

# Up by Their Bootstraps: The Fight for a Better Future in Appalachia

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by

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Appalachia contains 420 counties spanning the Appalachian mountains from New York to Georgia (Paskett et al., 2011). Described as “waiting in line for the American dream,” Appalachians face hardships at higher frequencies than other Americans (Clark, 2024). Compared to the national average, Appalachians experience higher rates of unemployment and poverty (Paskett et al., 2011), and higher lung cancer mortality, tobacco use, and opioid addiction rates (DeBolt et al., 2021).

Appalachians’ disadvantages can be attributed to a lack of physical infrastructure, geographic isolation, and educational disparities (Paskett et al., 2011; Wies et al., 2020). The above represent a pressing problem for a variety of public health, environmental, and business groups seeking prosperity in the region. These groups include coalitions of locals, government agencies dedicated specifically to the advancement of the Appalachian region, healthcare corporations and providers, representatives from various industries within the energy sector, and trade organizations.

Interactions between participant groups are complicated by a history of conflicting interests about the land and the people on it. Much of Appalachia is considered “coal country,” an area rich in coal, iron, copper, and mineral deposits (Mastran et al., 1983). In 1998, the United States produced 24.05 quads of energy from coal, accounting for more than one third of total energy production in the country (US EIA, 2024). By contrast, coal was the source of only 11.81 quads of energy in 2023, accounting for roughly 11% of the energy produced (US EIA, 2024). This decrease occurred due to growing environmental awareness and increased uptake of coal alternatives (US EIA, 2024).

Not all of American coal comes from Appalachia, but the region relies heavily on coal as its economic capital and has little else to replace it (US DOE, 2020). The relationship between

Appalachia and the coal mining industry has always been difficult, with prosperity coming at the expense of health, watershed stability, socioeconomic opportunity, and more (Zipper et al., 2021). With coal demand declining, Appalachians will face the consequences of coal mining long after they stop profiting from it.

As participant groups race to fill the void left by coal, it is unclear whether their efforts will result in an Appalachian renaissance or a repetition of the past, wherein the region's value was defined by the benefits it could provide others. At the heart of this struggle, groups interested in securing a successful future for Appalachians are in direct conflict with opportunists related to the coal industry looking to profit from what is left of Appalachia's natural resources. While other opportunists, including opioid prescribers, the tobacco industry, creators of food deserts, and greenwashers certainly exist, they are not within the scope of this investigation. There is also much to be said about Appalachia's vibrant culture, something which is not addressed in this investigation for reasons of brevity.

## **Review of Research**

Much of the existing research on hardship in Appalachia stems from President Lyndon B. Johnson's 1964 declaration of an "unconditional war on poverty" (Moore, 2014). This declaration only encompassed monetary poverty in its original context, but it is entwined with the other forms of hardship faced by Appalachian communities: lack of access to healthcare, education, clean drinking water, and more (DeBolt et al., 2021; Zipper et al., 2021).

Johnson's War on Poverty set the precedent that the government was responsible for aiding regions like Appalachia, resulting in the creation of the Appalachian Regional Development Act (ARDA) and Appalachian Regional Commission (ARC) in 1965 (Moore,

2014). The ARC has since injected capital into the region, funding various infrastructure, public health, and education initiatives (Moore, 2014). Some participants follow this precedent, seeking funding to directly develop more of Appalachia. Mayor Anne Cavalier, a small-town West Virginia mayor, secured federal funding for a variety of infrastructure projects in her community including childcare and solar initiatives (Kidd, 2022; Whittington et al., 2024). Other future-forward members of state legislatures have worked to fund renewable energy projects in Appalachia, replacing the void of one declining energy industry with the promise of another (Whittington et al., 2024). Most of these initiatives are focused on establishing economic prosperity, with the idea that other benefits will follow.

Other researchers are focused on the health of Appalachians, specifically their increased likelihoods of cancer, opiate and tobacco addiction, and obesity (DeBolt et al., 2021). Significant attention is also paid to the complications of providing reliable healthcare in rural areas, and how poorer regions struggle to support robust health systems (Antrim, 2022).

Furthermore, many researchers acknowledge the unique identity of Appalachians. Appalachians are a proud and hopeful people, finding strength in their community (Fessler, 2014). While not a monolith, Appalachian culture is still a significant consideration in the debate of how to best help the region's residents. Pride is a crucial component. Arlie Russell Hochschild remarks in *Stolen Pride* that some Appalachians' pride quickly turned sour as they watched their land and livelihoods slip away (Clark, 2024).

Pride and shame play a powerful role in the story of Appalachia, perhaps best explained by the phenomenon of the "deserving" and "undeserving" poor (Lowrey, 2017). The concept originated in Tudor England, wherein the undeserving poor were people that inflicted poverty upon themselves by being "idle" and thus did not deserve help (Lowrey, 2017). With time, the

inverse also became ingrained in the public psyche: that help is only deserved if one works hard enough. Hence, to warrant being helped, one had to be a member of the “deserving” poor.

In *Hillbilly Elegy*, Vice President JD Vance paints a picture of the undeserving poor in Appalachia. He argues that Appalachians’, including his own family members’, engagement with “hillbilly” culture “encourages social decay” (Senior, 2016). Vance believes that learned helplessness and despair are what cause the cycle of poverty, and that a change in mindset could save Appalachians. In the minds of those that believe in a deserving poor, it is up to Appalachians to pull themselves up by their bootstraps, as the saying goes. This memoir is not research, but its publication triggered research in response to it. For example, the West Virginia University Press published *Appalachian Reckoning: A Region Responds to Hillbilly Elegy* three years later. Editors Harkins and McCarroll collected a series of essays and perspectives from Appalachians, seeking not to “demonize” J.D. Vance, but to “push back and complicate” the understanding of Appalachia that readers might have taken from *Hillbilly Elegy* (Harkins et al., 2019). From their introduction, the message is clear: things are not as simple as *Hillbilly Elegy* suggests.

## **Collapse of Coal**

The American coal companies that declared bankruptcy in the mid 2010s are directly responsible for destabilizing Appalachia. Despite U.S. production and demand of coal energy steadily declining since 1998, China’s rapid industrial growth in the early 2000s led to a predicted rise in demand for American coal through the 2010s (Osnos et al., 2021). American coal mining operations expanded in anticipation (Arch Coal, Inc., 2011; Arch Coal, Inc., 2013), particularly in the form of mountaintop removal (Osnos et al., 2021; Saadoun, 2018). This form

of surface mining involves the complete removal of the earth above a coal seam, resulting in high coal recovery at the cost of high environmental impact (US EPA, 2024). However, demand did not meet expectations, and American coal was out-competed (Osnos et al., 2021). On January 11, 2016, Arch Coal filed for Chapter 11 Bankruptcy. The company's chairman and CEO John W. Eaves cited the move as a "significant step in [their] ongoing efforts to position the company for long-term success" (Arch Coal, Inc., 2016). In the same press release, the CEO reiterated that his goal was "maintaining and further reinforcing our position as an industry leader in safety, environmental stewardship and productivity" (Arch Coal, Inc., 2016). Months later, Peabody Energy also filed for Chapter 11 Bankruptcy, but stated that bankruptcy did "not change Peabody's approach toward best practices in mining and its focus on sustainability" (Peabody Energy, 2016). By the end of 2016, companies accounting for more than 25% of America's coal production combined had declared bankruptcy (Miller et al., 2016).

Bankrupt American coal corporations misrepresented their interests, harming the workers they claimed to be protecting. Despite Arch Coal and Peabody Energy promising their dedication to sustainability, both are longstanding members of the National Mining Association (NMA) (NMA, 2025). In late 2015 the NMA opposed the Stream Protection Rule, legislation protecting the environment from surface mining, using a report from consulting firm Ramboll Environ. The report claimed that the Stream Protection Rule could eliminate the jobs of up to 52,566 out of 64,215 Appalachians directly employed by the coal industry (Ramboll Environ, 2015). The day after Arch Coal announced they were filing for bankruptcy, West Virginia's 2nd Congressional District Representative Alex Mooney's "Supporting Transparent Regulatory and Environmental Actions in Mining Act (STREAM Act)" was passed in Congress, "blocking" the Stream Protection Rule (HNRC, 2016). Afterwards, the NMA published a press release "applauding"

Mooney for “protect[ing] coal miners,” and preventing job loss in the face of the Obama administration's “regulatory abuse” (NMA, 2016). However, surface mining itself was the real threat to coal jobs, as surface mining requires fewer personnel than other coal extraction techniques and has thus cost American coal miners tens of thousands of jobs (US EPA, 2024; Saadoun, 2018). Coal proponents’ dedication to protect coal mining jobs and champion sustainability whilst promoting the deregulation of surface mining presents a fundamental contradiction. Their monetary interests in profiting from Appalachian coal despite plummeting demand are only thinly veiled behind promises to protect the working man and the environment. In the end, the collapse of Arch, Peabody, Patriot Coal, Alpha Natural Resources, and others cost 33,500 Appalachians their jobs (Osnos et al., 2021).

### **Economic Revival**

Coal corporations’ withdrawal from Appalachia following their bankruptcies caused economic devastation for the region. Tens of thousands of jobs disappeared overnight, and so did all of the tax revenue once collected from coal companies (Osnos et al., 2021). Funds for schools, healthcare systems, public services, roads, and more now need another source.

Proponents of renewable energy are bringing the wind and solar industries to Appalachia as an alternate source of economic prosperity. Instead of mining coal, some communities have turned to “mining the sun” (Whittington et al., 2024). Mayor Anne Cavalier of Smithers, West Virginia, believes that Smithers has “no place to go but up” after the departure of the coal industry left the town at a standstill (Kidd, 2022). Cavalier is working to revive her town by tearing down reminders of the bygone coal industry and investing in new solar projects and establishing new community welfare programs (Kidd, 2022; Whittington et al., 2024). For

example, she led efforts to tear down abandoned mine buildings, install solar-powered street lights, and apply for a grant from the federal Abandoned Mine Lands Reclamation Program to equip the city building with solar panels (Whittington et al., 2024). Similarly, proponents of wind energy argue they have potential to revive the region. As a result of the 2022 Inflation Reduction Act, \$4 billion was allocated to the development of renewable energy projects in the United States, including to wind power projects in West Virginia (Levitt et al., 2024). Over the lifetime of these solar and wind projects, Appalachians stand to make up to “\$65 billion in direct economic benefits,” including the tax revenue that the region so desperately needs (Yale Climate Connections, 2022). These projects also provide locals with new opportunities for employment. Executive director Callie Taylor Dayton of the Grant County Development Authority encourages young West Virginians to pursue careers in wind energy, saying that they “can stay here! There’s other job opportunities, more in the wind and energy development area” (Oprea, 2024).

While the wind and solar energy industries may bring valuable tax revenue to Appalachia, they do not supply enough jobs to re-employ all the workers affected by coal’s collapse. By virtue of their passive energy collection methods, solar and wind farms do not require large workforces. Site manager Doug Vance, of Pinnacle Wind Farm in Keyser, West Virginia, left a family history of coal mining behind to work in renewable energy (Levitt et al., 2024). However, his wind farm only employs “six full time employees” (Levitt et al., 2024). Similarly Mark Curtis, an economist from Wake Forest University, reports that “of workers that were leaving fossil fuel jobs, less than 2% ended up in a renewable energy job” (Levitt et al., 2024).

The Appalachian Regional Committee, Biden-Harris Administration, and CEO Todd Cope of CentralApp are working to promote the tech industry in Appalachia as a new source of



jobs for displaced skilled workers. Consulting firm ADL Ventures contends that the arrival of the tech industry would allow former miners to apply their competencies in “pipefitting, welding, computerized equipment operation, industrial maintenance, communications and electronics” for a new cause (Weissman, 2024). The actions taken by members of the private sector to bring tech to Appalachia are supported by the Appalachian Regional Commission (ARC). In 2024, the ARC allotted more than \$5 million to coal-affected Appalachian communities to develop their advanced manufacturing industries as a part of their Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) Initiative (ARC, 2024). In Pennsylvania, the grant was used by economic development agency Catalyst Connection for the Forging Your Future Project, intended to train Appalachians for jobs in “sectors such as: clean energy, robotics, automation and machine learning, and the national defense supply chain” (ARC 2024). According to the ARC, these initiatives are “bringing hope and opportunity to coal-impacted communities in the region” (2024). Furthermore, the Biden-Harris administration recently designated three new Appalachian “tech hubs” as part of their Tech Hubs program, which is intended to “drive regional innovation and job creation by strengthening a region’s capacity to manufacture, commercialize, and deploy technology that will advance American competitiveness” (ARC, 2023). Lastly, CEO Todd Cope of CentralApp believes remote tech jobs are a “viable option” and that “the Appalachian region is filled with qualified, driven — and underutilized — talent. Let’s connect the dots and put people to work” (CentralApp, 2024). Although there is still work to be done to re-employ Appalachia’s ex-coal miners, these participants are making a concerted effort to provide Appalachians with more sustainable economic opportunities.

## Healthcare

A variety of health conditions experienced disproportionately by Appalachians are a direct result of the coal mining industry. The most apparent example is coal worker's pneumoconiosis (CWP), or black lung disease, suffered by coal miners that were exposed to coal silica dust as a result of operations in low-coal coal veins (DeBolt et al., 2021). Furthermore, a Human Rights Watch report claims that "over a dozen studies published in peer-reviewed journals show significantly higher levels of mortality, cardiovascular disease, birth defects, and cancer in counties with mountaintop removal, compared to those with only underground mining or no mining at all, even when controlling for factors such as poverty and smoking" (Saadoun, 2018). Cancer is particularly prevalent, especially cancers of the cervix, colon, rectum, and lungs (Paskett et al., 2011). Lung cancer is the most alarming, with incidences being more than 25% higher for Appalachian men than other American men and 8% higher for Appalachian women (Paskett et al., 2011). Fatality rates from lung cancer have declined in the United States since the late 1990s, but Appalachian lung cancer mortality rates continue to rise (Paskett et al., 2011). The disproportionately high incidences of these health conditions paired with their high regional specificity is a clear sign that Appalachians are paying for coal profits with their health.

In addition to high incidences of health conditions such as cancer, birth defects, and lung disease, Appalachians are prone to more suffering as a result of their health conditions due to weak medical infrastructure and poor healthcare accessibility. Appalachian physician Dr. Richard Ingram acknowledges that it is "tough to replicate a multidisciplinary clinic" that can best treat Appalachian cancer patients while simultaneously accounting for "distance and transportation barriers" (Antrim, 2022). He believes that individual pharmacists are "an untapped resource" and could be essential in closing the gap between patients and healthcare providers in rural

Appalachia. Physicians like Ingram are opposed by more centralized healthcare providers, namely Ballad Health. Ballad Health, a hospital network with a monopoly over much of rural Tennessee and Virginia, claims centralization is the best route to accessible healthcare (Kelman et al., 2024). The CEO of Ballad Health, Alan Levine, argues that healthcare might not even exist in Appalachia without Ballad's intervention, as "the hospitals were on their way to being closed" (Kelman et al., 2024). However, long travel times and extraordinary wait times at Ballad Health hospitals call the viability of this solution into question (Kelman et al., 2024). City Council Member Neal Osbourne of Bristol, Virginia, stated that he would rather "go to Knoxville or... Roanoke, because I do not want to further risk my life and die at a Ballad hospital" after a 30 hour emergency room stay at a Ballad hospital, 12 of which were spent vomiting blood in the waiting room (Kelman et al., 2024). Osbourne's experience shows that corporate consolidation of medical centers has not improved patient care, only concentrated patients in dangerously inefficient facilities.

Actions taken by failing coal corporations in the mid 2010s have made healthcare financially inaccessible for some Appalachians, adding to the medical strife of the region. In 1946, the President of United Mine Workers of America (UMWA) John L. Lewis, President Harry S. Truman, and Secretary of the Interior Julius Krug signed the Krug-Lewis Agreement, also known as "The Promise of 1946" following strikes from union coal miners (UMWA, 2025). It established the UMWA Health and Retirement Funds, cementing that mine workers should be provided with healthcare in retirement by their last employers (UMWA, 2025). Following this agreement, labor unions assumed primary responsibility for protecting these benefits in their contracts, with union miners "willing to take less in wage increases to maintain [retirement healthcare]" (UMWA, 2025). The Department of Labor entered as a direct participant in miners'

healthcare in 1969 with the Federal Black Lung Program, designated to “provide compensation to coal miners who are totally disabled by pneumoconiosis arising out of coal mine employment”, “to survivors of coal miners whose deaths are attributable to the disease,” and to “eligible miners with medical coverage for the treatment of lung diseases related to pneumoconiosis” (OWCP, 2025). While legislative recognition of coal miners’ rights to compensation for black lung was important, it also set the precedent that coal mining corporations were not solely responsible for the repercussions of their occupational hazards. The coal mining industry used that to their advantage.

In the 2010s collapse of the Appalachian coal industry, coal executives strategically shirked responsibility for the coal miners risking their lives to support their businesses. In 2007 Peabody Energy created Patriot Coal as a spin-off from the main company, stating that the move would provide “growth opportunities to build shareholder value” (Peabody Energy, 2007). Patriot Coal inherited only 13% of Peabody Coal reserves, but an astounding 40% of Peabody’s healthcare liabilities, amounting to \$557 million in healthcare benefits belonging in part to unioned miners in West Virginia and Kentucky (Osnos et al., 2021). Patriot also acquired mines from Arch Coal (Elk, 2013). Lawyer Kevin Barrett, who represented the West Virginia Department of Environmental Protection in a variety of coal bankruptcy cases, stated that “the legend in the coal fields is that Patriot was set up as a liability dump...It was destined to fail” (Corkery et al., 2016).

Patriot Coal declared bankruptcy in 2012. A year later, Patriot petitioned the bankruptcy court to “abandon a union contract that provided health insurance for 23,000 retired miners and dependents, which could save the company at least \$1.3bn,” and the court agreed (Osnos et al., 2021). This action was a fundamental betrayal of both the Promise of 1946 and the individual

coal miners risking their lives and sacrificing their pay in exchange for health insurance. The UMWA sued Patriot and settled on a deal that was “favorable” towards mine workers (Elk, 2013), but in 2015 Patriot Coal declared bankruptcy again. A year later, 12,500 retired union workers were informed that due to a “critical financial shortfall,” they would only be provided with 90 more days of health insurance (Osnos et al., 2021). The betrayal was long lasting. Union spokesperson Phil Smith remarked that Patriot’s bankruptcy was exemplary in the worst way: it had “created a roadmap” to continue benefiting from Appalachians— even during bankruptcy (Osnos et al., 2021). Despite the name, nothing about Patriot’s decline was patriotic. The coal industry took everything from Appalachians: jobs, tax revenue, health, and finally healthcare to alleviate the pain of living on land poisoned by coal.

## **Conclusion**

To pull oneself up by one's bootstraps is impossible. To claim that Appalachians are members of the undeserving poor— that they must pull themselves from their own troubles— condemns them to lifelong hardship and suffering. That is wrong.

The hardships facing Appalachians today are a tangible example of the question: what do we owe to one another? The whole of the United States benefited from Appalachian coal; is it fair to leave Appalachians alone with the consequences? Americans cannot lay claim to a just energy transition by leaving coal country and the people within it to decay.

Appalachians are where they are now due to decades of struggle between a variety of participant groups. Some dealt more harm than others. However, as participants race to fill the vacuum left by coal, it is the responsibility of Appalachians, the renewable and tech industries, healthcare providers, politicians, and the consumers to ensure that a predatory industry such as

coal can never take control of Appalachia again. The federal government has a unique responsibility to protect Appalachians. This was undertaken in President Johnson's original War on Poverty, and extends to this day. It is not new for the government to provide oversight and assistance to regions of the United States where citizens are facing disasters and abuses to their well being. The Federal Emergency Management Agency (FEMA) is founded on that very concept. The fallout of the coal industry in Appalachia is indeed a disaster. In the face of compassion fatigue and deep ideological divides, the way forward is to extend aid to Appalachians in the name of a freer, more just nation ruled indeed by "we the people" and not corporations cloaking their intentions behind the guise of patriotism.

*"Please, please do not let another large company turn our history back in time. Our great country cannot continue to allow the corporate world to see only the money. We are here; we are people who have built this country on our broken backs and deaths. We only ask for what we have always worked for and were legally given."*

Dona J. Becchelli, wife of a retired Patriot miner (Osnos et al., 2021)

## References

- Antrim, A. (2022, July 19). Patients in Appalachia Face Unique Disparities, Obstacles to Care. *Pharmacy Times*.  
<https://www.pharmacytimes.com/view/patients-in-appalachia-face-unique-disparities-obstacles-to-care>
- Appalachian Regional Commission. (2023, October 24). *Biden-Harris Administration Designates Nine Tech Hubs and Grant Recipients in Appalachian Region*. arc.gov.  
<https://www.arc.gov/news/biden-harris-administration-designates-nine-tech-hubs-and-grant-recipients-in-appalachian-region/>
- Appalachian Regional Commission. (2024, October 16). *Building the Advanced Manufacturing Industry in Appalachia*. arc.gov.  
<https://www.arc.gov/investment/building-the-advanced-manufacturing-industry-in-appalachia/>
- Arch Coal, Inc. (2011, June 15). *Arch Coal Completes Acquisition of International Coal Group [Press Release]*. investor.archrsc.com.  
<https://investor.archrsc.com/2011-06-15-Arch-Coal-Completes-Acquisition-of-International-Coal-Group>
- Arch Coal, Inc. (2013, June 3). *Arch Coal Increases Profile in Asia; Hires Zhang Shijie to Lead Chinese Marketing Efforts [Press Release]*. archcoal.com.  
<https://web.archive.org/web/20211206091918/https://news.archcoal.com/news-releases/news-release-details/arch-coal-increases-profile-asia-hires-zhang-shijie-lead-chinese>
- Arch Coal, Inc. (2016, January 11). *Arch Coal Reaches Agreement with Senior Lenders to Restructure Balance Sheet and Reduce Debt [Press Release]*. Arch Resources.  
<https://investor.archrsc.com/News-Releases>
- CentralApp. (2024). *CentralApp CEO Embarks on Mission to Bring Remote Tech Jobs to Appalachia*. centralapp.us.  
<https://blog.centralapp.us/centralapp-ceo-embarks-on-mission-to-bring-remote-tech-jobs-to-appalachia>
- Clark, D. B. (2024, September 10). Book Review: ‘Stolen Pride,’ by Arlie Russell Hochschild. *The New York Times*.  
<https://www.nytimes.com/2024/09/10/books/review/stolen-pride-arlie-russell-hochschild.html>
- Corkery, M., & Wines, M. (2016, October 16). A Curious Plan to Fight Climate Change: Buy Mines, Sell Coal. *The New York Times*.  
<https://www.nytimes.com/2016/10/02/business/energy-environment/a-curious-plan-to-fight-climate-change-buy-mines-sell-coal.html>

- DeBolt, C. L., Brizendine, C., Tomann, M. M., & Harris, D. A. (2021, Sep.). Lung Disease in Central Appalachia: It's More than Coal Dust that Drives Disparities. *Yale Journal of Biology and Medicine*, 94(3), 477-486.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8461577/>
- Elk, M. (2013, August 19). *Patriot Coal Deal Reached, But Fight Still on Against Peabody Energy*. In These Times.  
<https://inthesetimes.com/article/patriot-coal-deal-reached-but-fight-still-on-against-peabody-energy>
- Fessler, P. (2014, January 18). *In Appalachia, Poverty Is In The Eye Of The Beholder*. NPR.  
<https://www.npr.org/2014/01/18/263629452/in-appalachia-poverty-is-in-the-eye-of-the-beholder>
- Harkins, A., & McCarroll, M. (Eds.). (2019). *Appalachian Reckoning: A Region Responds to Hillbilly Elegy*. West Virginia University Press.  
<https://ebookcentral-proquest-com.proxy1.library.virginia.edu/lib/uva/reader.action?docID=5667501&ppg=14>
- HNRC. (2016). House Committee on Natural Resources. (2016, November 17). *Stream Protection EIS Is the Final Volley in the Administration's War on Coal [Press Release]*. naturalresources.house.gov.  
<https://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=401369>
- Kelman, B., & Liss, S. (2024, March 25). After Appalachian hospitals merged into a monopoly, their ERs slowed to a crawl. *Fierce Healthcare*.  
<https://www.fiercehealthcare.com/providers/after-appalachian-hospitals-merged-monopoly-their-ers-slowed-crawl>
- Kidd, D. (2022, June 1). Possibilitarian Anne Cavalier is firing up Smithers. *WV Living Magazine*.  
<https://wvliving.com/possibilitarian-anne-cavalier/>
- Levitt, M., Ermyas, T., Shapiro, A., & Lonsdorf, K. (2024, February 26). *This is what happens when a wind farm comes to a coal town*. npr.org.  
<https://www.npr.org/2024/02/26/1233128242/coal-renewable-energy-west-virginia-inflation-reduction-act-climate>
- Lowrey, A. (2017, May 25). The People Left Behind When Only the 'Deserving' Poor Get Help. *The Atlantic Online*.  
<https://advance.lexis.com/document/?pdmfid=1519360&crid=a1cf5fb7-f740-45ef-8954-785513f0e6fe&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A5NMP-PW21-JCG7-V46R-00000-00&pdcontentcomponentid=414070&pdteaserkey=sr3&pditab=allpods&ecomp=hc-yk>
- Mastran, S. S., & Lowerre, N. (1983). *Mountaineers and Rangers A History of Federal Forest Management in the Southern Appalachians, 1900-81*. United State Department of Agriculture Forest Service Washington, D.C.  
<https://npshistory.com/publications/usfs/region/8/history/index.htm>



- Miller, J. W., & Brickley, P. (2016, January 11). Arch Coal Files for Bankruptcy. *The Wall Street Journal*. <https://www.wsj.com/articles/arch-coal-files-for-bankruptcy-1452500976>
- Moore, M. (2014, April 9). *Appalachia's Place in the War on Poverty*. The Appalachian Voice. <https://appvoices.org/2014/04/09/appalachias-place-in-the-war-on-poverty/>
- NMA. (2016). National Mining Association. (2016, January 12). *NMA Applauds House Action to Save Coal Jobs, Reign in Regulatory Abuse [Press Release]*. National Mining Association. <https://nma.org/2016/01/12/nma-applauds-house-action-to-save-coal-jobs-reign-in-regulatory-abuse/>
- NMA. (2025). National Mining Association. (2025). *Member List*. National Mining Association. <https://nma.org/about-nma-2/member-list/>
- Oprea, M. (2024, October 24). *The Greening of Coal Country*. Reasons to be Cheerful. <https://reasonstobecheerful.world/coal-country-wind-power-west-virginia/>
- Osnos, E., & Hendryx, M. (2021, September 14). When Wall Street Came to Coal Country: how a big-money gamble scarred Appalachia. *The Guardian*. <https://www.theguardian.com/environment/2021/sep/14/wall-street-coal-country-hedge-funds-coal-mining-appalachia-west-virginia>
- OWCP. (2025). Office of Workers' Compensation Programs. (2025). *Black Lung Program*. dol.org. <https://www.dol.gov/agencies/owcp/dcmwc>
- Paskett, E. D., Fisher, J. L., Lengerich, E. J., Schoenberg, N. E., Kennedy, S. K., Conn, M. E., Roberto, K. A., Dwyer, S. K., Fickle, D., & Dignan, M. (2011, July 12). Disparities in Underserved White Populations: The Case of Cancer-Related Disparities in Appalachia. *The Oncologist*, 16(8), 1072–1081. Web of Science. <https://doi.org/10.1634/theoncologist.2011-0145>
- Peabody Energy. (2007, October 31). *Peabody Energy Completes Spin-Off of Patriot Coal Corporation [Press Release]*. peabodyenergy.com. <https://www.peabodyenergy.com/Media-Center/Newsroom>
- Peabody Energy. (2016, April 13). *Amid Prolonged Industry Downturn, Peabody Energy Takes Major Step To Strengthen Liquidity And Reduce Debt Through Chapter 11 Protection [Press Release]*. Peabody Energy. <https://www.peabodyenergy.com/Media-Center/Newsroom>
- Ramboll Environ. (2015, October 23). *Economic Analysis of Proposed Stream Protection Rule*. NMA.org. <https://www.nma.org/pdf/Final-SPR-Economic-Impact-Report-NMA.pdf>
- Saadoun, S. (2018). *The Coal Mine Next Door: How the US Government's Deregulation of Mountaintop Removal Threatens Public Health*. Human Rights Watch. <https://www.hrw.org/report/2018/12/10/coal-mine-next-door/how-us-governments-deregulation-mountaintop-removal-threatens>

- Senior, J. (2016, August 10). Book Review: ‘Hillbilly Elegy,’ by J.D. Vance. *The New York Times*.  
<https://www.nytimes.com/2016/08/11/books/review-in-hillbilly-elegy-a-compassionate-analysis-of-the-poor-who-love-trump.html>
- UMWA. (2025). United Mine Workers of America. (2025). *Coal Act*. umwa.org.  
<https://umwa.org/for-members/pensions-retiree-info/coal-act/>
- UMWA. (2025). United Mine Workers of America. (2025). *The Promise of 1946*. umwa.org.  
<https://umwa.org/news-media/journal/the-promise-of-1946/>
- US DOE. (2020). United States Department of Energy. (2020, June). Appalachian Energy and Petrochemical Renaissance: Key Takeaways. energy.gov.  
<https://www.energy.gov/sites/prod/files/2020/06/f76/Appalachian%20Factsheet.pdf>
- US EIA. (2024). United States Energy Information Administration. (2024, April 17). *Coal Explained*. EIA.gov.  
<https://www.eia.gov/energyexplained/coal/coal-and-the-environment.php#:~:text=Coal%20is%20an%20abundant%20fuel,using%20coal%20affects%20the%20environment.>
- US EIA. (2024). United States Energy Information Administration. (2024, July 15). U.S. energy facts explained - consumption and production - U.S. Energy Information Administration. EIA. <https://www.eia.gov/energyexplained/us-energy-facts/>
- US EPA. (2024), United States Environmental Protection Agency. (2024, September 24). *Basic Information about Surface Coal Mining in Appalachia*. EPA.gov.  
<https://www.epa.gov/sc-mining/basic-information-about-surface-coal-mining-appalachia>
- Weissman, J. (2024). *Why Appalachia Could Become the Silicon Valley of Industrialized Construction*. ADL Ventures.  
<https://www.adlventures.com/blogs/why-appalachia-could-become-the-silicon-valley-of-industrialized-construction#:~:text=Moreover%2C%20the%20Appalachian%20Regional%20Committee,Appalachia%20and%20its%20greener%20future.>
- Whittington, J., & Oguz, Z. (2024, Sep.). Mining the Sun: Coal-to-solar transitions and energetic place-making in Appalachia. *Critique of Anthropology*, 44(3), 276-293. Web of Science.  
<https://doi.org/10.1177/0308275X241269614>
- Wies, J. R., Mays, A., Collins, S. M., & Young, S. L. (2020, July 27). “As Long As We Have the Mine, We’ll Have Water”: Exploring Water Insecurity in Appalachia. *Annals of Anthropological Practice*, 44, 65-76. Web of Science. <https://doi.org/10.1111/napa.12134>
- Yale Climate Connections. (2022, October 26). *Economic benefits of wind, solar in rural Appalachia could top \$65 billion*. Yale Climate Connections.  
<https://yaleclimateconnections.org/2022/10/economic-benefits-of-wind-solar-in-rural-appalachia-could-top-65-billion/>

Zipper, C. E., Adams, M. B., & Skousen, J. (2021). The Appalachian Coalfield in Historical Context. In *Appalachia's Coal-Mined Landscapes* (pp. 1–26).  
[https://doi.org/10.1007/978-3-030-57780-3\\_1](https://doi.org/10.1007/978-3-030-57780-3_1)