs*

GET INVOLVED environmental & cultural events in the region

Sustainable Shelter: Green Your Nest Through Jan. 2, 2012: The N.C. Arboretum in Asheville's Sustainable Shelter exhibit invites guests to take inspiration from nature and make their dwellings more sustainable. Build a model home that incorporates features of the natural world. Open daily, parking for personal vehicles is \$8. Visit: www.ncarboretum.org

Sycamore Shoals Art Workshops October-November: Various workshops on topics ranging from primitive trapping and fishing to oil painting. Other park events include a Christmas Crafts show where 48 local crafts persons exhibit their talents with a holiday twist. Rates vary. Visit: tn.gov/environment/parks/SycamoreShoals

N.C. Small Wind Initiative Workshop Series October-November: Anyone interested in renewable energy technology can attend North Carolina Small Wind Initiative workshops. Upcoming events include training in community-scale wind power, micro-hydroelectric design and installation and photovoltaic design and construction. Prices vary and most trainings are offered to students at half price. For all 2011 trainings, visit: wind.appstate.edu

High Country Operation Medicine Cabinet Oct. 7, 11 a.m. to 2 p.m.; Oct. 8, 10 a.m. to 2 p.m.: More than 30 community partners from Watauga County are teaming up to dispose of unused and unwanted pharmaceuticals. Appalachian State University will hold its take-back on Oct. 7 at Plemmons Student Union. Oct. 8 there will be six take-back locations: Beaverdam Volunteer Fire Department, Beech Mountain Town Hall,

Foscoe Fire Department, and the three Food Lion stores in Watauga County. Visit: drugtakebackday.com

35th Annual Fall Forestry and Wildlife Field Tours Begins Oct. 13: Virginia Tech University hosts their 35th Annual Fall Forestry and Wildlife Field Tour. The tours visit properties managed for timber and wildlife. The experience provides an informal setting for land-owners to discuss forest management issues with professionals and network with peers. \$45 registration; \$30, Washington County Tour. Visit: cnre.vt.edu/forestupdate

John Muir Among the Animals Oct. 14-15, 7 p.m.: The Western North Carolina Alliance invites you to spend an evening with John Muir, America's best known conservationist, at the Asheville Community Theatre. Actor Lee Stetson will reprise the role of Muir in *John Muir Among the Animals*. A second show, *The Spirit of John Muir*, will be hosted by Friends of the Smokies Oct. 15 in Waynesville. \$25/advance, \$30/day of show, \$20/WNCA members. Visit: wnca.org

Southeast Women's Herbal Conference Oct. 14-16: Head to Earthaven Ecovillage in Black Mountain, N.C. for a weekend and strengthen your connection to the Wise Woman Tradition. Learn about earth-based healing, local plants and deep nourishment. \$285/Registration. Visit: sewisewomen.com

Local Motion Film Series: The Last Mountain Oct. 18, 7 p.m.: Join Appalachian Voices staff and guest speakers at the Mockingbird in downtown Staunton, Va. for a screening of *The Last Mountain*,

a documentary that shines a light on how America's energy needs are met. Come as early as 5 p.m. to mingle with staff or enjoy a dinner at the Roots Music Hall, which features bounty from local farms. Visit: transitionstaunton.org/category/film-series

2nd Annual Rooted in the Mountains Symposium Oct. 20-21: Hosted by Western Carolina University, the symposium raises awareness of the intersection of environmental, health and indigenous issues related to mountain destruction. \$125/Registration. Free for WCU students. To learn more, visit: www.wcu.edu

Lake Eden Arts Festival Oct. 20-23: Famous for good vibes and great music, this western North Carolina music and arts festival is back with local bands, world music and musical mainstays. Young and old alike enjoy the handcrafts, art and atmosphere in Black Mountain. Visit: theleaf.org

Callaway Gardens Fall Gardening School Oct. 22, 10 a.m.- 2:30 p.m.: Fall is the best time to plant trees, shrubs and perennials. Learn how and when to plant to ensure success. Join horticulturists at Callaway Gardens for a fun information packed day. \$55. Visit: callawaygardens.com

Haunted Hoedown for the Commonwealth Oct. 26, 6 p.m.: Get in the mood for Halloween with an interactive haunted house at the Monkey Wrench followed by great tunes by Relic Bluegrass. There will be special drinks and scary Halloween fun! Proceeds

Email voice@appvoices.org to be included in our Get Involved listing. Deadline for the next issue will be November 9, at 5 p.m. for events taking place between December 1, 2011 and February 5, 2012.

benefit Kentuckians For The Commonwealth. \$8/suggested donation. Visit: kftc.org

6th Annual Mountain Justice Fall Summit Oct. 28-30: Coal River Mountain Watch and RAMPS will host the 6th annual Mountain Justice Fall Summit in the Coal River Valley of Southern West Virginia. Rally to end these destructive mining practices and the corporate control of our communities that makes this mining possible. \$50/suggested donation. Register at mountainjustice.org.

Appalachian Mountain Photography Competition Nov. 18, 2011: Get your photos in by Nov. 18 at 5 p.m. to compete in the 9th Annual Appalachian Mountain Photography Competition. This year, Appalachian Voices and Mast General Store have teamed up to offer \$500 to the winner of the "Our Ecological Footprint" category. So grab your camera and get outside. Visit: appmtnphotocomp.org

Tennessee Wild October Outings Oct. 15, 16, 22, 23, 26, 29 and 30: Join Tennessee Wild on outings for all ability levels around Cherokee National Forest. The group offers a variety of outings each month including day hikes, backpacking trips and trail maintenance trips. Visit: tnwild.org