

FREE

The Appalachian VOICE

August/September 2013



Raising Our Standards

Appalachians Make a Mark in the Clean Energy Frontier

ALSO INSIDE:
Goforth Creek -
A Trail in Peril



An Otterly
Amazing
Comeback

Susan Hazlewood
A Committed
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A Note from our Executive Director

Dear friends,
Earlier this summer, I gathered with my co-workers to watch the live stream of President Obama unveiling his vision for addressing climate change. It was encouraging to hear the president frame the issue in terms of a "moral imperative," and the fact that he's ready to take on power plant emissions — the single largest source of greenhouse gases in the U.S. — shows that he's serious.

Major investments in clean energy solutions like energy efficiency and renewable sources would go far to create jobs, economic security and environmental health in our region. But no energy plan can be built on a moral foundation without ensuring that areas like Appalachia, heavily impacted by the country's continued over-reliance on fossil fuels, don't get left behind. The devastating practice of mountaintop removal coal mining has no place in a 21st century energy plan.

President Obama must stop industry from pushing the costs of doing business off on communities and our environment. The administration needs to step up its efforts to address mountaintop removal mining and pollution from coal, while also doing more to invest in clean energy solutions — particularly in Appalachia. This issue of *The Appalachian Voice* is chock full of the kinds of practical applications and entrepreneurial spirit just waiting to be unleashed in a clean energy revolution.



I applaud the president's determination to make the issue of climate change a top priority on the national agenda. Appalachian Voices stands ready to work with his administration to achieve a new energy future, for Appalachia and America.

For our future,

Tom

Tom Cormons, Executive Director

Spreading Knowledge of Appalachian Wildflowers

By Chelsey Fisher

Rita McKinney has always had a passion for wildflowers, particularly rare North Carolina orchids.

Starting in the 1980s, her personal work with a greenhouse led her to contact other horticulturalists, and eventually to volunteer in the horticulture department at Mayland Community College's Spruce Pine campus.

When the former lab instructor left in 2006, McKinney was asked to take over and chose to focus the lab's work on educating students and the community about native wild orchids, including the lady slipper.

Like all wild orchids, the pink and white lady slipper has a symbiotic re-

lationship with a fungus that lives in the soil, and without the entire fungus, the orchid will die. When picked in the wild, if a small section of the fungus is broken the whole flower will die, McKinney says.

McKinney and her students are working to grow lady slippers and other orchids through propagation, or mass multiplication, without the need for the fungus. She says through mass multiplication of seeds, no species should become extinct.

While they do sell the flowers commercially, they also donate flowers to organizations that plant the wildflowers back into the wild. Spreading knowledge of these wildflowers is their primary goal.

"We do not try to compete with local businesses," McKinney says. "Our main objective is to teach how to have a successful lab operation in your own business."

Every plant sold comes with instructions on how to grow these plants in a home garden.

Horticulture lab assistant Amber Ellis says many people have good intentions, but don't realize how picking these rare wildflowers could kill them. An unintentional mistake many gardeners make is picking wildflowers from the wild and attempting to replant them, McKinney says.

"It's something a lot of people take for granted," Ellis says. "People don't



Photo courtesy Rita McKinney

realize how rare they are."

For more information or to find out how to participate, call the Mayland Community College Horticulture Department at 828-766-1342.

ARC Develops New Community Capital Bank to Invest in Appalachia

By Chelsey Fisher

The Appalachian Regional Commission opened a new bank called Appalachian Community Capital in June to increase loans and other capital that small businesses in Appalachia receive.

Industry analyses have shown that over the past several years, banks across the nation have instituted tighter credit requirements for small-business lending and reduced their risk-taking ability. Combined with the tough ongo-

ing economic environment, it remains difficult for business owners in some parts of Appalachia to receive loans.

Appalachian businesses, on average, receive 82 percent of the money from loans that comparable businesses receive outside of the region, while businesses in Appalachia's economically distressed counties receive less than 60 percent of the loans of their national counterparts.

"There's a stigma in Appalachia

that says, 'You're profoundly rural, you're profoundly uneducated and you're remote, and we're not going to spend the time to get in there and provide you the financing,'" Ray Moncrie, a creditor who gave \$6 million to the new bank, told *The Charleston Gazette*.

The Appalachian Regional Commission made the first investment into this bank, donating \$3.45 million of equity. Through partnerships, ARC hopes to add another \$39 million of equity.

In the next 24 months, ARC hopes to add \$233 million in private capital to create 2,200 jobs in 13 states, and help the bank make a business plan and become a not-for-profit entity.

The Appalachian Regional Commission is an economic development agency that works in 13 Appalachian states. Its goal is to improve infrastructure, add jobs, and help Appalachia compete in a global economy.

For our next issue, we're diving into Appalachia's storied past.



Bean Station Inn, Tennessee, circa 1942. Photo courtesy of National Archives at Atlanta

Send us photos of your home and local landmarks from way back when to include in an online gallery, and you might see your grandparents' farm in the next issue of *The Appalachian Voice*! If you have photos of the same places "then" and "now," please send those as well.

SEND TO:

voice@appvoices.org or 171 Grand Blvd., Boone N.C., 28607

INSIDE THIS ISSUE

Raising Our Standards

In this issue of *The Appalachian Voice*, we explore the power of energy policy (p. 8), discover how decentralized power generation could transform our energy use (p. 10), look at innovation in the solar industry and a faith group that is putting solar skills to good use (p. 12), examine the perils and promises of woody biomass (p. 16), and pay tribute to some creative and unusual inventions (p. 18). In future issues, we'll bring you stories about hydropower, wind energy, geothermal generation and innovative approaches to energy savings — positive initiatives Appalachians are taking to raise the standards of how we produce our energy.

About the Cover

Ged Moody, left, and Zac Dowell check solar panels installed on the Plemmons Student Union roof at Appalachian State University. The panels heat water used in the building. Moody is ASU's Director of Sustainability. Dowell is a former graduate student in the Department of Technology and worked with the solar thermal system's installer, Sun-Quest Inc. of Newton. Photo by Marie Freeman, courtesy of Appalachian State University



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"I love being part of an organization that is really and truly doing something every single day to save this land and its people. I am incredibly proud to be a part of the Appalachian Voices family..."

~ award-winning author and Appalachian Voices Board Member Silas House



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Native Bivalves “Musseling” Their Way Back into Appalachian Streams

Waterways are sometimes disturbed by humans, and mussels are often the first to feel the pain. Thankfully, conservationists are working to repair native Appalachian populations of the bivalve.

In West Virginia, the state Division of Natural Resources is using fish to restore pollution-damaged populations of pink heelsplitter mussels, and they’ve found an unusual way of doing

so. DNR employees first snorkel to the river bottoms, capturing any mussels that have bred. Then, using a hypodermic needle, they flush the mussel larvae from the bivalve out into a holding tank, where fish swim around and become inoculated with the young mollusks. When they mature, the larvae drop off the fish’s gills to the bottom of the tank, from whence they’ll be whisked back to the river bottom.

The mussel restoration efforts in West Virginia were needed in light of chemical spills on the Ohio River in 1999 and Dunkard Creek in 2009. Though both were devastating, in particular the 1999 spill from the Eramet Marietta metal plant was estimated to have killed 990,000 mussels along 30 miles of the river.

In North Carolina, Duke Energy scientist Hugh Barwick was recently

named Regional Recovery Champion by the U.S. Fish and Wildlife Service for his work with mussels and other aquatic species on the Tuckasegee River. Working around the Dillsboro Dam’s demolition, Barwick and others transported Appalachian elktoe freshwater mussels upstream, and since the dam’s removal, monitoring has revealed the mussels’ revival.

Deadly Snake Disease Spreads

Snake fungal disease, occasionally reported before 2006, has recently increased to a range of nine states, including Ohio and Tennessee. It is currently suspected that it is more widespread.

The symptoms of snake fungal disease include scabs or crusty scales, separation of skin layers, and white cloudiness of the eyes. It is not known how the disease will affect the popula-

tions of different species of wild snakes yet, but in New Hampshire, symptoms consistent with snake fungal disease were associated with a 50 percent decline of a timber rattlesnake population from 2006 to 2007.

Conservation agencies and natural resource managers are encouraged to contact the National Wildlife Health Center if snakes with symptoms consistent with this disease are encountered.

Tennessee Adds New State Park

The Tennessee Department of Environment and Conservation acquired 2,036 acres of land in upper East Tennessee this July. Known as the Rocky Fork tract, the new park covers 10,000 acres and includes native trout, salamanders and peregrine falcons. It is also a significant breeding ground for black bears.

The new addition will be Tennessee’s 55th state park and so far more than \$1 million has been set aside to

improve the new purchase. While the goal is to keep development as minimal as possible, when completed there will be a welcome center, roads, trails and a campground.

This area bridges two national forests, the Cherokee National Forest in Tennessee and the Pisgah National Forest in North Carolina, and was one of the largest unbroken private tracts of land remaining in the eastern U.S.

West Virginians collect tons of litter

The final count for West Virginia’s annual highway spring cleaning event is in. Nearly 14,000 volunteers in West Virginia collected 474,250 pounds of trash in the spring as part of the Adopt-A-Highway program. This year the program was sponsored by West Virginia’s Department of Environmental Protection’s Rehabilitation Environmental Action Plan.

W.Va. Faith Leaders Hold Day of Prayer for Creation Care

On July 30, 2013, faith and community leaders in West Virginia joined together to call for measures to reduce carbon pollution and clean up the state’s waterways, which are threatened by mercury and selenium pollution. “There is no time to delay, as the health and well-being of our children

is already being affected,” said Rev. Mitch Hescoc of the Evangelical Environmental Network.

Participants at the gathering in Morgantown emphasized their moral responsibility to West Virginia’s children to clean up the environment. “As a pro-life Republican, let me add that

we must set aside partisanship and come together to protect God’s creation from climate change,” said Rev. Hescoc. “American ingenuity can help us cut down on pollution, champion energy efficiency and create the next generation of jobs while protecting our kids from harm.”



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Hiking the Highlands

Goforth Creek: A Trail in Peril

Story and photo by Joe Tennis

Practically every other day, especially in summer, you can find 33-year-old Zack Dunn dipping his feet in the waterfalls of Goforth Creek.

"We're out once, twice, maybe three times a week," says Dunn, a resident of Benton, Tenn. "It can be 100 degrees out here, and you can come here, and it feels 75."

Goforth Creek lies in the Cherokee National Forest, near the Ocoee River Gorge — the site of whitewater events during the 1996 Summer Olympics — in Polk County, Tenn.

For years, this piece of paradise has also been targeted as the site of a highway to be built through the national forest, a route known as Corridor K.

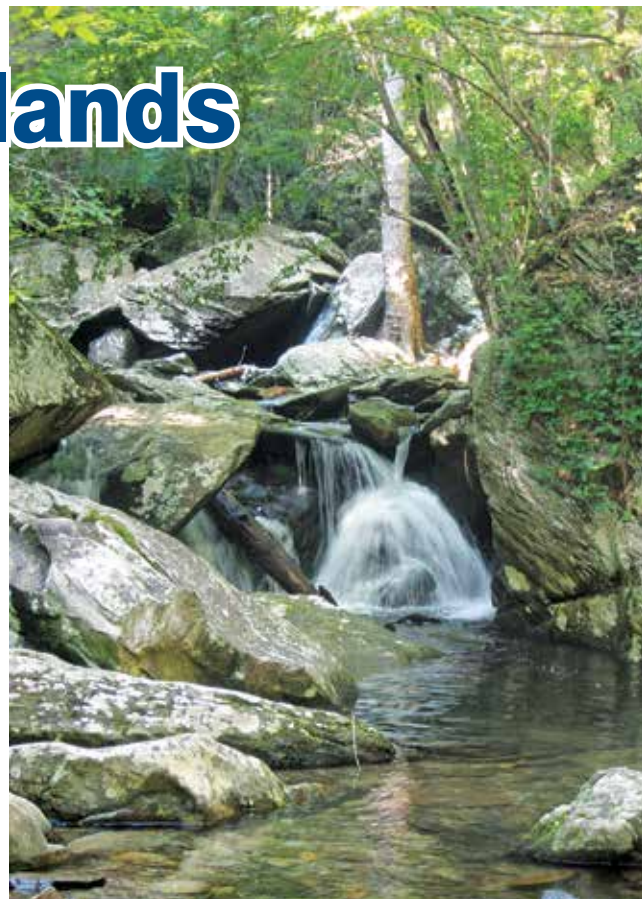
Proposed for decades, the highway would provide a shortcut between Asheville, N.C., and Chattanooga, Tenn. Plans

have called for cutting into the Ocoee River Gorge to build the road. The Southern Environmental Law Center has urged the Tennessee Department of Transportation to turn away from this construction project, and instead improve the existing road, thereby saving the tumbling creek and popular spot for hiking, camping and trout fishing along the Ocoee Scenic Byway.

From Roads to Ferns

Goforth Creek plunges through a thick forest of pines and rhododendron, splashing its way to the Ocoee River on a path used by experienced kayakers who consider this a Class V challenge.

A hiking trail bordering Goforth Creek overlooks the water while spying



Goforth Creek, located in the Ocoee River Gorge in Tennessee, ripples past tiny waterfalls and large boulders.

ferns and leads to a variety of spur trails to explore.

All told, it's about one mile to hike the trail from the asphalt of U.S. 64/74 to the verdant fern garden.

"Once you go around the curve there, there will be offshoots on some of the tributaries," hiker Phillip Robb says. "Some of them are marked."

Robb camps out here for up to two weeks at a time. At 42, he is an actor. He has also explored these mountains, zigzagging up hills and climbing rocks. The camper is straightforward when asked what he likes, especially, about these woods.

"It's the wildlife — the birds, the warbler species, the variety of the birds that you see," Robb says. "I'm a huge bird-watcher."

"And this," he says, holding up a cell phone showing a photo of a copperhead snake. According to Robb, at night crops of copperheads slither down from the rocky ridges above the creek and take up residence along the trail. The one in question had taken up residence under his tent.

"You don't want a copperhead living under your tent," Robb says, "but it didn't get me."

As for the idea of a road being built at this site, neither Dunn nor Robb are in favor of such an idea.

"It's peaceful, quiet and cool," Dunn says.

Robb, meanwhile, says, "There's enough urban sprawl [already] ... and you can walk off on these trails and be by yourself."

For more information about Corridor K, visit SELC at southernenvironment.org or Ways South at wayssouth.org.

on wildflowers, rounded river rocks and intriguing outcrops. Almost constantly, the creek ripples over rocks and boulders.

"Play in the water, throw rocks, just relax," Zach Dunn suggests. "We don't rush through here. It takes us 30 minutes to walk maybe half a mile, because we're just looking at everything."

A small stream joins the creek after the first half-mile. Then, for several yards, the trail meanders away from the creek, going up and down a hill.

Next, the path requires hiking through a meadow at what was once a home site. And here? The trail practically disappears.

Ultimately, the trail re-emerges as the creek appears — again — in a shady sanctuary that is popular for camping.

Hiking this upper portion of the trail requires fording Goforth Creek, which can be especially fun on warm summer days. Beyond the creek-crossing, the trail slips through a lush field of

GOFORTH CREEK, TENNESSEE

Where: Polk County, Tenn., along U.S. Hwy 64, between Cleveland and Ocoee Lake
Length: Varies (main trail runs approximately one mile one-way.)
Access: A gravel parking lot lies on the right side of the creek, with space for about 10 cars. The Goforth Creek Trail begins on the left side of the creek.
Directions: From I-75 Exit 20, take the bypass around Cleveland, Tenn., and follow U.S. 64 east for about 25 miles. The trail access lies on the left, just beyond the Ocoee Powerhouse No. 2. Look for the green Goforth Creek sign at the edge of the road.

Naturalist's Notebook

Otterly Amazing: Resilient Mammals Stage an Impressive Comeback in Appalachia

By Chelsey Fisher

With short legs, a slender body, webbed toes and a generally friendly personality, American river otters are one of the most charismatic creatures in the country. These four-foot-long mammals once flourished in the eastern part of the United States, including Appalachia.

But as America rose in population, so did the amount of unregulated trapping and habitat destruction, causing a huge depletion in the population between the 1500s and early 1900s.

Western North Carolina's otters appeared to disappear more quickly as fish — the main source of food for otters — died because of water pollution and soil erosion.

West Virginia was one of the last states to lose the otter population. The last original wild otter was seen in the 1950s, though a few may have survived, says Joshua Vance, a wildlife biologist for the West Virginia Department of Natural Resources.

But luckily, various wildlife resource agencies in states throughout Appalachia have spent the past 30 years reintroducing otters to wildlife areas in hopes of restoring the mammals. In North Carolina, while the population was depleted in the mountains, otters were still abundant in the eastern part of the state, and some of these were reintroduced in the mountains.

In addition, starting in the 1980s, 21 states and one Canadian province began otter reintroductions through trading with other states. A participant in that process, West Virginia now has

a replenished population and, as of 2011, allows regulated trapping of otters.

With the signing of the Convention on International Trade in Endangered Species in 1977, states are required to continue monitoring the otter population, even though they are no longer considered endangered in most states.

A Unique Species

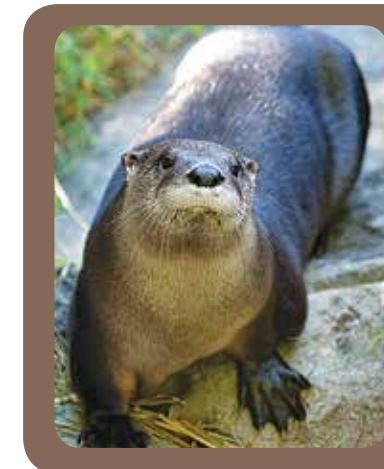
An abundant population has a different meaning for otters compared to other wildlife. In a well-populated area, it is common to have only one family of otters for every 10-20 miles of streams. As the population increases, human interaction may be more common, especially because of the otter's natural curiosity and nearsightedness — an adaptation that helps them to see better while underwater.

In addition to their primary diet of fish and crustaceans — especially crayfish — otters will also eat injured birds, insects, and, only very rarely, small mammals. While hunting for food, otters will also travel into urban areas, increasing the chance for a sighting.

Another characteristic unique to otters is the range of noises they make. The most common sound humans hear from otters is a chuckle that happens among groups of otters. But when upset, river otters produce a growl or hissing sound and can give off warning sounds



River otters are always happy to play, but they are mainly solitary animals. Males do not associate with females until mating season, and only then will you see pairs chasing each other through the river as part of their mating ritual. Otherwise, groups are mainly comprised of a female and her pups. Photos by Kristin Wall (above), and by Richard Schuerger / Flickr.com/e_monk (below)



Otter fun facts

- Baby otters, called pups, stay with their mother until around eight months old. After leaving their parents, siblings will live together in a separate area for several additional months.
- Even though otters spend a lot of time in the water, pups have to be taught to swim when they are around two months old. These "lessons" include parents holding the pup's head underwater and then pushing their head back above water to breathe.
- River otters can hold their breath for four minutes on average.
- Otter fur is water-repellent, which is one of the reasons why they were trapped so often from the 1500s to 1800s.
- Otters live for approximately eight to nine years.
- Otters are very playful and will slide down mud or ice into rivers and have wrestling matches with one another.
- River otters are often confused with sea otters, but sea otters are usually around 6 feet long. River otters can also travel long distances on the land, while sea otters tend to stay in water.
- River otters can run up to 18 m.p.h. and swim up to 12 m.p.h.

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For details and to reserve your seat, visit: hillandholler.org

Raising the Standard

How State Laws Affect Our Clean Energy Future

By Molly Moore

It's no wonder that fossil fuels are entrenched in modern society. Utilities, and the policies that govern the electricity market evolved in an era dominated by fossil fuels. So did government support. Generous subsidies and loan guarantees allowed the coal, oil and gas industries to rise to prominence.

Today, that prominence and much of that government assistance continues. The Sanders-Ellison "End Polluter Welfare Act," introduced in the U.S. Senate in 2012 to cut fossil fuel subsidies, estimated U.S. tax breaks and incentives to the big three at \$11.3 billion annually.

It's a national and global trend that rings particularly true in Appalachian states. Downstream Strategies, an environmental consulting group, studied the Virginia coal industry's impact on the state during 2009 and concluded that the industry cost the commonwealth \$22 million more than it received in taxes, fees and other revenue in return. Two tax breaks alone accounted for roughly \$37 million in annual subsidies, and the study did not

Graphics courtesy Renewable Energy Corporation, renewableenergysolar.net. Source: The Solar Foundation, thesolarfoundation.org

factor in the "legacy costs" associated with environmental and health damages.

The coal industry might be a net drain on the state's taxpayers, but Virginia's largest utilities and coal companies are significant political donors, contributing a combined \$17 million to state legislators between 2004 and 2011. That financial support coincides with a state energy policy that bolsters fossil fuels and creates legal hurdles for renewables, according to an October 2012 report by Chesapeake Climate Action Network, the Sierra Club and Appalachian Voices, the organization that publishes *The Appalachian Voice*.

One such example is the 2007 law that set new regulations for big power companies, making it far more profitable for utilities to construct new plants that burn fossil fuels than to invest in energy efficiency or renewables.

The law also established a renewable energy standard, a policy tool used in 29 states to mandate that utilities generate a certain amount of power from renewable sources. Unlike neighboring Maryland, however, which will require 20 percent of the state's energy to come from renewable sources by 2022, Virginia's voluntary goal for 15 percent renewable energy by 2025 relies on a looser definition of what sorts of energy qualify.

Under the renewables standard, it was once extremely profitable for Virginia utilities to purchase clean energy. Those financial incentives were eliminated in 2013, after Dominion Virginia Power spent an estimated \$2 million on out-of-state renewables and gained \$76 million in incentive payments.

Making New Models

"Virginia is a very difficult state to work in, but it's not for lack of sunshine or public interest, but because of policy roadblocks and fairly ingrained ways of doing things that are generally slow to change," says Tony Smith, CEO of Secure Futures, LLC, a commercial-scale solar enterprise in Staunton, Va. "You could call Virginia either the dark state or the birthplace for new ideas on solar."

For Smith, it's the latter. In 2010, Secure Futures completed a solar power system at Eastern Mennonite University in Harrisonburg, Va. It was the state's first commercial solar project, and was financed through a power purchase agreement, where an outside party — in this case, Secure Futures — owns, operates and maintains an energy system such as photovoltaic panels and sells the electricity to a customer who hosts the system on their property.

When the company set up a similar system at Washington and Lee University in Lexington, Va., however, they



faced a lawsuit from the state's largest utility, Dominion Virginia Power, who said the agreement between the university and company infringed on its territory. Secure Futures avoided confrontation by changing the terms of the agreement, but the ordeal spurred them to push for legislative change. After two years, a bill passed this spring that establishes several two-year pilot programs that will let third parties like Secure Futures set up similar renewable energy agreements in Dominion's territory.

"It's kind of like an awkward first date," Smith says of Dominion's new programs. Smith is concerned that the pilot program, with its ample restrictions and relatively weak incentives for homeowners and businesses, is designed to abolish other, more consumer-friendly models. Still, he says, the programs are a sign of progress in a state where tight relationships between utilities, legislators and government regulators create a policy environment resistant to change.

Progress Despite Policy

Virginia's renewable portfolio standard might be voluntary, but it's a stronger legislative commitment than in Tennessee or Kentucky, neither of which have set a renewable energy goal.

In Kentucky, Carrie Ray of the Mountain Association for Community Economic Development and Kentucky Sustainable Energy Alliance sees the proposed Clean Energy Opportunity Act as a gold standard: the bill would require utilities to obtain 12.5 percent of their energy from renewable sources in 20 years while reducing electricity

Continued on next page

Raising the Standard

Continued from previous page

usage by ten percent through efficiency.

Other bills approach energy reform in more piecemeal fashion. One measure would raise the amount of electricity consumers can sell back to the grid from 30 kilowatts to two megawatts, giving larger businesses an incentive to generate their own power.

Outside of the legislature, however, power providers and supporters of clean energy are working together. As part of a settlement resulting from a dispute between public interest groups and the Eastern Kentucky Power Cooperative about a proposed coal-fired power plant, the groups are collaborating on ways for EKPC to expand their renewable energy offerings, currently limited to landfill gas, to include wind, solar, and low-impact hydroelectricity. The partners also recommend strengthening energy efficiency options and building a pilot project solar farm (see p. 14).

Like Kentucky, Tennessee lacks a renewable portfolio standard, but it hosts more jobs in the solar industry than its Appalachian neighbors.

Warren Nevad, president of the Tennessee Renewable Energy & Economic Development Council, attributes this

to simple economic sense. TREEDC is a network of 92 mayors, more than 30 colleges and universities, and several state agencies aimed at boosting the state's economy through renewable energy. Instead of outright advocacy for policy change, Nevad says, the organization facilitates conversations between stakeholders that expedite new projects.

He cites the City of Franklin, which developed a 200-kilowatt solar facility at its wastewater treatment plant. Since the city shared its experience at the TREEDC forum, several cities that attended have started similar projects. "What we've observed in renewable energy is that a lot of times folks don't want to be the first to jump in the pool," Nevad says. "We try to get one to jump in pool so that others will jump in."

The Standard Survives

As the Southeast's only state with a binding renewable energy portfolio standard, North Carolina jumped into the pool with a 2007 law requiring that utilities obtain 12.5 percent of their electricity from solar-electric and solar-thermal, wind, biomass and other renewable sources. Between 2007 and 2012, the Tarheel State generated or saved more than



Pablo Delaguila of Mountain View Solar, a West Virginia company, carries a solar panel. Photo courtesy Mountain View Solar

8.2 million megawatt-hours of energy through a combination of renewable energy and energy efficiency projects, and spurred \$1.4 billion in renewable energy investments, according to a report prepared for the North Carolina Sustainable Energy Association.

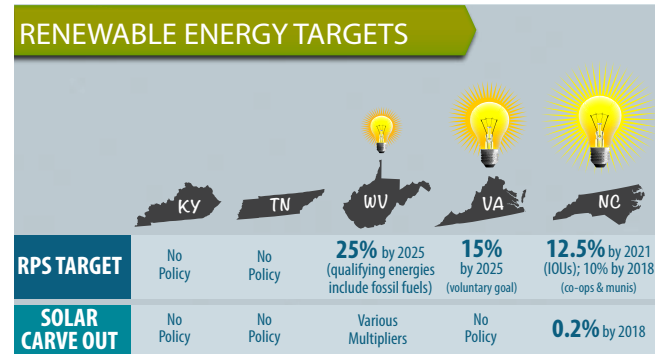
This year, however, several legislators attempted to repeal the state's renewable energy standard and failed. The push was part of nationwide effort by the American Legislative Exchange

Council, an alliance of conservative businesses and legislators, to repeal similar laws around the country.

Lowell Sachs of the North Carolina Sustainable Energy Association attributes the law's endurance to the success stories legislators heard from residents, businesses and investors who have benefited from the clean energy policy. This summer a report from Environmental Entrepreneurs, a group of green-minded business leaders, found that during the first quarter of 2013 North Carolina ranked fourth in the nation in the creation of new clean energy and transportation projects.

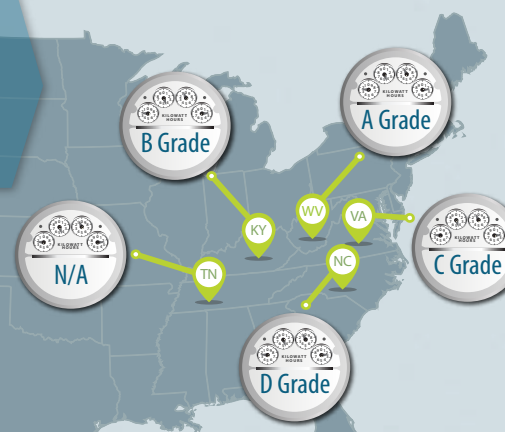
Overall, clean energy fared relatively well during North Carolina's tumultuous legislative session, Sachs says, but simply being caught up in the debate is harmful for the renewable energy industry. He wants to see a stable business environment and says it's probably too soon to declare victory.

"Those bad ideas and uncertain motivations are still out there," he says. "We need to continue the task of educating the public and the legislators so they have a better idea of what clean energy brings to the state and the state's economy. More information is always good for clean energy."



GRADING OF NET METERING POLICY

NET METERING IS A SYSTEM THAT KEEPS TRACK OF THE AMOUNT OF ELECTRICITY PEOPLE GENERATE ON THEIR OWN PROPERTY AND ADJUSTS THE HOMEOWNER'S UTILITY BILL ACCORDINGLY.



Reaping Renewable Rewards

Governments and utilities offer a variety of incentives to assist residents and businesses in the transition to renewable energy. Below is a sampling of federal, utility and state policies. Find more clean energy and energy savings incentives at dsireusa.org.

Federal

Residential Renewable Energy Tax Credit

Technologies Eligible: Various solar systems, wind, geothermal heat pumps, fuel cells

Amount: 30% and no maximum on systems in service after 2008 (except certain fuel cells), excess carryovers to next tax year generally allowed

Residential Energy Conservation Subsidy Exclusion

Renewables Eligible: Solar hot water, solar space heat, photovoltaics

Details: Homeowners who receive subsidies from public utilities for installing eligible renewables are not taxed on the subsidy payment

Participating Tennessee Valley Authority Partner Utilities

Green Power Providers

Technologies Eligible: Photovoltaics, wind, biomass, small hydroelectric

Amount: \$1,000 upon installation; years 1-10: retail electric rate and premium payment; years 11-20: retail electric rate.

Note: TVA has already approved enough applications to meet its goals for 2013. (Read more on p. 12)

Energy Right Heat Pump Loan Program

Technologies Eligible: Geothermal heat pumps

Amount: Up to \$10,000 for single units, up to \$12,500 for multiple or advanced units; rate of 6% - 8% and repayment up to 10 years through a third party lender

By State

KY: Solar Water Heater Loan Program

Technologies Eligible: Solar water heat

Amount: 100% of equipment and installation cost; flexible rates and terms available [Program of Mountain Association for Community Economic Development]

KY: Renewable Energy Tax Credit

Technologies Eligible: Various solar electric, solar hot water and solar space heat systems; wind, geothermal heat pumps

Amount: Photovoltaics, \$3/watt; all other systems, 30% of eligible costs. Maximum incentive is \$500 for solar and wind; \$250 for geothermal.

NC: GreenPower Production Incentive

Technologies Eligible: Photovoltaics, landfill gas, wind, biomass, hydroelectric, methane, anaerobic digestion

Amount: Incentive payments vary depending on renewable used

NC: Renewable Energy Tax Credit

Technologies Eligible: Various solar electric, solar hot water and solar space heat systems; landfill gas, wind, biomass, geothermal, anaerobic digestion, small hydroelectric, ethanol, biodiesel and more

Amount: 35% with a maximum incentive between \$1,400 \$10,500 depending on technology

TN: Green Energy Property Tax Assessment

Technologies Eligible: Photovoltaics, wind, geothermal electric, hydrogen

Amount: Varies depending on renewable used

VA: Property Tax Exemption for Solar (Local)

Technologies eligible: Various solar electric, solar hot water and solar space heat systems

Amount: Varies by location; offered in select counties

DEMOCRATIZING THE GRID

The Obstacles and Opportunities of Community-owned Renewable Energy

By Brian Sewell

When energy experts talk about distributed generation, they describe it as both a threat that will disrupt markets and erode utility profits and an opportunity that is changing the way electricity is generated, transmitted and delivered. Or as the chairman of the Federal Energy Regulatory Commission, Jon Wellen, said last year, "The traditional utility is either going to have to change or die."

Unlike power generated by a coal plant, nuclear station or other centralized power sources, distributed projects are owned by individuals, communities or small businesses. As the electric grid becomes more widely distributed, it becomes more stable and efficient, and relies increasingly on cleaner energy from rooftop solar panels and, in the right locations, community-scale wind farms.

With easier ways for individuals and communities to own renewable projects, greater access to technologies, and falling prices, more consumers are producing their own electricity and slowly turning the electric utility business model upside down.

The Distributed Present

In states such as California, Arizona and Colorado — all leaders in residential and small-scale renewable energy — solar leasing and power purchase agreements between clean energy producers



Photo by Ron Dauphin

and buyers of electricity have helped expand capacity for homeowners and businesses to create and sell energy.

According to the Solar Energy Industries Association, third-party-owned systems accounted for more than half of all new residential installations in 2012, evidence that the market for distributed solar is attracting savvy investors. And with the emergence of crowdfunding and online solar marketplaces where you can shop for equipment and search for installers, supporting renewable energy is easier than ever.

In areas where third-party ownership options are limited and policies favor utilities, community-ownership models are providing an alternative path to clean energy. In North Carolina, the Boone-based Appalachian Institute for Renewable Energy is helping communities, campuses and congregations afford rooftop solar installations.

In 2011, *The Appalachian Voice* first reported on a 10-kilowatt rooftop solar project facilitated by AIRE and installed by Sundance Power Systems on the First Congressional United Church

of Christ in Asheville, N.C. Since then, the group has helped other congregations and the Town of Carrboro develop community funded and owned rooftop solar systems.

Since its inception, AIRE has pioneered a community-ownership model that helps investors to receive tax benefits and rebates for renewable energy development. In certain situations, these incentives can pay for more than 80 percent of a solar system's cost, but they are often only available to larger businesses and wealthy individuals.

In the years after installing a project, donors and investors realize the tax benefits and earn income from the sale of energy and renewable energy credits. And the investors that own the system can either donate or sell it to a nonprofit or community group for a fraction of its original cost.

Projects facilitated by AIRE in North Carolina are grid-connected, so the sites do not actually use the electricity they produce. Instead, the project owners sell electricity to utilities like Duke Energy, which developed a solar program in response to North Carolina's renewable energy standard.

Throughout Appalachia and the Southeast, groups like AIRE are creating opportunities for communities, and industry leaders such as SolarCity, Sungevity and Mosaic are focusing on solar-friendly policies to facilitate renewable projects in as many states as possible.

Beyond directly investing in distributed generation, some electric membership cooperatives are making it a priority to provide their communities access to cleanly produced energy. In Georgia, Green Power EMC has partnered with 38 membership cooperatives statewide and produces

energy from a landfill gas-to-electricity facility, a low-impact hydro facility, and a wood waste biomass plant.

Even the U.S. Department of Energy recognizes the potential for community-owned renewable energy, and has developed a Community Renewable Energy Deployment tool to help groups get their own projects off the ground.

Distributed technologies and community-owned projects can bring about a brighter energy future. But there are still challenges preventing the widespread adoption and affordability of renewables.

Challenges to Community Ownership

While large solar projects still account for the majority of the nation's rising renewable capacity, nearly 83,000 homes installed solar panels in 2012 totaling 488 megawatts of capacity — more than the utility and commercial markets did in 2009, according to the Solar Energy Industries Association.

But the spectrum of policies that encourage the expansion of this distributed generation vary widely from state to state.

Power purchase agreements, which have become effective tools in California and Arizona, are prevented in Georgia, Kentucky and North Carolina, and laws remain unclear in the remaining central and southern Appalachian states.

In addition, all Appalachian states impose limits on how much excess energy generated from distributed sources can feed the grid and be credited on the owner's next utility bill, a process called net metering. As a result, owners of renewable projects have little incentive to produce more energy than they need.

Improving methods for storing and transmitting electricity would bolster grid reliability and enable the increased use of power generated from renewables. Unfortunately, today's grid has virtually no storage.

Continued on next page

Democratizing the Grid

Continued from previous page

U.S. Department of Energy researchers are investigating new energy storage technologies, including sodium and lithium ion batteries, flywheels and electrochemical capacitors, that could be deployed at any location in the country.

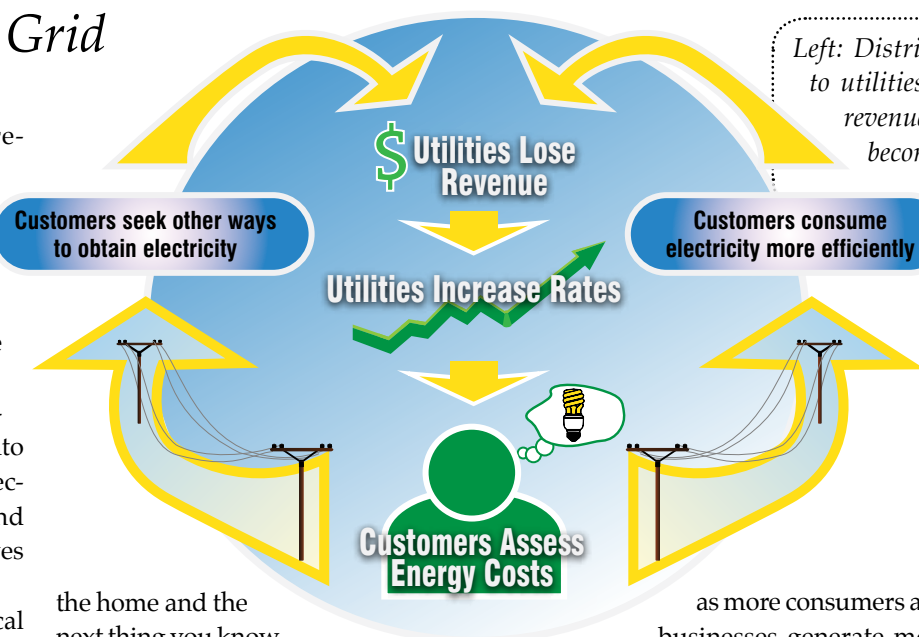
Eventually, these new technologies could turn a home or business into a mini-utility, managing a more effective means of power generation and delivery, while the grid supply serves as a back-up.

But even more than technological barriers, which are frequently broken, wealthy and politically powerful utilities could resist competition from distributed resources by pushing governments and regulatory commissions to adopt restrictive policies that discourage renewable growth and preserve profits.

A Perpetual Threat

In recent years, Duke Energy CEO Jim Rogers has been upfront about the threat of distributed generation to the traditional way of producing electricity.

Rogers has expressed fear that distributed generation will remove utilities like Duke from the relationship between consumers and their power sources, a process known as disintermediation. "What [disintermediation] really means is a Google comes in with an idea about improving the energy use in



Left: Distributed generation poses a perpetual threat to utilities' business model. As power providers lose revenue and raise rates, renewables and efficiency become more attractive.

the home and the next thing you know the demand drops 30 percent," Rogers said to a group of energy investors and regulators at the Deloitte Energy Conference in 2011.

Even industry leaders are beginning to subvert the centralized model. NRG Energy, the largest wholesale electricity provider to power companies in the United States, is beginning to undercut the interests of some of its largest clients by installing solar panels on rooftops of homes and businesses. The CEO of NRG Energy, David Crane, recently predicted that the natural gas industry has the potential to remove the utility from the equation if customers that require large amounts of electricity like Walmart or a computer data center install natural gas generators.

Crane and others anticipate that,

as more consumers and businesses generate more of their own electricity, those who are not able to install or invest in distributed generation will increasingly bear the costs of maintaining the grid and more centralized sources like power plants. But as a January 2013 report by Edison Electric Institute points out, as rates rise on consumers, community-owned energy will only become more attractive to investors and a utility's ratepayers.

Even though rooftop solar's share

of electricity is low — rooftop solar currently accounts for less than one percent of the total electricity generated in the United States — distributed resources represent a perpetual threat to utilities, at least to those unwilling to adapt.

In the meantime, Duke and others are motivated to take steps toward the distribution edge — where customers, power providers and distributed energy resources meet. In June, the utility became an investor in Clean Power Finance, a residential solar financing company that manages half a billion dollars for third-party investors in distributed solar projects.

Regardless of the scale or speed, greater education and supportive policies have already created consumer participation and a movement to democratize the grid. But will utilities use their power to lead or find that they have been forced to follow?

Financing Community-owned Renewable Energy

The Donor Model:

In this model, individual donations allow nonprofits or community groups to own the system outright and benefit from the electricity generated. In North Carolina, donors receive a 35 percent state tax credit and a tax deduction on their federal return for a charitable donation.

The AIRE Model, Create an LLC:

In the model pioneered by AIRE, investors 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 investors can donate or sell the system.

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 cannot be used for solar electric in North Carolina, but First Light Solar in Asheville developed a similar Solar Energy Purchase Agreement model for hot water, since the sale of heat is not regulated by the state utilities commission the same way as electricity.



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ALMOST ALWAYS SUNNY IN APPALACHIA

By Matt Grimley

Whether through a power plant or from the home, solar energy's future is bright

In a meeting earlier this year with U.S. Department of Energy employees, the secretary of energy was blunt about solar power.

"I would argue that the scale and time frame of the impact of solar technology is underestimated," Ernest Moniz said. "There are many situations today when solar is, in fact, competitive."

Solar is the fastest-growing new energy source in the United States. In the first quarter of 2013, the nation installed 723 megawatts of it, up 33 percent over the first quarter in 2012. Solar saw a .14 percent share of national energy production in all of 2012, and analysts are predicting that more than 4 gigawatts will be installed in 2013.

In California, due to a continued drop in component prices and helpful state policies, solar is more than competitive. It is close to reaching grid parity, where installing solar power is less expensive than buying electricity from the energy grid, and many analysts believe the rest of the states will follow within a decade.

But solar's long-lasting success in the mountains will depend on more than just sunlight.

No Turning Back

Large electric utilities are prone to seek out solar energy only if there is a requirement or obligation to move past currently cheaper fossil fuels. Power from the sun only becomes accessible, at least in the monopolistic markets of Appalachia, through political and economic fights.

The Turning Point Solar project in Ohio has probably seen enough fighting for now.

The solar farm — set to be placed on 750 acres of reclaimed strip mine land in southeastern Ohio — was ready to start at the beginning of this year. And with a brand-new factory that had already won awards, Isofoton North America was ready to manufacture about 250,000 panels for the project, which American Electric Power Ohio planned to use to meet Ohio's 2025 renewable energy standard.

But then, on Jan. 9, the Public Utilities Commission of Ohio voted on AEP Ohio's plan to pass the \$180 million cost of the solar farm to their electric consumers. Turning Point, which would have created about 700 jobs and been the largest solar project east

of the Rockies, was voted down 3-1.

Akron-based FirstEnergy — a competitor to AEP Ohio who has opposed the state renewable energy and energy efficiency standards — was against the project from the beginning. It argued the solar farm would over-comply with the state's current solar mandate, and the commission ended up agreeing, saying the project would not benefit ratepayers and the public interest.

However, the board did praise the merits of Turning Point, and state utilities commission staff had said previously that the project was needed, which was part of the reason why Michael Peck, chairman of Isofoton North America, was so surprised at the ruling. The project partners had laid the groundwork for the project for four years, but it wasn't enough.

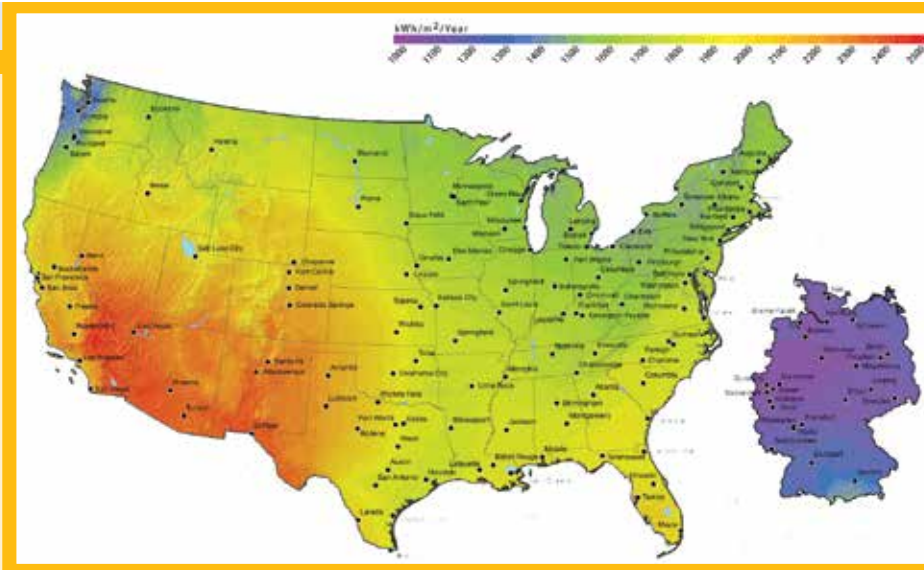
"To me, there's a basic lack of understanding of renewable energy," he says of Turning Point's quandary. "There's not a real commitment to job creation."

Months after the decision, the Isofoton factory is still scrounging for customers, but the company is digging its heels in, taking the advice from the state utilities commission that it try to find new customers such as universities to sign long-term power purchase agreements for Turning Point's solar power.

"We have to try, as much as we can, to keep politics out of Turning Point Solar," Peck says. "We're trying to create the new economy and we put our money where our mouth is."

The Entry Point

In central and southern Appalachia, Duke Energy has been the biggest solar backer among utilities. With encouragement from North Carolina tax credits and



The demand for solar is not always where it is the sunniest. According to a 2009 Appalachian Regional Commission energy report, solar insolation (or the hours per day of sunlight) in Los Angeles, Calif., is 5.62 kWh/m²/day during peak output; it is 2.63 kWh/m²/day in Hamburg, Germany. "This clearly suggests that Germany's current leadership in cumulative solar installations is less related to insolation than it is to [government] subsidies," says the report. Map from the National Renewable Energy Laboratory.

a renewable energy standard, Duke Energy Progress saw nearly 70 megawatts of solar added in 2012, the eighth-most in the nation among utilities, according to the Solar Electric Power Association.

That same year, utilities nationwide accounted for 53 percent of all new solar installations, up from 32 percent in 2010, according to the Interstate Renewable Energy Council. Centralized projects, such as solar farms, are the biggest reason for that increase in utilities, and those that are built and owned by third-party developers made up 93 percent of utility solar installations last year.

Utilities, at least in places such as California and North Carolina, are using solar developers to great benefit. In Tennessee, however, there is no renewable energy standard, and some public interest groups — such as the nonprofit Statewide Organizing for Community ePowerment — feel that the Tennessee Valley Authority is constraining the solar market by limiting its Green Power Providers program's yearly generation goal at 10 megawatts.

TVA's Green Power program is designed for third party developers who work with residential rooftops and smaller solar installations. Every year, TVA accepts applications for developing that solar capacity, and this year its offerings were quickly claimed by the growing

demand from small solar businesses. As a result, the solar market for small developers in Tennessee was effectively closed for the year by May. An additional 2.5 megawatts, offered in August, was claimed in a single day. Steve Johnson

of the solar contractor LightWave Solar said in *The Tennessean* that "TVA's solar programs should never close. TVA should never deny the market access to the grid."

TVA's solar program was notable last decade because it helped to spur Tennessee into the 14th-ranked solar job state in the nation. And though the public utility announced it is working with Strata Solar to develop two 20-megawatt solar farms, it still controls access to the energy grid for solar developers and homeowners, — and the states where the grid is controlled by a few are often the toughest for a developing industry.

The Numbers

Andy Arnette, a professor of decision science at the University of Wyoming, has an estimate of how far solar can go in central Appalachia.

Using a model that adjusts for land uses, costs and emission reductions, he's estimated that between the mountainous parts of West Virginia, Kentucky, Virginia, North Carolina and Tennessee, utility-scale solar farms could replace 3.33 percent of current coal-fired generation in the region. Energy from coal is estimated to produce more than 80 percent of the region's power, compared to 37 percent nationally in 2012.

Part of the trouble with building centralized solar farms in Appalachia is geography, he says, meaning that expensive changes to the energy grid and additional transmission are needed to properly support optimal solar farm capacity.

According to Arnette, current infrastructure could better support distributed solar (see story on p. 10), which is often produced on rooftops, or at or near the point where it is used. Such rooftop arrangements could presently replace more than 12 percent of current coal-fired generation in the region, if there are some changes up-top.

Continued on page 15

New Vision Faith-based Group Looks for Renewable Solutions

By Matt Grimley

The sun is beating down on a mid-July afternoon in Philippi, W.Va., but that doesn't stop Ruston Seaman and the youth mentoring group from playing ultimate frisbee. Their shouts — "Take your time!" and "Go left! Go left!" — echo throughout the community.

When they finish, Seaman jumps into his old red truck. He's drenched in sweat, but drives up to his co-worker John Prusa's house, which holds the clean energy arsenal that defines New Vision Renewable Energy's work.

New Vision is a faith-based community development group that uses renewable energy, particularly solar, to "help people help themselves," as they say on their website. It is part of a larger "creation care" movement among faith groups whose spiritual motivation as Earth's stewards leads them to tackle environmental problems.

The movement is simultaneously far-reaching and localized. In one example, the faith-based investment entity United Church Funds collaborated with the United Church of Christ on a resolution to divest their denominations from fossil fuels in response to climate change, while nationwide nonprofit organization Interfaith Power & Light promotes energy efficiency and renewable energy around the country. And West Virginia's Christians for the Mountains pushes for the end of mountaintop removal coal mining.

New Vision is the product of Seaman and Prusa, who serve respectively as president and director of technology and innovation. Both landed in Philippi more than 30 years ago, Seaman hitchhiking from the Black Hills and Prusa escaping from communist Czechoslovakia.

"You either believe in circumstance, accidents or providence," says

Seaman. "We believe it was providence."

Prusa is an electrical engineer by training, and his "mad scientist" tendencies are what make New Vision bloom. Initially using B-grade materials such as old shower doors and miscolored solar cells, he was able to make functional solar panels for home use. Now New Vision relies on corporate partnerships for donations.

Using a do-it-yourself mentality, New Vision offers workshops that are open to anyone seeking instruction on solar technology and installation, among other renewable energy trainings.

Through this instruction, installations and other community events, the workshop attendees are able to build up "time credits," which emphasize working "where you're equal with everyone else," says Seaman. Each hour of work in the community earns the member a time credit and moves them closer to a solar panel, which can also be financed through loans from New Vision.

Jude McConnell, a community member who has known Seaman for more than 30 years, says that he is soon going to have 20 panels installed on his home. "It'll produce all the electricity I'll use," he says.

Between the time credits and makeshift renewable inventions, the cost of solar arrays for workshop attendees is lowered to a fraction of the normal market-based price. And that benefit doesn't include the emotional investment of the members.



Participants in New Vision Renewable Energy's workshops build solar panels and cooperate on other clean energy projects for use at home and abroad. "We try and find things that people can do for themselves and do it together," says Ruston Seaman, president of New Vision. Photos by Lauren Norris

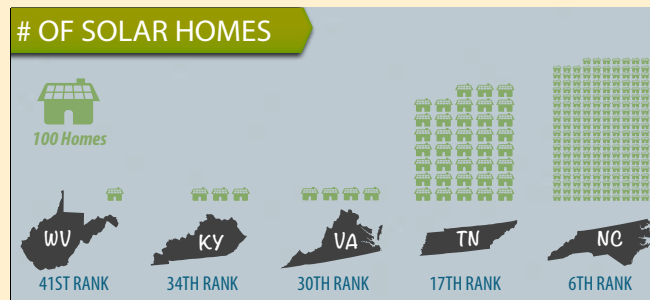
"It becomes like a quilting bee, making the solar panels," Seaman says. "People came back because they were making friends."

Using the method of co-production, New Vision has made approximately 180 solar panels. They have installed the panels on a number of houses, but their very first installation on the People's Chapel remains an important point of visibility for renewable energy in Philippi.

The church stands on top of a hill, on the side of the road, with 32 panels atop its roof. "Nobody has told us we're wrong yet," says Seaman, "but we think it's the first church on the planet Earth ever to teach its own people how to make their own energy from scratch." Seaman is also the pastor of the People's Chapel, which he says gets about 60 percent of its energy from the panels, which were installed two years ago.

Seaman and New Vision are aiming for the People's Chapel to

Continued on page 15



Graphics courtesy of Renewable Energy Corporation, renewableenergysolar.net, information from The Solar Foundation, thesolarfoundation.org

Bio-energy creates a MASS of questions

By Jason Reagan

Biomass: it's a new word but an ancient energy source.

For much of the world, the practice of gathering energy from organic material — the “bio” in “biomass” — is an everyday affair. Worldwide, about 146 billion tons of biomass are produced every year.

However, the growing interest in biomass as an alternative energy source in the United States is igniting a philo-

sophical firestorm about how, and even if, biomass could be a sustainable option for future needs.

'Wood' this be the best source?

Although biomass can take the form of any biological material, most efforts focus on the resource that best defines the region — the trees that cover Appalachia's mountains and valleys.

Biomass is sometimes touted as a carbon-neutral source because any carbon dioxide released into the air from incinerating plant material may be absorbed by the next generation of plant growth. Burning fossil fuels, on the other hand, releases carbon dioxide that has been confined in the earth's crust for eons.

Biomass power generated around 1.4 percent of the national supply of electricity in 2012, according to the U.S. Energy Information Administration. Wood — including tree stumps, dead trees, logging debris, chips and even yard clippings — leads all other sources of biomass.

The sustainability of using woody biomass rests on the methods used to obtain it, especially if the material is removed by simply clear-cutting trees for fuel rather than gathering debris left behind by logging. And even gathering too much downed wood can harm a local ecosystem because it often provides essential habitats for wildlife.

Is the road to hell paved with wood intentions?

In recent years, residual biomass has been touted as the Holy Grail of sustainable biomass production because it only uses the leftovers from timber cutting rather than clear-cutting trees to burn as fuel. But, as skeptics point out, using



The uptick in woody biomass harvesting in the Southeast, partially driven by increased European demand for wood pellets, has set off a debate about how, and if, forest biomass can be harvested sustainably. Image © Kurmis/iStockPhoto

logging residues for fuel could pave a slippery slope toward widespread clear-cutting, or worse yet, harvesting old-growth forests that most agree should be protected.

“It's a complicated issue, and few, if any, are currently doing it right,” says Debbie Hammel, senior resource specialist at the Natural Resources Defense Council. NRDC has partnered with the Dogwood Alliance, an Asheville, N.C.-based advocacy group, to oppose industrial-scale biomass operations throughout the Southeast.

The groups claim that, although some forms of biomass can be termed renewable, the use of entire trees and forests should never be included under that umbrella. As part of their effort, the Dogwood Alliance is calling for a moratorium on the use of whole trees to create wood pellets for stoves.

Biomass operations, the groups say, should be implemented in a way that will “reduce near-term carbon emissions compared to fossil fuels; will not adversely impact forests, carbon sinks, soil, wildlife habitat, biodiversity and water resources; and will not result in net increases to local air pollution.”

Hammel says that many southeastern utility companies — such as Dominion Virginia Power — are breaking into the biomass business and investing in large-scale plants. Dominion recently announced the conversion of three

Virginia coal plants to woody biomass.

The increase in utility-scale biomass has potentially substantial environmental implications. According to Hammel, a 2012 *Wall Street Journal* investigation found that 85 of 107 U.S. biomass plants had been cited for violations of both clean water and air standards.

But in July, a federal court ruled that biomass carbon dioxide emissions should be regulated under the same sections of the Clean Air Act as other polluting industries, closing a U.S. Environmental Protection Agency loophole that had previously exempted biomass producers from greenhouse gas regulations.

“Burning trees to generate electricity is dangerous, polluting, and ought to be limited to protect people and the environment,” Kevin Bundy of the Center for Biological Diversity's Climate Law Institute stated in a media release about the court's decision.

Residual Biomass: What's left behind

When limited to the leftovers from timber operations, there are ways for woody biomass harvesting to be practiced sustainably, according to the Forest Guild.

The Forest Guild, a professional organization of forest stewards, recently released a guide to best practices in

Continued on next page

Biomass Energy

Continued from previous page

biomass harvesting in the Southeast. The guidelines warn that while deadwood and logging debris provide crucial habitat that supports biodiversity, sustainable methods can be employed to balance energy needs with ecological concerns.

To achieve that balance, the report recommends that on an average logging site with existing deadwood, about 30 percent should be left for the more than 55 mammal species, 20 bird species, numerous reptiles, amphibians, arthropods and gastropods that rely on deadwood for habitat.

Michael Jacobson, a professor of forest resources at Pennsylvania State University, agrees, mentioning that the state of Pennsylvania also recommends that at least 30 percent of logging residue be left behind untouched. He adds that, if such practices are maintained, using residual woody biomass can be sustainable.

“Harvesting and using [woody biomass residue] as an energy source makes a lot of sense,” he says.

Chris Moorman, an associate professor of fisheries, wildlife, and conservation at North Carolina State University, says that although some kind of standard needs to be developed for what goes and what stays in a harvested forest, more research must be done first. And Moorman is doing just that — co-leading an effort to see if leaving a portion of harvestable biomass improves habitat for wildlife, especially species that depend on downed wood.

“It's common for biomass harvesting guidelines in other states to recom-

mend this practice, but there is little empirical evidence to help guide development of the specifics,” he says.

The Forest Guild report recommends that woody biomass harvesting should be integrated with other forest operations, and advocates using low-impact logging techniques to protect soil from rutting or compacting.

Of local concern

From the standpoint of Appalachian communities near biomass operations, the debate can grow as thorny as some of the forest ground that's under such deep scrutiny.

A proposed biomass project in Penrose, N.C., generated a groundswell of local opposition this spring, as residents feared health problems and sooty air pollution from the \$22 million plant, which would use garbage and wood chips to generate power. Although officials from Renewable Developers, the project's backer, claim that the process would not require actual burning of the material, residents are concerned the project will skewer home values and create noise, light and water pollution.

Despite such fervent opposition at the local level, others say biomass production can be a boon for area economies. Jingxin Wang, a professor of wood science and technology at West Virginia University, says that biomass and similar sources could supplant coal as the region's next economic powerhouse.

“The major need for the region is to increase jobs and improve economic health,” Wang says. “There are approximately three million acres of



Critics of woody biomass worry that poor practices create greenhouse gas pollution and eliminate forest habitat. Groups like the Forest Guild are trying to encourage practices such as sustainable harvesting of debris left from already-logged timber tracts, which involves leaving as much as 30 percent of the “residue” behind for wildlife habitat. But research has yet to determine how sustainable the idea will prove to be. Photo by Alex Finkral, courtesy the Forest Guild

harvested forest material from residual debris and already-logged tracts may yet offer some advantages.

timberland with an estimated 190 million dry tons of above-ground woody biomass in the area.”

Wang is leading a research team to explore the impact of woody biomass in Central Appalachia. The team recently received a \$350,000 grant from the U.S. Department of Agriculture.

While researchers like Wang and Moorman continue to investigate the environmental and economic questions posed by woody biomass, sustainably

However, until producers, local residents and environmental groups can agree on a balanced strategy, it's likely that biomass — at least the woody variety — will remain a fragile sapling of alternative energy among a huge forest of uncertainty.

Stay tuned for future stories exploring the promises and perils surrounding various forms of bio-energy in upcoming issues of The Appalachian Voice.



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Beyond Renewable: The Cutting Edge in Energy

By Chelsey Fisher

The use of clean energy has increased in the nation since 2005, according to the U.S. Energy Information Administration. While renewable energy is mostly used in more traditional ways, such as powering homes or businesses, in recent years U.S. researchers have dug up new ways — from wave energy to micro-cell technology — to generate and maximize energy use.

Capturing the Methane Madness

In landfills, the decomposition of waste generates methane that normally escapes into the atmosphere. By capping a landfill and capturing its gases, the resulting combination of approximately 50 percent methane and 50 percent carbon dioxide can be used to generate energy while simultaneously reducing greenhouse gas emissions. In Burnsville, N.C., landfill methane has been used since 1999 to power glass blowers and a pottery kiln at an art center called EnergyXChange. The methane also supplies radiant heat for greenhouses, offices and an art gallery. As of June 2012, there were 594 methane-capture operations in the United States, with another 540 candidate sites. Learn more at energyxchange.org.



Powered by the People

The nPowerPEG is a personal energy generator created in 2009 by Aaron LeMieux when he wanted to harness the kinetic energy he generated while hiking the Appalachian Trail. This device harvests power created through walking, hiking or biking and can be carried in a book bag or pocket. At 10 inches long and one inch wide, the nPowerPEG can charge smaller items such as cell phones, GPS devices or music players. Learn more at npowerpeg.com.



Boosting Solar Panels

While the use of solar panels is relatively traditional, West Virginia University graduate student Scott Cushing has discovered a way to make solar cells more effective. Normally, solar cells can only collect a limited spectrum of light. But by using plasmons, or tiny oscillations within particles, nanoparticles within the solar cell are able to better absorb more spectrums of sunlight. This is because plasmons help the metal in the nanoparticles act as if they were hundreds of times their size. "It is as if the plasmon is a tiny antenna specifically tuned to absorb sunlight then give the energy to the solar cell — just like the antenna on your car collects faint radio signals and gives it to your stereo to be output through your speakers," Cushing told West Virginia University news.

Rare Earth Alternatives

Numerous rare minerals are used to produce electric vehicles and wind turbines, which can be very costly. But through the REACT project, 14 universities and laboratories,

Charlottesville Expands Electric Vehicle Initiative

By Chelsey Fisher

Throughout many large cities in Appalachia, electric vehicle chargers are increasing in availability near car dealerships, highways and tourist attractions, making it easier for owners to travel in the area.

Charlottesville, Va., is one such city promoting electric vehicles.

Charlottesville's first experience with electric vehicles started in 2012 when the city received three Nissan LEAF cars through a research and development grant from the U.S. Department of Energy.

Although the LEAF loan is scheduled to end in 2014, Charlottesville decided to expand the electric vehicle trend with the help of one local business owner. Roger Voisinnet, a realtor and former environmental planner who owns part of the city's outdoor downtown mall, is working with city officials to add electric vehicle charging stations to the mall.

The agreement, which has no official timeline yet, would provide charging stations for people to use while they walk, eat or shop in the mall. Voisinnet wants to use the solar power he previously installed to help power the stations.

One roadblock in Charlottesville's way, however, is a new state law mandating that



Photo by Dan Addison

electric vehicle owners in Virginia pay \$64 annually for each electric vehicle to offset lost gas taxes.

The effects of the additional state taxes, which went into effect July 1, have not been identified yet, but Susan Elliott, the city's climate protection program coordinator, said it could possibly factor into the buying decision.

"It does make it a more complex decision," she says. "Especially since EVs are new technology."

But Elliott says she's still excited to see the future of electric vehicles in Charlottesville and thinks the charging stations will also be helpful for local businesses.

"I'm definitely interested to see where the conversation goes in the next few years."

including Virginia Commonwealth University, are researching more common alternatives, such as carbon-based magnets and iron-nickel-based super magnets. If successful, the project would help lessen the country's dependence on foreign nations for rare minerals and would support the use of electric vehicles and green energy.



Photo Courtesy: Stephane Gros for Solar Impulse ©

Flying Solar

Started in 2009 by a Swiss company with the goal of flying around the world, the first solar-powered plane flew across the United States in July of

this year, charged by more than 11,000 solar cells. The Solar Impulse reached a top speed of 45 mph and an altitude of 30,000 feet. Flying out of Washington state, the Impulse stopped in Phoenix, Dallas, St. Louis, Cincinnati and Washington-Dulles International Airport before landing at JFK Airport in New York nearly 60 days later. Learn more at solarimpulse.com

Trash Heats Up

Another carbon footprint-reducing method of creating energy (compared to burning coal, oil or the methane from landfills, at least) is using gases from incinerating landfill waste to produce energy. Unlike capping landfills and collecting methane, waste-to-energy is recovered by incinerating the trash, a process that converts non-recyclable and non-hazardous waste into energy and leaves only about 10 percent of the original volume as ash. Currently, there are 86 waste-to-energy sites in the United States, including one in North Carolina and five in Virginia.



This GREEN House

Growing Community in the New River Valley

By Molly Moore

From a curvy, two-lane road roughly four miles from downtown Blacksburg, Va., Arlean Lambert's property is easily recognizable. Three solar panels are mounted by a pond in front of her ranch-style home. A verdant perennial garden alongside the home, flanked with a trellis covered in hardy kiwi, completes the tranquil scene.

Lambert, a silver-haired woman with eyes that twinkle from beneath her straw farmer's hat, isn't the only one enjoying these 15 acres. Currently, about 65 gardeners representing 17 countries tend plots in an organic community garden behind Lambert's home, which is run in conjunction with the YMCA at Virginia Tech and funded by the university's Civic Agriculture and Food Systems minor.

At the Hale-Y Community Gardens, as the project is now known, most plots gently spill down a hillside. Lambert points out one, run by a Nepalese family, that's rimmed with corn to keep plants and gardeners cool, and another that's tended meticulously by a woman who gardens in a full burqa.

In addition to the diverse open-air gardens, the property sports an unusual structure called the solar greenhouse, used throughout the year except in the hottest summer months. Where most greenhouses are subject to extremely high temperatures during summer sunshine and inhospitably low temperatures on winter nights, the solar greenhouse hosts a collection of stones and perforated pipes that, combined with a fan, store excess heat and water and release it when needed. A project of David Roper, a retired physics professor, the solar greenhouse is the first of its kind east of the Mississippi.

Lambert attributes her desire to use renewable energy to her knowledge of mountaintop removal coal mining, which she first read about in *The Appalachian Voice*. The seven-kilowatt solar system by the front pond powers Lambert's home, and, closer to the gardens, a solar-powered system donated by a community member pumps water from the pond to a storage tank at an ancillary garden. The solar greenhouse fans consume the property's only energy from the grid.

Hosting an intergenerational, international gardening community is a fulfilling retirement, Lambert says, but she's quick to point out that she's not a master gardener, nor did she approach this project with a set vision. "I'm just a bumbler, but I bumble with passion," she says. "When I get into something I go in with my whole heart."

Lambert's parents lived on these 15-acres amidst the Appalachian mountains that Lambert once took for granted. When her husband's job drew the couple to suburban New Jersey, Lambert realized that in heavily populated areas, green spaces often exist solely because of others' foresight. Urban development, she says, takes over a place almost too slowly for local residents to notice.

After Lambert's father passed away,



When the solar greenhouse, above, is too hot or too cold during winters, fans cycle the air into the underground "sink," where condensation and plant respiration combine to change the air's temperature and moisture levels, allowing the air to resurface as a better growing climate. Arlean Lambert, right, cultivates a perennial garden.



her son Jacob urged her to consider the tract's value in the face of encroaching development. Lambert discussed the idea of preserving the property with her mother, an avid gardener. When the time came, Lambert purchased the land. Several years later, she retired and began seeking ways to make the land productive.

Around the same time, the YMCA at Virginia Tech, which has a history of providing community garden space, was losing land to a cemetery expansion. David Roper was looking for a place to build his novel solar greenhouse, and the three began collaborating in 2006. Businesses and individuals donated time, materials and funds, and the next year Virginia Tech won a grant from the U.S. Department of Agriculture to create a Civic Agriculture and Food Systems minor. The grant allowed the YMCA at Virginia Tech to hire garden coordinator Jenny Schwanke to engage students and the public and develop

the gardens. Schwanke and Lambert formed a strong friendship, and today that bond serves as a foundation for a welcoming, robust community.

Even with this season's harvest in full swing, Lambert is looking ahead, considering ways to keep the Hale-Y Community Gardens vibrant for 50 years or more. The project's survival, she says, will come down to whether the greater Blacksburg community understands the value of these peaceful gardens and diverse relationships. Only then will people ensure that these gardens flourish for generations to come.

Do you know someone who puts their environmental principles into practice at their home or business? Nominate them for a future edition of This Green House! Email voice@apvoices.org.

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Interview with Tom Perriello

Tom Perriello, a lifelong resident of Ablemarle County, Va., is a steadfast supporter of environmental and poverty concerns. He used his background in law to prosecute warlords in West Africa, was named one of Time Magazine's "40 under 40" in 2010, and represented Virginia's 5th district from 2009 to 2011. While in Congress, he supported "cap and trade" legislation, a market-based approach to curbing greenhouse gas emissions, and co-sponsored the Clean Water Protection Act to sharply curtail mountaintop removal coal mining. Currently, he is president and CEO of the Center for American Progress Action Fund and counselor for policy to the Center for American Progress, a left-leaning think tank.

Image courtesy of Tom Perriello



thing — never stop using your voice as a citizen and joining with other citizens ... I think nothing breeds success like success and so one of the ways to do it is to start a business in this field, or to support a business in this field. There is real money to be made in doing the kind of home efficiency rebuilds and other things that can increase efficiency over time ... I think one of the ways to really do that is to try to lead by demonstrating and there's a lot of room for that right now.

Would you say that your faith has influenced your support of environmental policy and conservation?

I think one of the central tenets is certainly to feel some responsibility to take care of [the] beauty that we've been given, and I think it's also true that there's a core sense of personal responsibility ... not to take from future generations or leave them in a worse place in terms of the environment and conditions. And I also think that from our faith that ... there's an emphasis on caring for the most vulnerable among us and I think what we know when it comes to many issues of the environment is that it is our poorest community as well as the youngest and the elderly who are most affected by much of the pollution that comes into the environment.

How does the coal industry's influence affect Virginia and the country?

I think that the best thing for our country is that the government reflects the people; that's essential to a democracy. To the extent that they're using money for threats to pervert that process, I think that is unhealthy for our country and I think that unfortunately you've seen from several of the key figures of the coal industry, repeated willingness to say things that are dishonest, to put workers at risk, to put jobs at risk,

for protecting their own concentration of profits. So, I don't have a problem with any group organizing supporters. I think that's important, but I have an opposition to any group that tries to buy the process, or use threats, to try to pervert that process. That's not right for Virginia and that's not right for the country.

Why do you think strong energy efficiency policies are important for our region and our country?

Fundamentally, we have to have a strategy to outcompete the world if we're going to have the kind of jobs that can support middle and working class families. Energy efficiency, by its very nature, means we're being more efficient; we're reducing costs, which is going to be one of the keys for America outcompeting the world. We're on the edge of innovation and technology and we've already seen this get internalized. American families are already saving a ton of money because of these efficiency standards that are demanded by investments and by environmental groups ... it makes us more competitive by increasing efficiency across the board but also by spurring the kind of technological innovation that we do better than anybody else in the world.

What do you think can be done to fix the policy gridlock on something as simple as energy efficiency?

Well, I wish I had a magic wand on this one. I think we have to reach a point where political leaders are more interested in doing what's right, than what scores them points with their base. I think there are a lot of business leaders and economists who will tell you over and over again how important energy efficiency and clean energy are to our economy. I think it's a time where, frankly, we need a little bit of leadership and guts from our political leaders and then I think we need to look at some of the structural issues, like the role of money in politics and extreme gerrymandering.

What can regular citizens and citizen groups do to promote or encourage energy efficiency policy?

I think people should never underestimate how much their voice matters. And even if you feel like you're represented by someone in Congress who seems to ... bury their head in the sand, and act like reality isn't real, it's still worth speaking up. Write a letter to the editor, make a phone call to the member, so I think that's one

In Congress you supported the Clean Water Protection Act, which would have kept toxic waste from mountaintop removal sites out of streams. Why is it important to you that we move away from mountaintop removal?

I think at a minimum, citizens have a right to know what's being put into their streams ... [we need to keep] toxic waste out of streams. There's been an argument made for a long time by people who got very rich making the argument that [mountaintop removal coal mining] is going to be good for these communities and the reality has not played out that way. We made a promise to our citizens for a long time that asking for clean air and clean water is not too much to ask for. We should continue to live up to that promise and believe that we can — it's not too much to ask — that we're not poisoning our citizens.

Climate Action Plan has Major Implications for Coal

By Brian Sewell

In late June, President Obama announced his administration's climate action plan. The speech at Georgetown University signaled to Congress that the president was keeping his promise to come up with executive actions to address the threat of climate change, and reignited claims of a "war on coal" in Central Appalachia and nationwide.

The centerpiece of the administration's plan is an order to the U.S. Environmental Protection Agency to set

limits on the amount of carbon emitted from the United State's nearly 600 coal-fired power plants.

While there is no promise that the EPA will meet future deadlines, a specific timeline for future rules was included in a White House memo sent to the EPA. The EPA is now required to finalize standards on existing plants by June 2015. States will be given a year to submit implementation plans for the rules.

In the meantime, coal's future looks increasingly bleak. In July, the World Bank announced it will end the financing of coal plants except in circumstances where there are no feasible alternatives. And Goldman Sachs issued a paper with the blunt title "The Window for Thermal Coal Investment is Closing."

Following Obama's speech, Sen. Joe Manchin (D-W.Va.) led a delegation of state officials including West Virginia Gov. Earl Ray Tomblin, mine industry

representatives, and union officials to the White House to urge the EPA to scale back its plans to impose stricter rules on both the burning and disposal of coal.

While Gov. Tomblin informed the media that he was "pleasantly surprised" by the receptive attitude of EPA Administrator Gina McCarthy, he told the Beckley, W.Va., *Register-Herald* that "if [the EPA] is making policies we can't live with, then obviously the only alternative we have is to go back to court."

Oil and Gas Boom Straining America's Energy Infrastructure

By Brian Sewell

The United States is experiencing a natural gas boom largely due to advances in drilling and extraction technologies. And in recent years, some have celebrated the fuel as a bridge to a clean energy and carbon-free future. But according to a report by the Center for American Progress, the other side of the bridge must come before 2030.

The report claims that the use of natural gas, particularly in the electric-power sector, must peak in the next seven to 17 years for the U.S. to meet its climate goals. Additionally, to truly be a bridge fuel, the report argues that the expansion of natural gas should be used to create investments in clean energy development, energy efficiency and the resilience of communities threatened by climate-related extreme weather.

Adding to the challenges of effectively managing America's natural gas boom is the strain it places on national energy infrastructure. According to Jason Bordoff, a former White House energy adviser, nearly one-third of the natural gas produced in North Dakota is simply flared off — an environmentally harmful and economically wasteful practice of burning off natural gas that cannot be collected because the pipeline system has not kept up with the boom in North American energy production.

Truck and rail are seen as alternatives for transporting crude oil when pipelines are oper-

ating at capacity or when a production area lacks pipeline infrastructure. The Energy Information Administration's latest Refinery Capacity Report shows a 57 percent increase in oil received by refineries by rail, truck, and barge in

2012 over the previous year, increasingly the likelihood of spills and accidents. A decade ago there were less than a dozen accidents from railroad cars carrying crude oil each year, last year there were 88.

S.C. Energy Savings Pilot Program Releases Final Report

South Carolina's electric cooperatives in July announced the results of their "Help My House" energy efficiency pilot program, which provided loans for energy efficiency upgrades to homes. Through the program, the member-owners of the cooperatives who participated were able to repay the loans through their monthly utility bills. Accord-



ing to the program's results, participating homeowners reduced their energy usage by 34 percent in the year after the upgrades, saving each participant an average of \$288 per home after loan repayments. Over the next 15 years, the Help My House program is expected to save more than \$8,500 for the average participating home.

113TH CONGRESS: Below are recent congressional bills and amendments on environmental issues and how regional central and southern Appalachian representatives voted. To see other recent votes, or for congressional representatives outside of the five state area, visit scorecard.lcv.org/recent-votes. ✔=pro-environment vote ✘=anti-environment vote

HOUSE	Kentucky		Tennessee		North Carolina		Virginia		West Virginia							
	T. Massie (R) KY-04	H. Rogers (R) KY-05	A. Barr (R) KY-06	P. Roe (R) TN-01	J. Duncan (R) TN-02	F. Fleischman (R) TN-03	S. Desjardais (R) TN-04	V. Foxx (R) NC-05	P. McHenry (R) NC-10	M. Meadows (R) NC-11	R. Hurt (R) VA-05	B. Goodlatte (R) VA-06	M. Griffith (R) VA-09	D. McKinley (R) WV-01	S. M. Capito (R) WV-02	N. Rahall (D) WV-03
H.AMDT. 247 to HR 2609: Amendment to strike the section of the Energy and Water Appropriations bill which prohibited the Army Corps of Engineers from changing the definition of fill material under the Clean Water Act. 188 AYES, 226 NOES, 10 NV. FAILED	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
HR 2218: Known as the McKinley Bill, it would stop the EPA from improving safeguards regarding the disposal of coal ash waste, leaving states in control of regulating the more than 1,300 coal ash impoundments across the country. 265 AYES, 155 NOES, 13 absent. PASSED	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
Clean Water Protections (House vote 345): An amendment to remove a rider in the Energy and Water Resources Appropriations bill that would have prohibited the Army Corps and EPA from finalizing stream and wetland protection guidance. (Similar but not identical amendment in Senate). 177 AYES, 236 NOES, 21 NV. FAILED	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
SENATE	M. McConnell (R)	R. Paul (R)	L. Alexander (R)	B. Corker (R)	R. Burr (R)	K. Hagan (D)	T. Kaine (D)	M. Warner (D)	J. Manchin (D)	J. Rockefeller (D)						
S.AMDT.514: Amendment would make it easier for coal fired power plants to gain exemptions and delays on new Mercury and Air Toxics Standards. 46 AYES, 53 NOES, 1 NV. FAILED	✘	✘	✘	✘	✘	✔	✔	✔	✘	✔						
Clean Water Protections: The Senate amendment would prohibit the Army Corps and EPA from finalizing a guidance that would bring thousands of miles of streams and wetlands under the protection of the Clean Water Act. 52 AYES, 44 NOES, 4 NV. FAILED	✘	✘	✘	✘	✘	✘	✔	✔	✘	✔						
S.Amdt.261, Pricing Carbon Pollution: The amendment would create a point of order to prevent Congress from passing a tax or fee on carbon dioxide emissions. 53 AYES, 46 NOES, 1 NV. FAILED	✘	✘	✘	✘	✘	✔	✔	✔	✘	✔						

Where Should Renewables Go?

A recent study from researchers at Carnegie Mellon University found that wind and solar achieve greater health and climate benefits in Ohio, western Pennsylvania and West Virginia than in other parts of the country, because they replace the most electricity generated by coal plants. "A wind turbine in West Virginia displaces twice as much carbon dioxide and seven times as much health damage as the same turbine in California," said Kyle Siler-Evans, a Ph.D. researcher from Carnegie Mellon University.

EIA's Future: Not Without Fossil Fuels

The U.S. Energy Information Administration released its biannual International Energy Outlook, which forecasts worldwide energy use during the next 30 years. While renewable energy sources and nuclear power will be the fastest growing energy sources through 2040, the report projects that fossil fuels, such as oil and coal, will still comprise 80 percent of world energy use.

By 2040, the report estimates that renewables' share of world energy use will be 15 percent, up from 11 percent in 2010.

Spruce Mine Veto Upheld, Again

A federal appeals court in July denied Arch Coal's request to rehear their challenge of the U.S. Environmental Protection Agency's veto of a permit for a massive West Virginia strip mine. A three-judge panel in April had ruled that the EPA had the legal right to revoke a Clean Water permit in 2011 that the U.S. Army Corps of Engineers had awarded years before to Arch Coal. The EPA said destructive practices at the Spruce No. 1 mine in Logan County would cause irreparable environmental damage. Arch Coal currently has a 90-day period to file an appeal with the U.S. Supreme Court.



Volunteer Spotlight

Development Issues and Land Conservation Make Susan Hazlewood Tick

By Davis Wax

Susan Hazlewood has lived all over the country, from Florida to New England. She spent a season as an interpretive park ranger in Vermont, and, living near Nashville, Tenn., has witnessed urban sprawl sweep up historic homes and rural retreats.

She originally hails from southwest Virginia, and the mountains of Appalachia have always beckoned. When she finally did settle down in Boone, N.C., a new calling came for Susan: an inspiration to give back to her natural roots by helping to preserve them.

Rising steadily from old country roads and hilly farmland, Elk Knob State Park offers an almost 360-degree view stretching from Virginia to Tennessee. Land once purchased and saved from development by The Nature Conservancy in 2003 and then deeded to North Carolina's Division of Parks and Recreation, it is one of the newest parks in the state and protects one of the tallest peaks in the region.

Susan has been a major player in the massive amount of volunteer trail work needed to make the state park what it is today — over 6,000 volunteer hours total — and currently serves on the board for the Elk Knob Community Heritage Organization. This community-led



nonprofit focuses on resource protection and the historical preservation of the area.

Susan's appreciation for land conservation has spurred her volunteerism, she says, "especially in the mountains."

In Woodstock, Vt., where Susan was an interpretive park ranger, she experienced how overdevelopment was causing the cost of living to skyrocket with greater property and land taxes.

"Vermonters were having to leave their state," she says. "This is when I first started paying attention to development issues. It can be bad for our water sources and cause flooding and erosion, too."

Today, Susan worries about her hometown of Martinsville, Va., and its high unemployment. As mills and factories were swept out with the country's manufacturing, this small town in Appalachia felt the impact. Change and progress in communities can be good things but

rampant development, she says, is all about the money.

Susan was living in Boone, N.C., in the 1970s and remembers it still having a small town feel. "The New Market Center was once a farm with white buildings and cows," she says, referring to what is now a strip mall off of the highway coming into town. The brick silo currently in the parking lot, she says, was from the original farm.

"It's an ethical issue for property owners who have to ask themselves 'Do I sell or not sell?'" Sometimes owners don't wish to see their land handed over to developers, but then often they can't afford not to sell, adds Susan, who believes land conservation is ultimately the best route to take.

Besides her role on the board of the Elk Knob Community Heritage Organization, Susan helps out at the annual Elk Knob festival and is a member of the Friends of High Country State Parks, an organization focused on raising money for and protecting Mt. Jefferson, Elk Knob and Grandfather Mountain state parks. She also lends her hand at the Community Care Clinic, a health care provider for those without insurance in Watauga County.

Susan first came to Appalachian Voices to volunteer in 2005. "Seeing all the development issues after I came back to Boone, I didn't know what to do, so I knocked on [the office] and asked how I could help." Eventually she took on the role of restocking issues of *The Appalachian Voice* for the Asheville, N.C., area, a task she says is always a thrill due to her enjoyment of visiting the city.

Susan currently lives in Boone with her dog and trail mate Leiom.



Groups Win Latest Round in Frasure Creek Lawsuit

By Eric Chance, Water Quality Specialist

The lawsuits between Appalachian Voices and partners and Frasure Creek Mining read like the most complicated court crime novel, with fascinating — but slow-moving — plot twists galore. In mid-July, the latest development occurred when a circuit court judge blocked an attempt by the Kentucky Energy and Environment Cabinet to toss the groups out of court proceedings, effectively keeping Appalachian Voices, Kentuckians for the Commonwealth, Kentucky Riverkeepers and Waterkeeper Alliance in the mix.

To provide some background, in October of 2010, the four environmental groups filed a legal action against Frasure Creek for submitting false water monitoring reports, which included duplicated data.

Almost immediately following the lawsuit, the coal mining company's water quality monitoring reports (also known as DMRs) which previously did not indicate any water quality violations, began showing hundreds of water quality violations every month when the company switched labs.

The environmental alliance then attempted to sue Frasure Creek for the subsequent violations, but the Kentucky cabinet filed a complaint in state administrative court for the same violations, effectively blocking a new lawsuit. Appalachian Voices and partners won the right to intervene, making them full parties to the case. But then, without the environmental alliance's knowledge or consent, Frasure Creek and the cabinet entered into a slap-on-the-wrist

settlement. Because Appalachian Voices and partners were completely excluded from the settlement they were parties to, they challenged this settlement in Franklin Circuit Court.

Which brings us back to the present. Earlier this year, the state cabinet requested that the court dismiss the group's challenge of the settlement, a request Franklin Circuit Court Judge Phillip Shepherd recently denied, ruling in favor of the environmental groups. In short, the ruling means the alliance of groups will now be allowed to proceed with their argument that the settlement between the state and Frasure Creek should be rejected.

Stay up-to-date on legal proceedings through our Appalachian Water Watch program at appvoices.org/waterwatch.



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.

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Introducing... Tennessee Tuesdays!

Are you a resident of the great Volunteer state, or do you live away but frequently visit in your daydreams? Well now we have a great way for you to keep up with the news from that fair state. Each Tuesday, our Tennessee Director, J.W. Randolph, updates readers on the fight to end mountaintop removal coal mining, as well as efforts to improve energy-savings policies in the state. He also delves deep to

report how Tennessee's federal legislators vote on environmental issues, and concludes each post with a link to a phenomenal Appalachian song. Readers can sign up to receive an email each week with the latest article, or read the posts on the website's Front Porch Blog. To learn more or sign up for Tennessee Tuesdays, visit: appvoices.org/tenn-tuesdays.



AV Earns 4 Stars

Appalachian Voices was recently awarded the highest rating from Charity Navigator, an online organization that ranks non-profit groups according to best management practices. The 4-star rating was awarded to Appalachian Voices for its sound fiscal management and commitment to accountability and transparency — which means that when you support our work, you can be sure your gift will help protect Appalachia's natural heritage and build a brighter future. Charity Navigator is an independent, 501(c)3 organization that evaluates more than 5,400 charities in the United States to help potential donors avoid charity fraud and highlight the work of efficient, ethical and open organizations in the non-profit sector. Read more at appvoices.org/financial-information.

AppalachianVoices
BUSINESS LEAGUE
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From the Front Porch Blog: Reps Fight For Mountaintop Removal

By Thom Kay, Legislative Associate

Rep. Bill Johnson really likes coal, and he's willing to put the health of Appalachia's streams and communities at risk to prove it.

A lopsided legislative hearing held by the House Natural Resources Committee last Friday is further proof that fans of mountaintop removal coal mining aren't giving up without a fight. The hearing focused on legislation recently introduced by Rep. Johnson (R-OH), a proud coal industry advocate, and Rep. Doug Lamborn (R-CO), a pro-coal congressman in his own right.

With the catchy title "Preventing Government Waste and Protecting Coal Jobs in America," or "PGWPCJA," H.R. 2824 would stop the Office of Surface Mining Reclamation and Enforcement from writing a rule to protect streams from excessive coal mining pollution. Instead, the bill would require OSM to implement the flawed 2008 Stream Buffer Zone rule and prevent the agency from improving that

rule for a minimum of seven years.

Johnson and the bill's proponents claim to be protecting coal jobs and stopping OSM from spending "untold millions" of dollars more on the current rule-making, which is already four years underway. Johnson even stated during Friday's hearing that OSM has a "clear desire to shut down the coal industry in Appalachia."

There are plenty of problems with Johnson's reasoning, but the point that cannot be emphasized enough is that no proposed rule has been made public. A shoddy analysis of an early draft was leaked to the public two years ago, but that is the last information any of us, Rep. Johnson included, have had access to. Until a rule is officially proposed, all claims of job losses are premature at best.

Fortunately, Rep. Jared Huffman (D-CA) was the voice of truth and reason in a discussion otherwise devoid of either.

His opening comments told the real story.

"The bill we're discussing here today would stop the Interior Department's Office of Surface Mining from adopting a new rule to protect the people of Appalachia from destructive mountaintop removal mining. That's the term that the majority doesn't like to use, but that's what the practice and this bill are all about: mountaintop removal mining."

I was tempted to copy and paste Huffman's opening statements here in lieu of writing an article. He finished his statement with one last truth bomb:

"They believe coal companies should be allowed to blow the tops off mountains and dump the waste into streams, no matter what the science says about the consequence for our environment and the public health. This legislation should be opposed."

We wholeheartedly agree. Visit appvoices.org/frontporchblog for more.

2ND EDITION
MANAGING YOUR WOODLANDS
A Guide for Southern Appalachian Landowners
Produced by: Appalachian Voices

To get your FREE copy: sign up at appvoices.org/reenenergizing OR contact: 1-977-APP-VOICE or forestry@appvoices.org

Our handbook on forestry management gives you the knowledge and resources you need to make smart decisions about your forest and become a better steward of your land. Now with a Free DVD "Landowner's Guide to Sustainable Forestry" from the Model Forest Policy Program

Protect Kentucky Streams from Increased Selenium Pollution: Kentucky regulators are attempting to weaken a state law in a way that would let mountaintop removal coal mining companies discharge more toxic selenium pollution into Kentucky's waters. Send EPA Administrator McCarthy a message today asking her to protect Appalachian streams from toxic selenium pollution.



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Appalachian Voices' AmeriCorps Education Associate Matt Grimley assisted with lambing season this spring at a farm in Polk County, N.C. In the course of his eleven-month service term with the organization, Matt helped maintain conservation areas, cleaned trash out of rivers, herded goats and dressed like an ear of corn to promote local foods — all in addition to his main role at Appalachian Voices, educating our readers and members about water quality and other environmental issues in the region. We bid him a fond adieu as he heads back to the lovely wilds of his home state, Wisconsin. Photo by Jess Peete

GET INVOLVED environmental & cultural events in the region

Fee Free Day at National Parks

Aug. 25. Celebrate The National Park Service Birthday with free admission to all National Parks. Fee waiver includes entrance fees, commercial tour fees and transportation entrance fees.

A Bright Economic Future for the Mountain State

Sept. 4, 8:30 a.m.-5 p.m. Join an open forum of community leaders, elected officials, industry executives, academics, policymakers, union leaders and advocates, to discuss the potential for future economic development in West Virginia. Event will be held at the Walker Theater of the Clay Center for the Arts and Sciences, Charleston, W.Va. Visit: brightfuture.eventzilla.net for more info.

Community Fair Day

Sept. 7, 9 a.m. Includes competitions for food preservation, baked items, garden vegetables, flowers, quilting and crafts. There will also be games, information and craft booths, cake walks and other displays. Pine Mountain Settlement School, Pine Mountain, Ky. Free. More info: Judy Lewis, 606-558-3586.

Environmental Protections Training

Sept. 9, 6-9 p.m. The Coalfield Environmental Health Project, sponsored by the Southern

Appalachian Labor School and the Plateau Action Network, is providing a series of environmental protections training to address the impact of coal mining on human health, water quality and community. Free. Beards Fork, W. Va. More info: Andrew Munn, 304-924-1506 or anromu@gmail.com.

Wilderness First Responder Course

Sept. 14-21. Learn the industry standard for backcountry trip leaders, camp counselors, mountain guides and ski patrollers. Includes 72-80 hours of instruction. Additional courses available. Spruce Knob, W. Va. More info: Dave Martin, 304-567-2632 or dmartin@mountain.org.

Raptors Galore

Sept. 18, 9 a.m. Come and learn about raptors and improve your identification skills at a prominent overlook for the annual raptor migration. \$8/members of The Nature Foundation at Wintergreen, \$10/nonmembers. Roseland, Va. More info: tnf.org or 434-325-8169.

Annual Elk Viewing Tours

Sept. 21, 5:30 a.m. - Noon. First day of elk tours, sponsored by Jenny Wiley State Resort Park. The cost is \$30/person or \$15/children 12 and under. The fee includes all transportation to the viewing sites and a continental breakfast. Prestonburg, Ky. More info /to register: Trinity Shepherd, 1-800-325-0142 or tshepherd@suddenlinkmail.com.

Hike of Wonders

Sept. 25, 10 a.m. Led by Chip Morgan, this hike includes views of rock gardens, an old airplane wreck, and information about the Appalachian Trail. The 5.5 mile hike starts at Humpback Rocks parking area in Virginia. Bring food and water for lunch. Register before Sept. 17. \$8/members of The Nature Foundation at Wintergreen, \$10/nonmembers. More info: tnf.org or 434-325-8169.

Feeding the American South

Sept. 26-28. The 19th annual conference on restoring southern gardens focuses on the theme of the working, edible landscape from planting and cultivation through harvest to the table. Prices vary between \$100 and \$350. Winston-Salem, N.C. More info: oldsalem.org, or call Old Salem Reservation Office, 800-441-5305.

Southeast Coal Ash Summit

Sept. 27, 11 a.m.-5 p.m., Sept. 28, 8:30 a.m. - 1 p.m. The Southern Alliance for Clean Energy is hosting a two-day event to bring advocates, experts and community members to learn about coal ash. Atlanta, Ga. More info: Joan Walker at joan@cleanenergy.org or 828-254-6776 ext. 6.

Family Hiking Day

Sept. 28-29. Appalachian Trail Conservancy invites people of all ages and hiking abilities to get outside and enjoy the adventure of being active on the Trail. Free. All trails from Maine to Georgia. Visit: appalachiantrail.org.

National Public Lands Day

Sept. 18. Celebrate NPLD's 20th anniversary by volunteering your day with the nation's largest single-day event. Join the "tree army" to preserve and protect America's natural heritage. Visit: facebook.com/nationalpubliclandsday.

Mornings in the Mountains

Every Sat. through Oct. 19, 10 a.m.-Noon. Join for an interpretive hike. Explore the many aspects of Wintergreen's natural environment. \$3 members, \$6 non-members. Please register by 9:30 a.m. the day of. All hikes leave from the Trillium House unless otherwise noted. Wintergreen, Va. Visit: tnf.org.

Community Cob Project

Oct. 5-6. Participants will assist in the construction of a cob structure using traditional mortise and tenon joinery with wood pegs. Cost: \$375 workshop and fees, \$250/overnight stay with three meals/day, \$50 lunch ticket for those not staying. Oliver Springs, Tenn. More info: Mitzi Wood-Von Mizener, 865-497-2753.

Fall Arts Weekend

Oct. 11-13. Visit Pine Mountain Settlement School for four featured workshops. "From the Ground Up" is \$350/person; "Nature Photography" is \$330/person; "Quilters Retreat" is \$200; and "The Basics of Replacing a Hickory Bark Chair Seat" is \$100. Visit: pinemountainsettlementschool.com/events.