



AGRICULTURE ENERGY + ENVIRONMENT

'A lot of promise': Vertical farming takes root in Virginia.

BY: SARAH VOGELSONG - MAY 24, 2021 12:04 AM



 Vertical farming stacks at the Institute for Advanced Learning and Research in Danville. (Institute for Advanced Learning and Research)

Imagine a field of lettuce.

Say the lettuces are all buttercrunch, and they dot the field like crisp rosettes. Each has been seeded by a farmer, kept free of pests, watered for weeks and finally cut at the base before

being rinsed and packed for transport. Each is destined for a different meal: a lazy evening salad on the porch, an artfully arranged plate at a restaurant two-top, the vegetarian alternative at grandma's 80th.

Now imagine six of these fields, all stacked on top of one another.

The idea isn't far-fetched. In fact, it's already a reality in Virginia, where a new, more technologically oriented form of agriculture known as vertical farming is quietly taking root.

"There's a lot of promise," said Tony Banks, senior assistant director of agriculture, development and innovation for the Virginia Farm Bureau Federation. "As we continue to watch urban encroachment and we have this demand to have food produced closer to where people actually live, we're going to see more and more of it."

Since its inception at the turn of the millennium, vertical farming – which in its simplest form is any system where plants are grown in vertical stacks – has promised to revolutionize yields by allowing producers to multiply their crop outputs by six to eight or even more times without expanding their footprint.

"You're trying to use an area more intensively. Because you're limited by horizontal space, you want to maximize vertical space," said Leonard Githinji, a professor of sustainable and urban agriculture at Virginia State University who also works with Virginia Cooperative Extension.

The concept is flexible and scalable. The stacks can be small, nothing more than a narrow shelf installed at a restaurant or in a convenience store to grow produce within a customer's reach. Or they can fill a warehouse, bringing an industrial dimension to agriculture.

"There's a wide range. On one end, it's almost you have a greenhouse that's highly automated," said Banks. "On the other end, you could be in a warehouse and everything is grown on huge assemblies of racks and you have complete artificial lighting and hydroponics."

The latter type of vertical farming is "high-tech manufacturing, essentially," said Scott Lowman, director of the Controlled Environment Agriculture Innovation Center at the Institute for Advanced Learning and Research in Danville, where scientists and other experts are exploring the promise various types of indoor agriculture can hold for Virginia.

Hopes are high, particularly in the historic tobacco region of Southside, where state officials have been working for several decades to encourage farmers who once depended on the golden leaf to diversify their enterprises. It's no accident that the Controlled Environment Agriculture Innovation Center was sited in a region with a rich agricultural history and an abundance of old warehouses once devoted to tobacco and now empty.

Nor was it an accident that in 2019, Gov. Ralph Northam's office announced that vertical farming company AeroFarms had decided to build a \$42 million facility in an industrial park jointly operated by Danville and Pittsylvania County. Virginia aggressively courted the project with some \$1.5 million in state grant funds and incentives. In exchange, AeroFarms promised

to build the facility, employ 92 people and purchase roughly \$20 million of Virginia agricultural or forest products.

But while AeroFarms' Virginia location will be the largest vertical farm in the state once built, it won't be the only one. Over the past few years, other operations have quietly been putting down roots. Shenandoah Growers in Rockingham operates a large-scale facility that grows herbs and lettuces. In Lorton, Beanstalk grows a range of greens. Fresh Impact Farms in Arlington, which grows herbs, greens and edible flowers, [announced an expansion this spring in conjunction with the governor's office](#). Babylon Micro-Farms in Richmond is developing sophisticated technology to spread small-scale vertical farms around the country. Other efforts are underway.

"We're in a great position on the East Coast in terms of population centers," said Lowman. "And it's a friendly environment for business, and we have a legacy of hard-working labor."

Controlled environment agriculture

While vertical farming is relatively new, its lineage is much longer, nesting within the family tree of controlled environment agriculture, which encompasses any type of production that takes place within a structure.

From Roman orangeries to modern-day greenhouses, controlled environment agriculture offers the advantage embedded in its first descriptor: control.

Outdoors, farmers are at the whim of the weather, plagued by pests and disease and caught in a never-ending struggle to keep water and fertilizer confined to their fields.

Indoors, the equation changes. Because of the precision-engineered systems, controlled environment agriculture tends to require less water, less fertilizer and few or no pesticides compared to conventional agriculture. And, depending on a particular system's design, it can allow producers to grow crops 24/7, 365 days a year. AeroFarms has said that its technology allows it to produce leafy greens "at a rate 390 times more productive than field-grown plants."

"I can now schedule my crops," said Michael Evans, director of Virginia Tech's School of Plant and Environmental Sciences. "I can basically optimize the environment for that crop."

There are, of course, drawbacks. Everything nature once provided to a plant must now be provided by a human – or a machine.

"With a greenhouse, you're taking advantage of natural sunlight. You're not paying for that," said Evans. "But you're paying quite a bit for heating and cooling. When you flip to an indoor vertical system, the disadvantage is that now you have to supply the light." Other costs diminish at the same time: without the translucent walls of a greenhouse, "your heating and cooling can go down because it's better insulated."

For years, prohibitively high energy costs boxed out vertical farming as a viable option for producers working in controlled environment agriculture. What would change the playing field was a technological innovation: the high-powered and highly efficient LED.

“The thing that really changed that made indoor vertical farming work and become an economic possibility was really the development of LED lighting, because that changes the energy equation a lot,” said Evans. “It makes providing the light the crops need much economically viable.”

 Controlled digital lights help produce high density feed grass in a Grov Olympus vertical farming machine in Utah. The Olympus Tower Farm uses a controlled environment to grow sprouted wheat and barley grass in 857 square feet of space and uses 95 percent less water to produce 5,000 to 6,000 pounds of grass per day, replacing 35-50 acres of land. (Photo by George Frey/Getty Images)

A new generation of farmers

Despite its promise, vertical farming won't replace conventional agriculture, experts say. Many of Virginia's biggest commodity crops – soybeans, corn, hay – are grown at such a large scale that trying to transport them indoors would be an exercise in absurdity.

Where controlled environment agriculture has found a growing niche is in the produce most familiar to the average Virginian: lettuces, herbs, tomatoes, cucumbers, peppers, herbs, microgreens and more. Experiments in growing strawberries indoors are also underway, and Evans pointed out that once legalized, marijuana may not be far behind, although the federal

government's continued classification of the plant as illegal will keep institutions like Virginia Tech from working with it.

For consumers of these products, the idea of local food grown only a short distance away is increasingly appealing. That can be an argument in favor of controlled environment agriculture and vertical farming, said Banks.

"When we import food into this country, what we import is fruits and vegetables that require a lot of hand labor," he said. "So there's opportunity there to offset some of those imports and reduce our reliance on food produced overseas."

Both Banks and Evans also noted an unusual aspect of vertical farming: its allure for younger and often more urban Virginians.

"It's getting a whole new generation of folks interested in agriculture. It's a different type of agriculture, but it's getting a lot of students," said Evans. At Virginia Tech's School of Plant and Environmental Sciences, he added, "we have to change our curriculum for what we're teaching to prepare students interested in controlled environment agriculture."

For a younger generation increasingly concerned with social and political justice, the opportunity offered by controlled environment agriculture and vertical farming to fill food deserts and involve local workers in local food systems is an attractive prospect. Many students are eager to look beyond the existing agricultural structures, said Githinji, who recently received a \$600,000 grant from the U.S. National Institute of Food and Agriculture to explore the use of "micro-farms," which incorporate vertical farming systems, as a way to address food deserts in urban neighborhoods.

It's not unusual for extension agents to get calls in which people are saying, "As much as I want to grow more food, I can't afford to buy even another quarter acre," he said. "So you get people asking what they can do with what they have."

The other draw is the technology. While vertical farming can be small- or large-scale, its larger applications rely on evolving and increasingly sophisticated technology that has piqued interest among the startup community.

"This is a really exciting industry that's rapidly entering the mainstream," said Alexander Olesen, CEO and co-founder of Babylon Micro-Farms, a Richmond-based startup that develops indoor growing systems for institutional food service settings, such as hospitals, schools and universities. Babylon, which in 2020 was the recipient of a \$75,000 grant from the Commonwealth Research Commercialization Fund that aims to support small businesses in emerging research and technology sectors, builds small-scale vertical farms "as a sustainable amenity for these locations."

The field's growing popularity is also driving a need for more workers, more expertise and more training, said many of the people interviewed for this story. The Controlled Environment Agriculture Innovation Center in Danville, itself a recipient of \$365,000 in state grant funds in 2020, is key to that effort. So too are plans announced by the governor's office

last month that will see hydroponic greenhouse startup Sunny Farms [build a 1.2 million square foot greenhouse in Virginia Beach](#) – one of the largest on the East Coast – and work with Virginia Tech and the Virginia community college system to develop educational training in controlled environment agriculture.

“Our goal is really to support the controlled environment agriculture industry in Virginia, but we’re also working on creating an innovative controlled environment agriculture ecosystem in Virginia,” said Evans.

These enterprises may be only the beginning.

“Once people see that it’s working, we’re going to see them flourishing all across the commonwealth,” said Githinji.

This story has been updated to correct the name of Shenandoah Growers.

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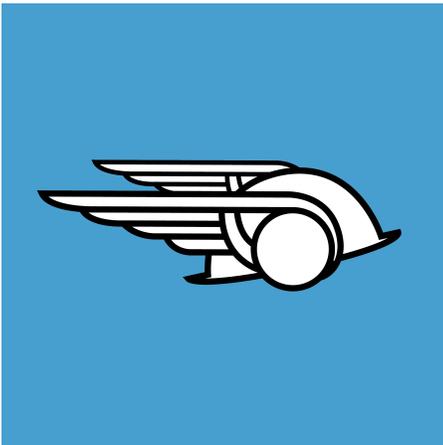
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ENERGY + ENVIRONMENT

After Blackjewel settlement, Virginia has coal mining permits no one wants

BY: SARAH VOGELSONG - MARCH 26, 2021 12:01 AM



 Coal piles in Wise County, July 2019. (Sarah Vogelsong/ Virginia Mercury)

Much of Blackjewel's former coal empire in Virginia remains in disarray, even as a federal judge signed off on a bankruptcy settlement this week.

More than two dozen Virginia mining permits controlled by the company are in limbo, with a handful unable to find a buyer and most of the remainder locked in a dispute between two companies that each claim the other is the owner.

“This is probably one of the most complex bankruptcies in history,” said Ned Pillersdorf, one of the attorneys representing roughly 1,700 former employees of Blackjewel, 1,100 of them from the Central Appalachian mines. And, he added, while “this might be the end of the beginning ... it’s far from over.”

Before its collapsed into bankruptcy more than a year and a half ago, Blackjewel owned the Eagle Butte and Belle Ayr mines in Wyoming’s Powder River Basin, two of the largest coal mines in the nation, as well as more than two dozen operations throughout Appalachia. In Virginia, it employed almost 500 coal workers in 2018, making it one of the biggest coal employers in the state.

On July 1, operations came to a halt as the company’s now-dismissed CEO, Jeff Hoops, [filed for bankruptcy](#) in the U.S. Bankruptcy Court for the Southern District of West Virginia, citing declining demand for coal and liquidity problems. At the same time, the company [clawed back its workers’ paychecks](#), a move that led Kentucky miners later that summer to mount a two-month blockade of a train carrying coal from a company mine in Harlan County that the U.S. Department of Justice labeled “hot goods.”

Blackjewel would eventually settle that dispute, agreeing to pay about 1,100 miners in Virginia, West Virginia and Kentucky \$5.1 million in unpaid wages.

Since then, the case has only become more labyrinthine.

In December, attorneys for the slowly liquidating Blackjewel filed a civil suit against the ousted Hoops, accusing him of defrauding his former company. Over the past 20 months, as the case’s docket has ballooned to more than 3,100 filings, a host of creditors have come forward seeking relief, and miners have sought additional payouts through a class-action suit for the company’s violation of federal laws requiring notifications of mass layoffs and closures. Sales of Blackjewel and its related companies’ assets have brought only further turmoil to the mining empire’s eastern division in Appalachia, where ownership disputes have left many properties languishing for months and [in Kentucky have caused environmental damage](#).

For many industry watchers, what makes the Blackjewel case one for the history books is the company’s inability to find a buyer for dozens of its permits, an outcome that may become more and more common as coal increasingly becomes unprofitable.

“To my knowledge, this is the first bankruptcy we’ve seen in Virginia where we’ve had a lot of permits that weren’t immediately transferred to other companies,” said Erin Savage of Appalachian Voices, an environmental and consumer protection nonprofit that tracks mining operations throughout the region. “There’s a number of permits that may not have buyers.”

That could have financial implications for the state. While all of Virginia’s unresolved permits are backed by surety bonds intended to cover the costs of cleanup, the state could be on the hook for any additional funds if the bonds fail to cover necessary expenses.

The surety companies themselves have indicated that situation isn’t a hypothetical, although concerns have largely focused on Kentucky. In August 2019, one of Blackjewel’s major surety

issuers, Indemnity National Insurance Company, argued that while most coal companies undergoing bankruptcy have only “a handful” of permits in which cleanup costs exceed the amount of the bonds, Blackjewel had “a substantial number,” particularly in Kentucky.

“Throughout the sale process, (Blackjewel has) utilized the bond amount on a particular permit as a ‘shorthand’ for the amount of reclamation liability associated with that permit,” Indemnity’s attorneys wrote. “In some cases, that is accurate; in others, the actual liability is millions of dollars in excess of the stated bond amount.”

In the Blackjewel settlement approved by Judge Benjamin Kahn Monday, the company will be allowed to walk away from 33 Kentucky mine permits that have no buyer. In the words of the bankruptcy court, these “residual” permits are being revoked, not abandoned, although Sierra Club attorney Peter Morgan called it “a distinction without a difference.”

“The use of the term ‘revoke’ means that the regulator is enforcing its rights under” the federal Surface Mining Control and Reclamation Act, he said, referring to the landmark 1977 law that created a system of environmental regulations for coal mining and its cleanup. “‘Abandonment’ has a very specific meaning under the bankruptcy code.”

In practice, what that means is that state regulators can begin the process of ordering the bonds posted for each permit to be forfeited. The surety companies will have a choice: take over the reclamation themselves or pay out the value of the bonds to the state.

“The permits will not be abandoned,” the Kentucky Energy and Environment Cabinet said in a statement. The settlement order “preserves the cabinet’s right to seek the costs of reclamation and penalties, which will be heard by the court at a later date. In addition, the order allows time for the purchasers to complete the permit transfers, and reiterates the purchasers’ obligations to reclaim the permits and hopefully put miners back to work.”

In Virginia, regulators have already begun the process of seeking reclamation costs. While the Blackjewel settlement doesn’t order any Virginia permits to be revoked, it leaves more than two dozen unresolved. Three of those permits, with bonds totaling more than \$3.4 million, have no buyers at all. Tarah Kesterson, a spokesperson for the state Department of Mines, Minerals and Energy, said the agency had requested payment of the bonds in June and October, but the surety company, Lexon, “has not sent us the money at this time.”

“In the event that any of these permits are not successfully transferred or reclamation is not properly completed – we will pursue bond forfeiture,” she wrote in an email.

22 permits no one wants

Although 43 of Blackjewel’s Virginia permits have been purchased and transferred to their new owners since the bankruptcy, there’s no resolution for over two dozen more.

Monday’s settlement agreement creates a grace period for more than 170 permits left over from the bankruptcy, granting Blackjewel an additional six to nine months to find a buyer or resolve pending disagreements.

Those disagreements are both extensive and byzantine, involving numerous companies. The trouble was apparent early on: in August 2019, Lexon complained in one court filing that the quick auction after the bankruptcy was declared meant that “the bidders for the eastern assets had virtually no time to conduct due diligence to even know what they were bidding on. Secured lenders and sureties were all left not knowing what exactly was bid on and what the bids left behind.”

Virginia’s share of the so-called “pending and disputed permits” is 26 permits, most of which have been embroiled in a long-running dispute between two coal companies, Rhino Energy and Eagle Specialty Materials, for more than a year over who actually owns them.

But while most legal ownership disputes involve two parties each trying to claim ownership of an asset, the Rhino-Eagle fight is the reverse: both companies are adamant that they do not control the permits – and their associated cleanup obligations.

The argument dates back to a three-day auction of Blackjewel’s assets that took place a month after Hoops declared bankruptcy. During that auction, Rhino – which has since declared bankruptcy itself – purchased 11 Virginia permits. The bill of sale further declared that the “purchased assets also include any real property, improvements, leases, equipment, parts and inventory located within the Virginia Subdivision” of Blackjewel.

Two months later, Eagle Specialty Materials agreed to buy 135 remaining mining permits in Blackjewel’s eastern division along with the valuable Eagle Butte and Belle Ayr mines in Wyoming. Of those, 22 permits were associated with mining operations at the so-called Harold Keene Coal and SunCoke Mining Complexes.

According to Eagle, when it sent workers to take over operations at these complexes, it “became aware that Rhino had already begun operations” at the site. Eagle would subsequently argue that Rhino had in fact already acquired control of those permits in the August auction, months before it made its own purchase.

Rhino, however, has strenuously denied it controls the 22 permits despite letters from the Virginia DMME and Office of the Attorney General maintaining that it does. In numerous filings, the company has declared that it purchased no other permits besides those 11 specifically listed in the August 2019 bill of sale and holds only certain mineral and surface rights related to the two mining complexes.

Complicating matters further is Rhino’s own bankruptcy, which it filed in Ohio last July. In August the company argued that it could not assume liability for Blackjewel’s disputed Virginia permits because of its own “rapidly deteriorating financial condition.” A buyer of Rhino assets, Mountaineer Met, has further become embroiled in the dispute.

Until the case is resolved, the permits remain in limbo.

“It’s our understanding that the leases for the sites went to different companies than the permits,” said Kesterson. “A company needs both to have a successful transfer.”

Both Morgan and Savage said they believed at least some of the permits that the court has given an additional six to nine months to be resolved will likely end up revoked.

“I think it’s very likely that a number of these permits are headed toward bond forfeiture,” said Savage. “Virginia has a system in place to deal with that, but that system may come under a lot of strain in coming years with more bankruptcies.”

Morgan, pointing to the continued decline of coal, urged regulators to begin the bond forfeiture process swiftly.

“If I were a regulator, the way I’d be thinking about this is the coal mining industry is never going to have more resources than it does at this moment,” he said. “And rather than kicking the can down the road as this settlement does, it would be better to face facts and start taking responsibility for all of these sites.”

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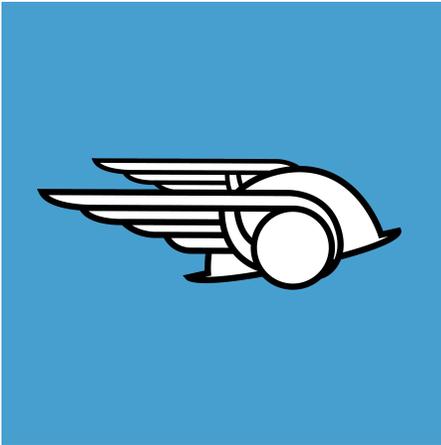
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ENERGY + ENVIRONMENT

Coal fuels less and less Virginia electricity. But when should utilities pull the plug on plants?

‘Throwing good money after bad’

BY: **SARAH VOGELSONG** - JULY 30, 2021 12:02 AM



📷 Dominion Energy's Virginia City Hybrid Energy Center in Wise County, Va., 2019. (Sarah Vogelsong/Virginia Mercury)

When Dominion Energy broke ground in 2008 on the largely coal-fired Virginia City Hybrid Energy Center, then-Lt. Gov. Bill Bolling called it “the largest economic development project in the history of Southwest Virginia.”

Today, the facility, the last coal plant to be built in Virginia, remains a local economic force, tipping more than \$8.9 million in property taxes into Wise County's coffers in 2020. But that investment comes at a price. According to Dominion's own calculations, the continued operation of Virginia City is expected to cost utility ratepayers – none of whom live in Wise County – \$472 million through 2029.

Those numbers have become key touchstones in a struggle over how fast Virginia should wind down its coal fleet, with the utilities pushing to keep their remaining large investments in service through 2040 or 2045 and many environmental and consumer groups arguing that closures should happen far sooner, preferably by the end of the decade.

“From a utility's perspective I think the question to be asked is, ‘Do the benefits of continuing to operate this facility outweigh the costs to the customers?’” said Will Cleveland, an attorney with the Southern Environmental Law Center.

Both sides have emphasized different costs and different benefits. Advocates for faster closure highlight the declining use of coal plants to provide customers with energy, the additional costs ratepayers will have to shoulder to keep them running and the need to stop emitting carbon. Utilities meanwhile point to their power reserve obligations, local economic impacts and the cost of rapidly rolling out renewables to replace shuttered coal generators.

Keeping Virginia City afloat, said Dominion spokesperson Rayhan Daudani, “helps us provide reliable power for our customers and also plays an important role in Southwestern Virginia with hundreds of jobs and significant local revenue while helping clean up millions of tons of [waste coal](#) and thereby improving regional water quality.”

Cleveland, however, described Virginia City as “a power plant in search of a reason to exist.”

“I think you can both close the coal plant and provide the necessary assistance to Wise County all for less money than it now costs Dominion customers to keep the thing open,” he said.

The last coal plants

Once the driving force behind Virginia-produced electricity, coal has over the past decade found itself steadily losing its corner of the market.

Part of the reason is purely economic: The shale revolution ushered in a glut of cheap natural gas that has been able to undercut coal as electric utilities' fuel of choice. Capacity factors – an indicator of how often plants are run, with a factor of 100 percent indicating constant usage at maximum output – show [declining usage of coal plants in favor of natural gas](#). Between 2017 and 2019, Virginia City's capacity factor fell from about 62 percent to 22 percent, while that of the Clover Power Station in Halifax County dropped from about 43 percent to 17 percent.

Clover “used to provide about 25 percent of our power, and last year it was about 5 percent of our power,” said Kirk Johnson, ODEC's senior vice president for member services.

Appalachian Power's use of its Amos and Mountaineer plants, which are located in West Virginia but serve the company's Virginia customers, have also fallen. According to utility data, capacity factors dropped between 2017 and 2020 from an average of 54 percent to 40 percent for Amos and from 62 percent to 46 percent for Mountaineer, with a spike in use at the latter in 2019.

Natural gas isn't the only force exerting pressure on coal, however. Heightened environmental regulation has also played a role. Rules introduced by the U.S. Environmental Protection Agency in 2015 to govern coal ash and coal wastewater disposal are forcing plants to either make costly upgrades or shutter; last Monday, the agency announced [it plans to begin strengthening them further](#). And rising concern about climate change-causing carbon emissions has led a growing number of states to pass laws to phase out fossil fuels. Coal plants, which are generally older and produce more carbon dioxide than their natural gas counterparts, tend to be first on the chopping block.

Virginia is no exception. The 2020 Virginia Clean Economy Act set a 2024 deadline for the closure of most of the state's coal units, although it allowed Virginia City and the Clover Power Station jointly owned by Dominion and Old Dominion Electric Cooperative to stay open until 2045.

"The economics are already showing that it doesn't make any sense" to keep operating most coal plants, said Dori Jaffe, a senior attorney with the Sierra Club who is involved with current litigation before Virginia's State Corporation Commission concerning two coal plants owned by Appalachian Power Company.

Operators have in numerous cases agreed. Dominion has retired or converted 11 coal units in Virginia over the past three years and plans to close its last two coal units at the Chesterfield Power Station in 2023. Appalachian Power closed its last three Virginia coal units in 2015. Non-utility companies shuttered the Spruance coal plant near Richmond this January and announced plans to [convert a King George coal plant to storage and solar](#) in March.

 Coal fired units at Dominion Energy's Chesterfield Power Station would close by 2024 under the Clean Economy Act that passed the General Assembly last year. (Ryan M. Kelly/ For the Virginia Mercury)

Nevertheless, a few large coal plants continue to operate for the foreseeable future. Virginia City is one. Clover may be another. Although Dominion has projected a [2025 retirement date for the plant in long-range planning](#), no firm commitments have been made, and the facility's shared ownership means both Dominion and ODEC must agree to any closure plan.

Appalachian Power's Amos and Mountaineer coal plants present a curious problem due to their West Virginia location. While not subject to Virginia closure deadlines, both facilities face significant pressure from state law requiring utilities to source an increasing amount of their electricity from renewables through 2050.

"The costs incurred to comply with the Virginia Clean Economy Act may be higher because of continued operation of Amos and Mountaineer than it otherwise would be," said Cleveland.

When Appalachian Power intends to shutter those plants remains a question mark. During its 2020 rate review, the utility asked regulators to plan for accelerated retirement dates of 2032 and 2033 for the facilities rather than 2040, although the later date has resurfaced this spring in a fresh round of proceedings over environmental investments.

The utilities acknowledge the declining use of coal plants but say that isn't the whole picture. Serving daily load is just one of their obligations, they point out. Maintaining power reserves sufficient to meet year-round demand spikes is another, one that can't be ignored.

“We are required to have a certain level of capacity – in other words, we must be ready to provide our customers a certain amount of power at any given time,” said Appalachian Power spokesperson Jeri Matheney. Amos and Mountaineer represent nearly two-thirds of the company’s capacity, she said; retiring them early “would expose the company and our customers to an imprudent level of uncertainty and market volatility.”

Johnson, the ODEC executive, also said that even though Clover is “not much of an energy source” for the cooperative, it is “a valuable capacity resource so we can meet our capacity obligations” within the regional electricity market.

“We spend a lot of time talking about the future of Clover and what is in the best interest of our members,” he said.

To invest or not invest

Dominion and ODEC remain in the driver’s seat when it comes to decision-making about Virginia City and Clover. But Appalachian Power’s hand is being forced this spring as it seeks state approval for several large investments to comply with tighter federal coal ash and coal wastewater disposal regulations at Amos and Mountaineer.

The choices are stark. If Appalachian doesn’t comply with the coal ash rule, it will have to close both facilities by 2023 at the latest; not complying with the wastewater rule would trigger a closure date of 2028.

The utility has asked regulators for permission to do both, allowing the plants to operate through 2040. The price tag for Virginia and West Virginia customers would be \$250 million, split evenly between the two projects. As a result the average Virginia customer would see a monthly bill increase of \$2.50.

Appalachian has said continuing to operate the plants through 2040 is “the most economical solution for customers,” and that if it was forced to retire one or both by 2028, it would have to spend billions of dollars on replacements “much earlier than necessary.”

“Virginia customers would bear the costs of this unprecedented capacity overhaul,” said Matheney.

But while the company has faced no opposition to its coal ash investments, which are widely viewed as cleanup costs, both the Sierra Club and the Virginia Office of the Attorney General have disputed the wisdom of the wastewater investments that aim to prolong Amos and Mountaineer’s lives through 2040.

“This is a moment when neither market nor regulatory trends favor coal generation. And yet the company is requesting recovery from ratepayers of additional capital that it wants to invest into West Virginia coal plants in the apparent hope that the plants will weather the economic and regulatory headwinds that are faced by other coal plants all over world,” said Sierra Club attorney Evan Johns during proceedings before the State Corporation Commission this June.

SCC staff too expressed hesitancy about the prospect of racking up further costs.

“It would appear to be inconsistent with market and industry trends to assume that the Amos and Mountaineer plants will be able to operate economically in the market through 2040,” said utilities policy specialist Earnest White in May testimony on the proposal.

A [hearing examiner sided with the skeptics](#) earlier this month, saying she was “concerned about the validity of APCo’s conclusion that the [wastewater] investments will ultimately be beneficial to ratepayers” and recommending that the commission withhold approval of them until the utility could provide more detailed analysis.

Kentucky regulators on July 15 took a similar stance, [denying Appalachian’s proposal to make the same upgrades](#) at its Mitchell plant on the grounds that it hadn’t proved the projects were “a reasonable, cost-effective alternative.” West Virginia regulators are still mulling the same proposal before the Virginia commission.

A replacement for coal

No accounting of coal’s costs can be complete, say both the utilities and advocates of early closure, without an accounting of what it will cost to replace it.

“No party disputes that the company will have to acquire replacement capacity for the plants at some point in the future,” Appalachian Power wrote in a filing with the State Corporation Commission last week.

When that point in the future should be is hotly disputed.

Early closure advocates say that phasing out the plants sooner would be better not only for curbing air pollution but in some cases on economic grounds.

Continuing to operate coal plants would be a matter of “throwing good money after bad,” said Cleveland of the Southern Environmental Law Center, pointing in particular to Virginia City’s projected 10-year losses of \$472 million. (Appalachian Power doesn’t make similar valuations of its facilities publicly available.) The plants have been built, so “customers are on the hook for that regardless of whether it retires now or in 30 years.”

But, he asked, “Is it beneficial to the customer to ask them to incur yet more cost to keep operating?”

Appalachian Power has argued that pushing off replacement costs to the future while the coal plants finish out their lives would be better for customers. One Sierra Club proposal to procure 6.3 gigawatts of solar and storage as a replacement by 2028 at an estimated cost of \$5 to \$7 billion was described as “simply too much, too fast to be feasible” by James Martin, the director of resource planning strategy for Appalachian Power parent company AEP.

“The only practical solution, and the most economic solution, is to preserve the dependable capacity that these units provide for our customers,” he testified to Virginia regulators.

📷 The State Corporation Commission regulates Virginia electric utilities. (Ned Oliver/ Virginia Mercury)

Much of the decision-making regulators will face in the Appalachian case, as well as any future case involving coal plant investments, comes down to whose accounting they accept. In the present proceedings, Appalachian contends early retirement of both plants would cost customers \$1.5 billion by 2039, while the Sierra Club argues such a step would save ratepayers \$670 million.

Electric cooperatives like Old Dominion also face a separate set of challenges because of their non-profit structure, which gives them less flexibility in deciding how to handle early retirement costs.

“We don’t have some tools like securitization that are available to investor-owned utilities,” said Johnson. “We can’t shove any of these costs or this depreciation on shareholders. It all has to come from those 1.5 million people that we serve at the end of the line.”

Less abstract are the impacts the inevitable closures will have on plant employees. Appalachian spokesperson Matheney described the company’s facilities as “the primary employers and tax paying entities in many communities.”

“Our intent is to provide as much notice as is feasible, often as long as five years, to prepare for a closure,” she said.

Other coal plants serve a similar function.

“Our county has become very dependent upon the revenue from” Virginia City, Wise County resident David Rouse told a Senate subcommittee this winter. “It now provides about 20 percent of the county’s budget in terms of taxation. Not only would we suffer from the loss of employment but our schools would suffer significantly from the loss of revenue as would other county services.”

Dominion has emphasized this financial contribution in regulatory testimony. Virginia City, it said during litigation over its 2020 long-range plan, “is expected to remain in the company’s fleet for reasons beyond the results of the economic analysis.”

“In addition to serving customers’ energy and capacity needs, [Virginia City] support jobs, economic development and water quality improvements in the coalfield regions of the commonwealth, and reduces reliance on imported power,” the company wrote.

Cleveland, who has consistently argued against the reasonableness of continuing to operate the plant, said that any early closure would need to be accompanied by “a very thoughtful companion effort to make sure that Wise County and its residents are not left out in the cold.” But, he added, “I think there are lots of ways to solve that problem.”



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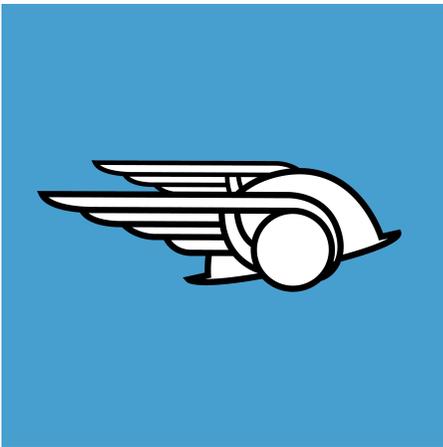
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