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AUTHOR
Trish Kahle
Postdoctoral Social Sciences Teaching Fellow, University of Chicago
kahle@uchicago.edu
Twitter: @trishkahle

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Bargaining Electric Power: Miners, Blackouts, and the Politics of Illumination in the United States, 1965-1979

Abstract

This article examines how the perils conjured by blackouts in American cities after 1965 became interpreted as a key point of political and bargaining leverage for the nation's coal miners. The anxieties provoked by these blackouts –sexual deviance, urban unrest, spoiled food, lost productivity, and Cold War incursions– pointed to a broader crisis of American political and social life driven by the massive social changes which had taken place since the end of the Second World War. As the United States entered the 1970s, a long-range energy crisis appeared not only to secure the future of the once-imperiled coal industry in the United States, but also allowed miners to recast their union as a bedrock of national security rather than as one of the main sources of the nation's labor unrest. Evoking the threat of coerced darkness in the modern American home which had been designed for bright illumination, they also pointed to the figurative darkness of the coal mining workscape, described by one miner as "beating the devil at a game of hell": the constant threat of black lung, disablement, and death. A form of collective bargaining leverage thus opened up a broader debate: how, given the deadly work of coal extraction, could energy be produced in a democratic society that guaranteed the right to life, liberty, property, and, increasingly, light? Did "one man" have to "die every day" to keep the nation's lights on? This paper argues that miners used the framework of lights and darknesses to contend that mines must be made safe and energy democratized in order to stabilize the energy regime in crisis. In so doing, they framed a new politics of illumination which allowed them to navigate a new terrain of collective action.

Plan of the article

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INTRODUCTION

1 In the early months of 1966, the coal industry was still reeling from the fallout of a large regional blackout that had "plunged" 30 million people and 80,000 square miles across the Northeast in "darkness and peril." The coalfields had not lost power in the blackout, and fuel shortages had played no role in the event. Still, the editors of the industry journal *Coal* recognized the utilities were coal's largest market, and that the future of the two industries were tightly bound together. They castigated those "who designed, built, operated and observed" the nation's power system and had "failed...to foresee disaster after disaster." The blackout was a "dark disgrace" which they compared directly to the "senseless tragedy of the assassination" of President John F. Kennedy. "Unbelievably," *Coal* observed, the blackouts had resulted from a system operating as intended –"it was a predictable yet unforeseen sequence of events" in a system increasingly organized around large-scale interconnection.[1] Their dismay and anxieties were emblematic of a society that across the early 20th C. had invested heavily in electric power to foster social, economic, and political stability.[2] The absolute necessity of reliable illumination reached from the coalfields to urban police forces that began to develop illumination-based security strategies in response to unrest in many of the nation's cities between 1964 and 1968. It exposed the way illumination bound together an emerging set of rights and obligations imagined to govern electricity production and use. These relationships of illumination gave political meaning and moral inflection to currents of electric power.

2 The majority of this illumination, with some regional variation in hydro-rich, coal-poor areas of the country, was coal-fired (fig. 1). The centrality of the utility market to the coal industry was well understood by coal miners, who imagined the relationships of illumination running along power lines –"coal by wire."[3] These relationships were equally important in supporting

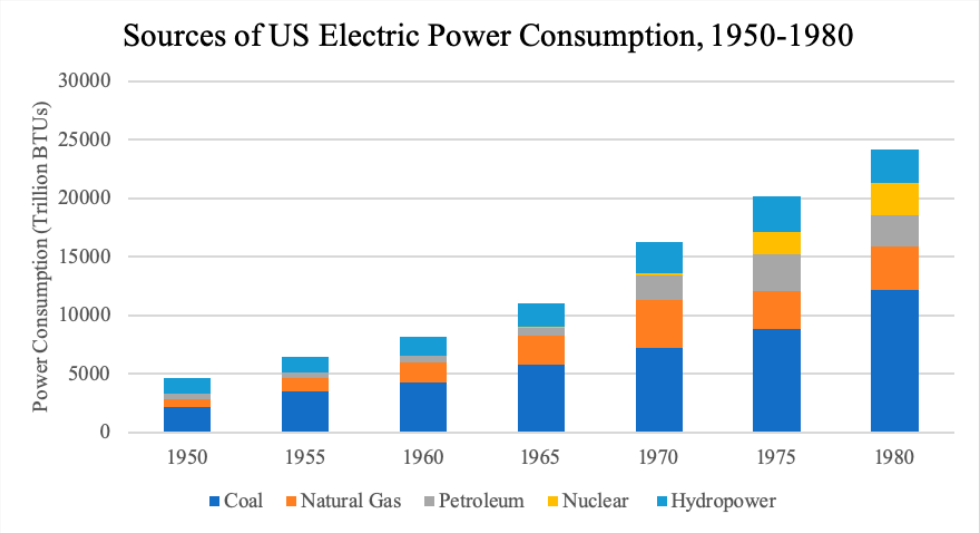

Figure 1: Primary Sources of US Electric Power Consumption, 1950-1980. Adapted from Energy Information Administration, "Electric Power Sector Energy Consumption," Monthly Energy Review, January 2019. Accessed January 29, 2019.

1 "Dark Disgrace!," *Coal*, Jan.-Feb. 1966. United Mine Workers of America Journal Records [UMWJR] 13/6; Charles Perrow, *Normal Accidents: Living with High Risk Technologies* (Princeton, NJ: Princeton University Press, 1999); Richard F. Hirsh, *Technology and Transformation in the American Electric Utility Industry* (New York: Cambridge University Press, 2003); Julie A. Cohn, *The Grid: Biography of an American Technology* (Cambridge, MA: MIT Press, 2017), 121-179.

2 For depictions of the outcome of these investments, see David E. Nye, *When the Lights Went Out: A History of Blackouts in America* (Cambridge, MA: MIT Press, 2010); Hirsh, Technology and Transformation; Cohn, The Grid. See for example, "A Mass Market for Electric Heat," *United Mine Workers Journal*, July 1, 1963; "Well-Balanced," *United Mine Workers Journal*, January 15, 1967.

3 See for example, "A Mass Market for Electric Heat," *United Mine Workers Journal*, July 1, 1963; "Well-Balanced,"

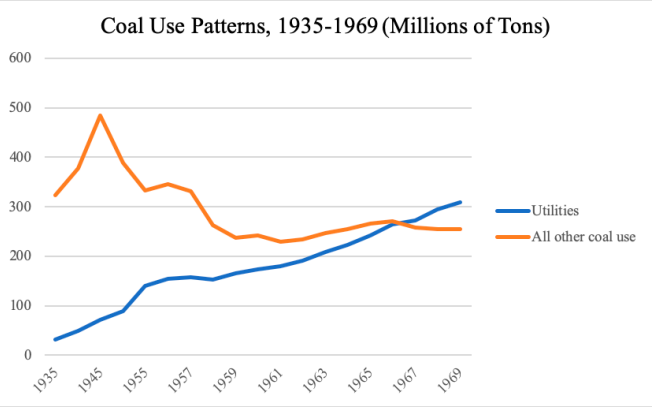

Figure 2: Coal Use Patterns, 1935-1969. Source: Charles River Associates, The Economic Impact of Public Policy on the Appalachian Coal Industry and the Regional Economy (Cambridge, MA: N.p., 1973), 11-12, 183. Bureau of Mines, Minerals Yearbook, 1969 (Washington, DC: US Government Printing Office, 1971).

the stability of electric power as the grid, but they only became apparent in moments of crisis, moments when suddenly, the lights threatened to go out, or when a system of energy production, operating as intended, produced disaster.[4]

3 Disaster was easy to come by in the nation's underground mines, which continued to claim their dubious distinction as the nation's most dangerous workplace. Underground miners suffered disabling injuries at nearly five times the national average, even as they produced the majority of the nation's coal and constituted the majority of its mining workforce.[5] While underground mining had always been dangerous, the rapid mid-century expansion of coal-fired electricity provided a new context for danger as coal powered suburban affluence and consumers' growing expectations (fig. 2).[6] These dangers were geographically concentrated too. Between 70 and 75 % of all coal mined in the United States during the late 1960s came from the Appalachian region, and the majority of Appalachian coal came from less than twenty counties, most of them in West Virginia.[7] In early 1969, union miners struck to force passage of the West Virginia House Bill 1040 –a series of amendments to the state's workers' compensation system colloquially referred to as the West Virginia black lung law. They found that the energy currents which tied them to the nation's cities formed a new source of political power which miners could exercise outside of both the voting booth and the collective bargaining table. The successful passage of the West Virginia black lung law, and the landmark Federal Coal Mine Health and Safety Act in December the same year instructed a new generation of miners how to bargain with electric power. This new practice of politics suggested the nation as a whole was culpable for the dangers of underground mining. Miners' organizing efforts exposed American energy politics as balanced between darkness and light –actual and metaphorical. The slippages that could occur between electric illumination and bargaining power, between blackouts and mine tunnels provided considerable fluidity in the way these changing relationships of energy could be understood and manipulated. While lighting needs represented only one of the many ways the average consumer might use coal-fired electricity, it was by far the most visible. Illumination often substituted as a catch-all for a wider group of energy-use practices.

United Mine Workers Journal, January 15, 1967.

4 Peter-Paul Verbeek, *What Things Do: Philosophical Reflections on Technology, Agency, and Design* (University Park: Pennsylvania State University Press, 2004); Stephen Graham and Nigel Thrift, "Out of Order: Understanding Repair and Maintenance," *Theory, Culture, and Society*, vol. 24, n° 3, 2007; Stephen Graham (ed.), *Disrupted Cities: When Infrastructure Fails* (New York: Routledge, 2010).

5 The majority of coal would come from underground mines through 1971. From 1971-74, underground and surface mining contributed similar tonnage, and after 1974, surface mining decisively overtook underground production. Energy Information Administration, "Coal Production, 1949-2017," *Annual Coal Report* (November 2018). Underground miners continue to outnumber surface miners, even after decisive shifts in the geography and intensity of production. Bureau of Labor Statistics, "Distribution of Employment for Coal Mining Industries," 2010; Safety Roundup, Pennsylvania Bituminous Council, Holmes Safety Association, September 1969.

6 Lizabeth Cohen, *A Consumers' Republic: The Politics of Mass Consumption in Postwar America* (New York: Vintage, 2003).

7 Robert C. Milici and Désirée E. Polyak, "Bituminous Coal Production in the Appalachian Basin: Past, Present, and Future," *in Coal and Petroleum Resources in the Appalachian Basin: Distribution*, Geologic Framework, and Geochemical Character, Leslie F. Ruppert and Robert T. Ryder, (eds.) (N.p.: US Department of the Interior, US Geological Survey, 2014), 4-6.

4 Tracing energy politics through illumination highlights the paradoxical set of relationships that governed coal production and use in the second half of the 20th C. Moreover, it offers an expanded conceptualization of the relationship between energy and democratic politics that has been a central concern of the energy humanities. The very growth in electricity consumption that visually removed coal from everyday life increased systematic and relational dependence on it. In the second half of the 20th C., the nation's political, social, economic, and ecological bonds were premised on and reflective of energetic connections which were often obscured through spatial concentrations of the burdens of production and the benefits of consumption. Efforts to bargain with electric power sought to make these obscured dependencies once again visible.[8]

5 Miners came to understand illumination as a relationship that bound energy workers and consumers together. Not simply meant as a synonym for light, illumination in this context evoked governance: the balancing of light and darkness in a democratic society. The politics of illumination that shaped regulatory legislation, the aspirations of energy consumers, and the demands and expectations of coal miners, offers a new domestic perspective on the energy crisis that incorporates the politics of production as well as consumption.[9] In the long 1970s, an energy shortage became a crisis, which called into question not just the composition of the American energy portfolio, but the future of democracy itself. Coalfield politics can help us understand why.

LIFEBLOOD OF THE MODERN NATION

6 Despite the hyperbolic responses contained in the pages of *Coal*, no major blackouts occurred in the three years following the 1965 failure. Yet the anxieties that had shaped the industry response to the event reflected an ongoing transformation of American energy use. For the first time in 1965 –the same year as the blackout– the amount of coal used for electricity surpassed the amount of coal used for all other purposes, combined. As access to electricity became an assumed feature of Americans' everyday lives, the meaning of coal mining became bound up with the provision of fuel for electric power. This transformation bound the iconic industrial workplace to a transforming economic landscape increasingly dotted with offices and shopping centers that depended on reliable illumination and ventilation, and to the larger suburban homes designed for an electrified lifestyle.[10] The more omnipresent electricity –especially illumination– became, the more the dependent on coal everyday life became.[11] As the Federal Power Commission observed in 1971, dependable electric power was the basis for "industry and commerce." Without

8 The concept of sacrifice zones has been widely applied in environmental studies and contemporary writing on ecological economics. Naomi Klein, *This Changes Everything: Capitalism Versus the Climate* (New York, Simon & Schuster, 2014), 165-177; Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (Cambridge, MA: MIT Press, 2012). Also see Jason Moore's concept of "cheaps" and primitive accumulation in *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (New York: Verso, 2015).

9 For consumption and diplomacy focused narratives of the energy crisis, see Meg Jacobs, *Panic at the Pump: The Energy Crisis and the Transformation of American Politics in the 1970s* (New York: Hill & Wang, 2017); Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Free Press, 2009). Where the production side of the crisis has been made visible, it has focused on supply, which powerfully illuminated the transformation of political economy in this period but has ultimately left labor politics somewhat absent. See Robert D. Lifset (ed.), *American Energy Policy in the 1970s* (Norman: University of Oklahoma Press, 2014), 123-256.

10 Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers* (Durham, NC: Duke University Press, 2006); Marsha E. Ackermann, *Cool Comfort: America's Romance with Air-Conditioning* (Washington, DC: Smithsonian Institution Press, 2002); Jeanne Kisacky, *Rise of the Modern Hospital: An Architectural History of Health and Healing, 1870-1940* (Pittsburgh: University of Pittsburgh Press, 2017), 338-347; Russell Lopez, *Building American Public Health: Urban Planning, Architecture, and the Quest for Better Health in the United States* (New York: Palgrave MacMillan, 2012).

11 Gail Cooper, *Air-Conditioning America: Engineers and the Controlled Environment, 1900-1960* (Baltimore, MD: Johns Hopkins University Press, 2002); Ruth Schwartz Cohen, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* (New York: Basic Books, 1985); David E. Nye, *Consuming Power: A Social History of American Energies* (Cambridge: MIT Press, 1998).

stable currents of electricity that emerged from this basic relationship between energy producers and consumers, "food spoilage" would occur, and "measurable effects on the economic health and residential well-being of the community" would follow. Coal-fired electricity was the "lifeblood of a modern nation." Americans had to recognize that "the nation's and their well being as individuals," were "at risk" from power loss and fuel shortages.[12] Illumination in the postwar United States was no luxury, but rather a crucial matter of personal and national security. But the security risk posed by coal shortages in the postwar period differed substantially from earlier understandings of coal's importance to national defense as a fuel for transportation.[13] Energy access was required for an "American" standard of living. Illumination, in part, powered the high-energy capitalism around which the United States centered its Cold War ideology.[14]

7 Moreover, the darkened urban landscape could not be well surveilled, and it was perceived as particularly vulnerable to fragmentation and insurgency.[15] In the United States, the anxieties of urban darkness were amplified by the process of white flight which further racialized urban space.[16] Moreover, security strategies that deployed electric lighting emerged amid a wave of urban uprisings and the growing militancy of the antiwar and student movements. Raymond M. Momboisse, Deputy Attorney General of California and a member of the President's Commission on Law Enforcement, expressed the stakes of illumination in his writings on riot prevention and industrial security. He drew a distinction between the orderly illumination of electric lighting and the unruly relationship between light and darkness conjured by images of "a city torn, bleeding and in flames...a wild mob on the rampage."[17] For industrial sites fearful of sabotage, he offered illumination as a crucial form of security. "Protective lighting," he wrote, provided a powerful "psychological deterrent," that was "inexpensive to maintain." The scale of protection could be adjusted by altering "the intensity or quantity of light and location of luminaires." In a society still adjusting to the new centrality of electric illumination to ordering daily life, Momboisse spent pages detailing different types of lighting, how the different light sources could be powered, and their attendant vulnerabilities.[18] More banal, but apiece of expanded use of illumination as an everyday form of security, utilities like Pennsylvania Power & Light advertised light as an investment in safety. Outdoor electric lighting could provide "Dusk-to-Dawn Safety, Security, Convenience." For "only $4.20 a month," one could purchase "safer" parking lots, working conditions, and outdoor recreation while the lights "discourage[d] prowlers, vandals, and pesky animals."[19] Illumination offered an expanded, widely accessible form of control –over insecurities, paranoia, structural vulnerabilities– in a society many felt to be on the verge disorder.[20]

12 Federal Power Commission, *The 1970 National Power Survey: Part I* (Washington, DC: US Government Printing Office, 1971), I-1-4 through I-1-5.

13 Peter Shulman, *Coal and Empire: The Birth of Energy Security in Industrial America* (Baltimore: Johns Hopkins University Press, 2015).

14 Kate A. Baldwin, *The Racial Imagination of the Cold War Kitchen: From Sokol'niki Park to Chicago's South Side* (Hanover, NH: Dartmouth College Press, 2015); Cohen, The Consumers' Republic.

15 Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham, NC: Duke University Press, 2015); Robert Shaw, "Pushed to the Margins of the City: The Urban Night as a Timespace of Protest at Nuit Debout, Paris," *Political Geography*, vol. 59, 2017; Cynthia Enloe, *Maneuvers: The International Politics of Militarizing Women's Lives* (Berkeley: University of California Press, 2000).

16 Thomas Sugrue, *The Origins of the Urban Crisis: Race and Inequality in Postwar Detroit* (Princeton, NJ: Princeton University Press, 1996); Kevin Kruse, *White Flight: Atlanta and the Making of Modern Conservatism* (Princeton, NJ: Princeton University Press, 2005).

17 Raymond M. Momboisse, "Riot Prevention and Survival," *Chicago Kent-Law Review*, vol. 45, n°2, 1968.

18 Raymond M. Momboisse, *Industrial Security for Strikes, Riots and Disasters* (Springfield, IL: Charles C. Thomas, 1968), 97-111.

19 Pennsylvania Power & Light, newspaper advertisement proofs, September 1970. Pennsylvania Power & Light Co. Records, 46/2. Accession N° 1962, Hagley Library, Wilmington, Delaware.

20 On the chaos in US society in the late 1960s, see Charles DeBenedetti, *An American Ordeal: The Antiwar Movement of the Vietnam Era* (Syracuse, NY: Syracuse University Press, 1990); on violence particularly, see Jeremy Varon, *Bringing the War Home* (Berkeley: University of California Press, 2004).

8 The assumption that light was cheap, however, obscured the costs of coal-fired electricity which were being offloaded much earlier in the production process, and which were overwhelmingly borne by the nation's coal miners. Although not the site of urban uprisings, massive antiwar protests, or a large student movement, the coalfields which provided the majority of this illumination also percolated with their own form of unrest. Following a November 1968 explosion at the Consol No. 9 mine near Farmington, West Virginia, miners forced the nation to confront the dark reality of the coal mining workplace. Electric lighting, in this narrative, was darkness displaced, and experienced unequally.

9 Although coal mines were often depicted as dark tunnels, by the mid-1960s, mining proceeded with the help of substantial electric lighting. Underground, just as in the nation's cities, blackouts portended instability. For the miners working the evening of November 20, 1968, sudden darkness was a sign that something had gone terribly wrong. Of the ninety-nine men who had traveled underground, only seventy-eight would return alive.

10 George Wilson was part of a crew operating a continuous miner when the power went out. "I taken, I expect, two or three steps when this thing came in on us," he recalled. "Just like that through the air and there was flying debris, rock dust, coal dust, and everything so intense you couldn't see...it just felt like my eyeballs was cut up from this flying debris." Lewis Lake recalled "mining coal as usual and all at once the power went off and I hollered at Shorty, 'What's wrong with the power?'... and then I knew it was something I had never seen in the mines before." Alex Kovarisch had been dealing with power issues all night –a DC breaker was out at the slope bottom– but was above ground when "the ground trembled, then the lights dimmed and came back on." Notably, many miners were quick to point out that there might have been many causes for the blackout. Not all would have resulted in the death of nearly the entire shift. The loss of power suggested something was amiss. Only by placing the blackout in a broader cultural understandings of darkness and its perils did it take on the quality of an omen, as it did when miners recounted the moment they realized how much danger they were actually in. Darkness as the absence of light and the looming figurative darkness of impending disaster mixed together in the miners' statements to the West Virginia Bureau of Mines. Lawrence Riggs, for example, recalled a coworker describing the scene at the Llewelyn mine portal as "dark, smoke, or dust."[21] The hellish scene was later described by Ben A. Franklin of the *New York Times*:

> The first blast had burst up 600 feet through the portals and ventilation shafts, blowing the internal works of the mine to atoms... At the top, the main shaft became the muzzle of a mammoth subterranean cannon... For days, a boiling plume of poisonous black smoke alternatively belched from the shaft and then unaccountably reversed its flow and inhaled, bursting forth again with renewed detonations below.[22]

11 The *West Virginian Times* further evoked themes of darkness and sacrifice by provocatively referring to the blast's aftermath as an "underground holocaust," which continued to burn, even after attempts to seal the mine.[23] The preventable blast was not the first such disaster in the nation's mines, nor would it be the last. However, because of the complete transformation in coal use patterns, the disaster took on a new political meaning reflective of the changed energetic relationship between the nation's coal miners and its electricity consumers.[24] To be sure, state and union official attempts to shield Consol from blame in the wake of the disaster stood in a longer tradition of coal companies not being

21 West Virginia Department of Mines, *Official Hearing: Coal Mine Explosion, Consol No. 9 Mine*, November 20, 1968. Accessed online.

22 Ben A. Franklin, "The Scandal of Death and Injury in the Mines: Nobody Knows What the Cost of a Century of Neglect Has Been," *New York Times*, March 30, 1969.

23 "78 Miners Entombed in Farmington No. 9 after Blasts Rip Workings," *West Virginian Times*, November 21, 1968.

24 On the capacity of disasters to help cast political problems in new light, see Scott Gabriel Knowles, "Learning from Disaster?: The History of Technology and the Future of Disaster Research," *Technology and Culture* vol. 55, n° 4, 2014.

held accountable for accidents. But now implicated in a wider range of energy use by increasingly affluent domestic consumers, these efforts also appeared to naturalize the asymmetrical human costs of electricity production. J. Cordell Moore, the Secretary of the Interior, stated that "we don't understand why these things happen, but they do happen." Tony Boyle, president of the United Mine Workers, defended Consol as "one of the better companies as far as cooperation and safety are concerned."[25] Miners interpreted these statements as collusion among the companies, union, and the state to make disaster a natural feature of the mining workplace. Miners felt they were being asked to bear a disproportionate burden of the nation's energy costs –costs which could be measured in lives lost, bodies maimed, and lungs scarred.[26] Even if the utilities tried to mask these costs with their public relations cartoon Reddy Kilowatt –a friendly figure with electric currents for limbs and a lightbulb nose–, the debts to the nation's miners were still being incurred.[27]

12 The methane explosion at the Consol No. 9 had sparked the unrest. However, it was the failure of either the state or federal government to offer worker compensation to victims of black lung –the debilitating disease caused by inhaling coal dust– that ultimately became the central point of contention. While union president Boyle seemed to sit on his hands, miners held mass meetings and formed the Black Lung Association.[28] Following a "marathon" six-hour hearing on black lung compensation by the West Virginia legislature, members of the Black Lung Association threatened to close down fields if a law was not passed. Hundreds carried placards reading "No Law, No Work."[29] On February 18, 1969, 282 miners from the East Gulf Mine in southern West Virginia walked off the job. Within a week that number had increased to 12 000 miners, mostly in the state's southern counties where some of the richest bituminous coal in the world was mined. Two thousand marched on the state capitol in Charleston. As the strike gathered momentum, it spread into the northern sections of the state, and to the neighboring states of Pennsylvania and Kentucky.[30] Soon, 40 000 miners had together idled every coal mine in the state. Federal judge John Field said he had "no authority to order striking coal miners back to work."[31]

13 With utility stockpiles threatened mid-winter, the Senate Subcommittee on Labor demanded an explanation from Tony Boyle, head of the United Mine Workers. But Boyle, who had come of age in coal's industrial era, had clearly failed to grasp the growing impact a widespread strike might have in a high-energy society that increasingly

25 For a close study of the Consol disaster, see Bonnie E. Stewart, *No. 9: The 1968 Farmington Disaster* (Morgantown: West Virginia University Press, 2012). Comments of government, union, and company officials, including Moore's and Boyle's comments above, were compiled by dissident miners in "Coal Mine Safety: 9 Comments," from "The Hurricane Creek Massacre," January 26, 1971. Miners for Democracy Records [MFDR], 46/15.

26 Chauncey Starr, "Social Benefit Versus Technological Risk: What is Our Society Willing to Pay for Safety?" *Science*, vol. 165, n° 3899, 1969; Mary Douglas and Aaron Wildavsky, *Risk and Culture: An Essay on the Selection of Technological and Environmental Danger* (Berkeley: University of California Press, 1983). On the naturalization of disaster, see Ted Steinberg, *Acts of God: The Unnatural History of Natural Disaster in America* (New York: Oxford University Press, 2006); Sara B. Pritchard, "An Envirotechnical Disaster: Nature, Technology, and Politics at Fukushima," *Environmental History*, vol. 17, n° 2, 2012; Knowles, "Learning from Disaster."

27 Bob Johnson notes the importance of Reddy Kilowatt in stripping energetic servitude of its racialized and gendered meanings. Bob Johnson, "Energy Slaves: Carbon Technologies, Climate Change, and the Stratified History of the Fossil Economy," *American Quarterly*, vol. 68, n° 4, 2016. For a range of Reddy Kilowatt promotional and billing materials from across the United States (and a limited global sample) see editions of Reddy News, c. 1969-1972, P*ennsylvania Power & Light Records*, 50/19-21 and 51/1.

28 The BLA also drew on a deeper tradition of health and safety organizing and regional welfare campaigns, but was a distinct organization. Alan Derickson, *Black Lung: Anatomy of a Public Health Disaster* (Ithaca, NY: Cornell University Press, 1998); Barbara Ellen Smith, *Digging Our Own Graves: Coal Miners and the Struggle over Black Lung Disease* (Philadelphia: Temple University Press, 1997).

29 Ben A. Franklin, "West Virginia Miners Demand Black Lung Compensation Law," *New York Times*, February 12, 1969.

30 Reuters, "12,000 Coal Miners Join Wildcat Strike," *New York Times*, February 26, 1969.

31 UPI, "Federal Court Says It Lacks Power to Halt Mine Strike," *New York Times*, March 2, 1969.

looked to coal-fired electricity both to underwrite consumptive citizenship and as a form of security.[32] As the statewide walkout continued to spread, he dismissed the strike as ineffective. Congress, he argued, would hardly pass legislation "because I have shut down every coal mine in the United States and have a *little blackout here and there*."[33] Urban observers, including the *New York Times* editors, disagreed. The power of the black lung strike, they argued, derived from the fact that the "Black Lungers" had "a claim on the conscience of a nation in which coal remains a vital fuel."[34] This claim coursed through the nation's power lines.

14 By February 25, public opinion on the strike had shifted from earlier calls for "sober thought and study," to agreement that action could not wait. "It is time for the miners to stop losing," the *New York Times* editorial board concluded. "Their record of defeat is written in blood."[35] On March 12, West Virginia Governor Arch Moore finally signed House Bill 1040, a landmark black lung bill that contained enough provisions for compensation to be accepted by the striking miners. The dramatic three-week strike finally drew to a close, with tens of thousands of miners returning to work the next day.[36] The strike appears not to have disrupted electric service, but it drew stockpiles down significantly and tinged the future with uncertainty. The lowered stockpiles amplified the impact of much smaller strikes later that year.[37] The power of the miners' new energetic relationship with the nation's energy consumers would not soon be forgotten.

DARK DISPARITIES

Anxieties about the nation's energy supply continued as the crisis in the eastern coalfields, which still supplied the majority of the nation's coal, deepened. Boyle's inability to pivot with the changing political economy of coal dovetailed with his own corruption and autocratic tendencies. In response to an early reform campaign in 1969, he ordered the murder of his opponent, Jock Yablonski, who was shot dead in his home along with his wife and their daughter.[38] The nascent reform movement coalesced in the aftermath of the Yablonski murders into an organization called the Miners for Democracy. From its earliest days, the Miners for Democracy contended with the new energy relationships that defined the mining workplace and placed them at the center of its campaign messaging and organizing strategy. The reformers drew a direct connection between illumination and their demand for a new union election. Warning that "the coalfields are rife with rumors of a nationwide strike," the Miners for Democracy's lawyers warned that "America's lights may go out this fall unless these men are given this fundamental right to be represented by men of their choosing."[39] 15

Beyond union politics, however, the Miners for Democracy sought to forge a new place for the coal miner in broader public life. These efforts were buttressed by the fact that although experts predicted that electricity use would continue to double each decade, the disparity between the growth in electricity consumption and wavering production across the domestic 16

32 For more on energy and consumptive citizenship, see Cohen, *A Consumer's Republic*.

33 W.A. Boyle, *Testimony before the Senate Subcommittee on Labor*, February 27, 1969. Reproduced in *The Fight for Coal Mine Health and Safety: A Documented History*, Ken Hechler (ed.) (Charleston, WV: Pictorial Histories Publishing Company, 2011), 119-120, emphasis added.

34 New York Times editorial board, "The Black Lungers," *New York Times*, February 3, 1969.

35 New York Times editorial board, "Coal Miners' Revolt," *New York Times*, February 25, 1969. PQHN.

36 AP, "'Black Lung' Bill Is Signed by West Virginia Governor," *New York Times*, March 12, 1969.

37 Michael K. Drapkin, "Coal Strikes Seen Being Settled Soon; Impact Expected to Be Felt for Months," *New York Times*, March 4, 1969; "Coal Strike Hits 12 Mines; Impact Seen within Days," *Wall Street Journal*, August 19, 1969.

38 For an overview of the Yablonski murders, see Brit Hume, *Death and the Mines: Rebellion and Murder in the United Mine Workers* (New York: Grossman, 1971).

39 Statement of Kenneth J. and Joseph A. (Chip) Yablonski, March 6, 1970. John Herling Papers, Walter P. Reuther Library for Labor and Urban Affairs, Detroit, Michigan, Box 11, Folder 18. The Yablonski brothers were the surviving sons of Jock Yablonski as well as the reform movement's lawyers.

fuels sectors persisted.[40] Coal miners contended they were the front-line troops defending the nation's energy security against the threat of fuel shortages, and they urged their members to take a broader view of energy politics beyond the mining workplace.[41]

17 To inculcate this broader view among rank-and-file members, the Miners for Democracy used interviews, editorials, and informational articles to cast old coalfield relationships of power in a new way –as operating along the electric grids which increasingly tied the seemingly remote coalfields to the nation's growing suburbs and urban centers. Although the Miners For Democracy had been organized to confront corruption within the union leadership, one of its first publications addressed electricity shortages on its front page instead. The leading headline asked "Will America's Lights Go Out?" The accompanying article spanned two full pages because "the answer is more complex than the question."[42] Electricity shortages –which seemed sure to cause widespread brownouts across the summer and potentially darken at least a dozen of the nation's largest cities– were a complex phenomenon. The cause of the shortages seemed to boil down to a breakdown of technocratic administration –a failure miners would have viscerally understood.[43]

18 Blackouts, as David Nye has noted, signaled profound systemic instability in a society that was increasingly accustomed to social relationships operating through complex technological systems.[44] The blackouts and brownouts powerfully exposed the underlying weaknesses of the technological systems which bound seemingly disparate areas of American society together. They also uncovered the social-energetic inequalities such systems sought to mediate through illumination. Wrote the Federal Power Commission, "like the human body," energy in modern America was "a complex system that can cease to function effectively if...its basic metabolism goes awry."[45] Built into this metabolic energy system that turned coal into illumination, however, was that energy production involved more than chemical reactions. The basic metabolic function, Senator Fred Harris (D-OK) noted, was that the nation was "burning up people to make electricity."[46]

19 While the darkness that accompanied power shortages and failures portended threats to national security and commerce, darkness in the mines was emblematic of growth, a prerequisite for light. The problem of darkness, then, was differentiated spatially, and by the type of work one did. In the cities, the points of consumption, literal darkness loomed as a threat to the nation's social fabric. In the coalfields, darkness was a condition of the mine's location within a broader system of energy flows, the point of articulation between human labor and the natural world. The fight for black lung legislation had demonstrated the darkness of the workplace was carried forward in miners' lungs even after they returned to the surface.[47] Dr. I.E. Buff, a physician-organizer who supported the miners' black lung fight, went so far as to carry the blackened lungs –removed postmortem– to rallies with him. He would then crumble the dried tissue in front of the miners in attendance.[48] Culturally woven into the mine face through religious metaphor and the folklore traditions of the fantastic, darkness extended through the miles of underground tunnels, experienced

40 Federal Power Commission, I-3-3.

41 Arnold Miller, transcribed in *Proceedings of the Forty-Sixth Consecutive Constitutional Convention of the United Mine Workers of America* (N.p.: UMWA, 1973), 7-12.

42 "Will America's Lights Go Out?" *Miner's Voice*, June 1970. Miners for Democracy Records (hereafter MFDR; Walter P. Reuther Library for Labor and Urban Affairs, Detroit, Michigan. Box 23, Folder 6.

43 Richard Hirsh, *Technology and Transformation*.

44 David E. Nye, *When the Lights Went Out; Astrid Kander, Paolo Malamina, and Paul Warde, Power to the People: Energy in Europe over the Last Five Centuries* (Princeton, NJ: Princeton University Press, 2014); Thomas Hughes, *Networks of Power: Electrification in Western Society 1880-1930* (Baltimore: Johns Hopkins University Press, 1983).

45 Federal Power Commission, I-1-4.

46 Fred Harris, "Burning Up People to Make Electricity," *The Atlantic*, July 1974.

47 This articulation of the social and natural in the workplace draws on Thomas Andrews, *Killing for Coal: America's Deadliest Labor War* (Cambridge, MA: Harvard University Press, 2008).

48 Depicted in Barbara Kopple, *Harlan Country, USA* (New York: Criterion, [1976] 2006). Also see Derickson, *Black Lung*.

as the looming threat of death.[49] Working underground, one miner described, was to constantly dodge peril "like beating the devil at a game of hell."[50] Michael Guillerman, who first entered the mines in this period, also described the dark tunnels in fantastical terms. They were a place where he "could envision every sort of monster lurking in the darkness, ready to pounce."[51] These experiences of darkness became a commonplace way of understanding the externalities of energy politics. It came at a cost, paid in miners' blood for the "cheap" energy they extracted.[52] This system of energy consumption promised a perverse kind of prosperity: the promise of growth and security for the nation gambled against the highly localized dangers of the mining workplace.

20 The spatial disparities in the meaning of darkness, however, did not consign miners to fatalism. The Miners for Democracy, both in their campaign for the 1972 union elections and in their first years in the union's international offices, used it to mobilize. In his first state of the union address, delivered just weeks into the 1973 Organization of Arab Petroleum Exporting Countries oil embargo Arnold Miller –a disabled miner, leaders of the West Virginia black lung strike, and Miners For Democracy campaigner who had surged to the United Mine Workers presidency– rejected the idea that "deaths in the mines" were "the work of fate." Instead, he declared that "coal miners *have* seen the light of day."[53]

BARGAINING POWER

21 If the Miners for Democracy were to truly leverage the politics of illumination and darkness to extract concessions not just from the companies, but from the nation, they had to generalize negotiation beyond the bargaining table. While a combination of law and precedent had created a relatively standard formula for contract negotiation, covering wages, benefits, and working conditions, contesting the risks of the nation's energy system necessarily moved their organizing efforts onto a wider political terrain. Bargaining electric power relied on broader public anxieties about power shortages as well as the broader set of rights and obligations that had emerged as part of the rights revolution of the 20th C.[54]

22 The centrality of coal to the nation's electric power supply played increased strategic importance in preparing for contract negotiations. The United Mine Workers' primary contract was with the Bituminous Coal Operators Association (BCOA). Negotiated among by the union with a subset of coal industry leadership, the contract applied to all unionized bituminous coal mines in the United States and some portions of Canada and governed the overwhelming majority of Appalachian coal production which was densely unionized. As the United Mine Workers prepared to begin bargaining the 1974 contract –the first to be negotiated under reform leadership– vice-president Mike Trbovich gave a featured interview on the subject to the *United Mine Workers Journal*. Politicians increasingly looked to coal, the most domestically abundant fossil fuel in the United States, to meet the nation's growing energy demands. According to Trbovich, who had been recently elected as part of the Miners For Democracy upsurge, the United States was mining "600 million tons and within five or ten years the production has to go to a billion tons of coal."[55] But the public increasingly demanded "energy in sufficient supply, from reliable sources, without environmental damage,

49 Brent Walter Cline, "Buried Bodies, Buried Treasure: Coal Mines and the Ghosts of Appalachia," *South Carolina Review*, vol. 47, n° 2, 2015.

50 M.W. Minarcin, "Man Who Has Been There Tells about Being Trapped in Mine," *Independent* (Ashland, WV), July 24, 1972.

51 Michael Guillerman, *Face Boss: The Memoir of a Western Kentucky Coal Miner* (Knoxville: University of Tennessee Press, 2009), 155.

52 Transcript, "The Cherokee Shaft: The Story of Mines and Men," ABC Broadcast, 8:30-9:30 PM, May 22, 1971. MFDR 63/1.

53 Arnold Miller, transcribed in *Proceedings of the Forty-Sixth Consecutive Constitutional Convention of the United Mine Workers of America* (N.p.: UMWA, 1973), 10-12.

54 Mark Tushnet, *The Rights Revolution in the Twentieth Century: New Essays in American Constitutional History* (Washington, DC: American Historical Association, 2009).

55 Interview with Mike Trbovich on energy, the '74 contract, organizing with the UMW Journal editorial staff. March 15, 1973. United Mine Workers Journal Records, Eberly Special Collections, Penn State University, 4/7.

without peril from radiation, without offshore drilling, without surface mining, and...cheap."[56] These public expectations for the nation's energy future reflected both growing public environmental consciousness as well as the success of miners and Appalachian communities in forcing an ongoing reckoning with the externalities of energy production, particularly in regard to surface mining.[57] Along with the centrality of coal to American electricity production, miners believed that the growing public expectation of safe and clean energy gave them a new point of leverage over the operators in collective bargaining. If the Bituminous Coal Operators Association wouldn't negotiate a fair contract, they would certainly take an economic hit from lost production. More importantly, though, they could suffer politically among a public which already viewed the energy sector with growing distrust.[58] Miners' activism in this period focused on perils to health and safety. It made visible form of workplace danger and coal pollution that many Americans would never otherwise see.

23 Even as the growth of artificial illumination in American life entered into the highly regulated framework of collective bargaining, coalfield energy politics were more likely to take place in a more "unauthorized" fashion: the wildcat strike. The number of unauthorized work stoppages had begun to increase in 1969, beginning with the West Virginia black lung strike, and continued into the 1970s as miners sought to "light the way to democracy," by pushing the boundaries of institutionally accepted workplace activity in defense of their bodies.[59] The safety walkouts were largely successful. They garnered not only public support, but also the support of judges who found in favor of miners who had walked of the job in defense of their lives. These successes further demonstrated the potential of miners to leverage their position in the nation's regime of electricity production to shift practices at the level of the firm, a firm which often would not be directly engaged in the production of light itself.[60]

Coal-fired electricity, often symbolized in public 24
discourse and everyday life as electric lighting, had offered miners a new mechanism for intervening in energy governance as crisis loomed.[61] As the 1970s progressed, it became clear that the nation had a long-range energy problem – one that was not simply defined by oil shocks.[62] In June 1971, President Nixon defined the problem more widely: pointing to brownouts, looming fuel shortages and increasing fuel prices. Shortages and price increases had coincided with a "growing awareness of the environmental consequences of energy production," and "a growing concern for the health and safety of the men who mine the nation's coal."[63] The nation's energy system stood on a knife's edge between a transforming international geopolitical economy that threatened restricted access to foreign oil and growing domestic concern about the geological viability of fossil-fueled high-energy capitalism and its attendant social costs. Coal had its share of problem: high sulfur content,

56 Quoted in "Higher Electric Bills Tied to Strip Abolition," *Charleston Gazette*, July 12, 1972. MFDR 32/3.

57 Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (New York: Cambridge University Press, 1989); Chad Montrie, *To Save the Land and People: A History of Opposition to Surface Mining in Appalachia* (Chapel Hill: University of North Carolina Press, 2003).

58 Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (New York: Cambridge University Press, 1989); Chad Montrie, *To Save the Land and People: A History of Opposition to Surface Mining in Appalachia* (Chapel Hill: University of North Carolina Press, 2003).

59 "Light the Way to Democracy," campaign broadside, 1969. MFDR, Box 81, Folder 8.

60 See safety strike case records in MFDR, 58/23-31, as well as Boxes 59 and 60. For a summary see, Robert C. Stephens, "The Right to Strike over Safety Issues," *Chi-Kent Law Review*, vol. 51, n° 200, 1974.

61 For a contemporary statement on the "special interest" of the Federal government in coal labor politics, see Richard Nixon, statement about a labor dispute in the coal mining industry, October 8, 1971. American Presidency Project (hereafter APP; University of California Santa Barbara), Node 241018.

62 Robert D. Lifset, "A New Interpretation of the Energy Crisis of the 1970s," *Historical Social Research*, vol. 39, n° 4, 2014.

63 Richard Nixon, special message to the Congress on energy resources, June 4, 1971. APP, Node 240214.

workplace safety, environmental degradation. But it remained the fuel over which the United States, which sat on the biggest coal reserves in the world, had the greatest direct control.[64] Bargaining electric power, formally and informally, could cut both ways –potentially expanding the demands miners might make on a nation which depended on them, while also opening themselves up to potential curtailment of their labor rights if energy shortages demanded. The new relationship between coal miners and electricity consumers had been articulated amid concerns over lighting. But these energetic ties extended well beyond the problem of illumination. In the fall of 1973, the Organization of Arab Petroleum Exporting Countries announced an embargo intended to sanction the United States for its support of Israel in the October War and increase their global economic leverage, the energy regime that shaped the politics of light and darkness would be put to the test on a new terrain: in the coalfields in a war over gasoline.[65]

ENERGY WILDCATS

25 In February 1974, 300 miners walked off the job in McDowell County, West Virginia. The strike spread quickly, and by February 24, most of the coal-rich county was participating in an unauthorized work stoppage because "THE MINERS ARE IN A DESPERATE POSITION DUE TO THE FACT THEY CANNOT GET GAS TO GET TO WORK." Even stations that did have gas had made the energy inaccessible, they said, by "JACKING THE PRICE ON EACH GALLON."[66] At the walkout's peak, around 30,000 miners would idle more than 200 mines across the state of West Virginia – mostly in the rich bituminous belt in the state's south which produced 15 percent of the nation's coal.[67] (fig. 3) As the strike spread, the Governor of neighboring Kentucky worried that the strikes would cross state lines.[68]

Across the 1970s, wildcat strikes were fairly com- 26
monplace in the United States, if controversial for violating the established legal framework for labor relations. Most wildcats, however, took place over workplace issues –unfair firings, discrimination in work assignments, unsafe working conditions. The largest and most politically controversial wildcat in recent memory had taken place just three years before, as postal workers across the United States struck to secure full collective bargaining rights. Still, that strike was directly targeted against an employer. That empoyer just happened to be the federal government.[69] The miners' strike was different because the companies were in no position to grant the miners' demands. The political strike sought to withhold one fuel to increase access to another: petroleum. Miners hoped to use this action to force action by a government agency, the Federal Energy Office, with which they had no direct avenue for negotiation. While collective bargaining had broader public support, as a well-understood aspect of industrial citizenship, and centered on the idea of "fairness" and good faith negotiation, the wildcat strike was much more volatile, its mean fraught with wider political tensions, particularly when the public imagined they may feel a direct impact as a result.[70]

64 US Energy Information Administration, International Energy Statistics, 2009. Accessed online.

65 Yergin, *The Prize*, 595-634.

66 Danny Deskins to Arnold Miller, February 24, 1974. United Mine Workers President's Office Records, Eberly Library, Penn State University [UMWPO], 203/16.

67 Unauthorized Work Stoppage Reports, February 26, March 8, 14, and 15, 1974. UMWPO 203/17; UMW Research Department Memorandum, "COAL-PRODUCING COUNTIES PRIMARILY AFFECTED BY GAS SHORTAGE," March 2, 1974. UMWPO, 203/16.

68 AP, "Perkins Warns Kentucky Coal Miners are on Verge of Strike," *Richmond Register* (KY), February 27, 1974. UMWPO 203/15.

69 On the impact of wildcat strikes in the 1970s, see Aaron Brenner, Robert Brenner, and Cal Winslow, (eds.), *Rebel Rank and File: Labor Militancy and Revolt from Below during the Long 1970s* (New York: Verso, 2010). Labor relations in the United States are narrowly construed through the collective bargaining process, and federal law curbs many of the most effective forms of collective action that workers engage in regularly in other countries. Additionally, by the 1970s, employers had begun to secure "no strike" clauses in their contracts with unions that provided strong disincentive to workers and unions who could be subjected to substantial legal action for wildcat strikes. Nelson Lichtenstein, *State of the Union: A Century of American Labor* (Princeton, NJ: Princeton University Press, 2013).

70 Lichtenstein, State of the Union.

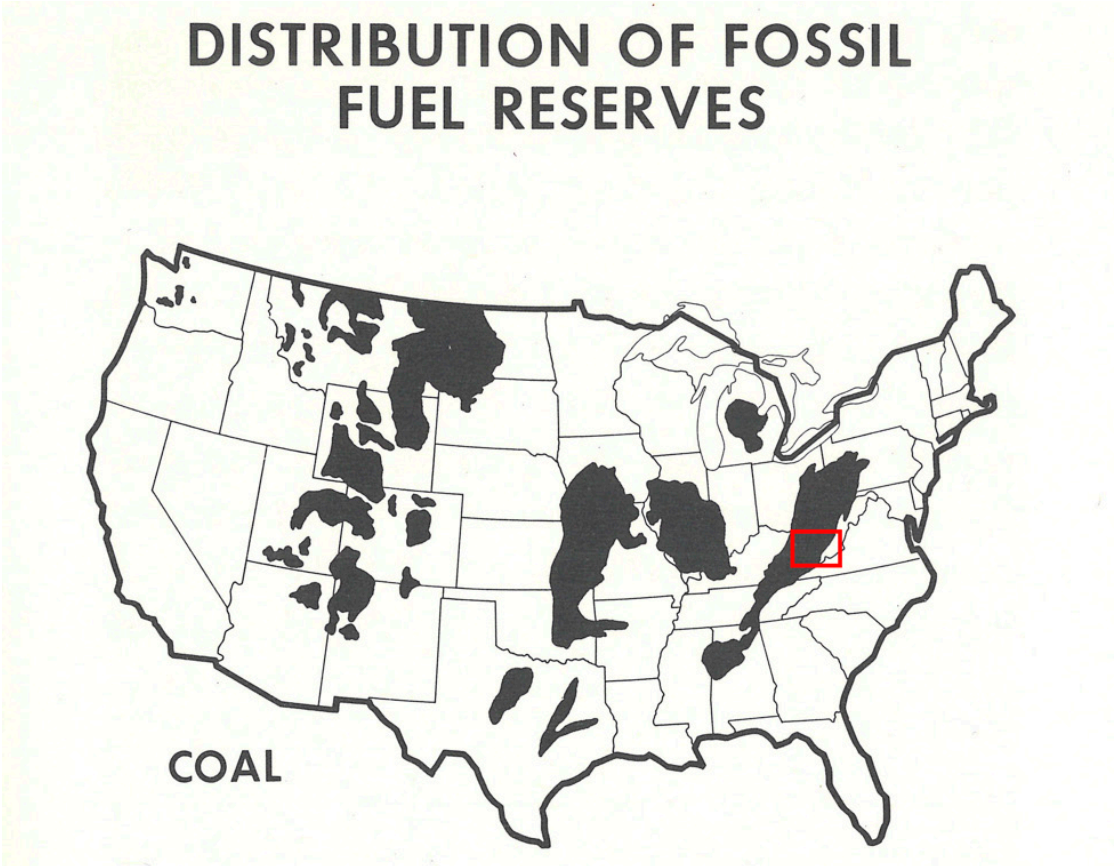

Figure 3: Distribution of Fossil Fuel Reserves: Coal. US Federal Power Commission, National Power Survey: A Report (Washington, DC: Government Printing Office, 1964), 55. The red square in the central Appalachian coalfield, added by author, marks the area in which the gasoline wildcats were concentrated.

27 The "gasoline wildcats" lasted more than three weeks as the oil embargo reached its zenith. In West Virginia, gasoline shortages had been exacerbated because the Federal Energy Office was using old consumption data to determine rationing levels. While many Americans experienced gas rationing, West Virginians experienced them disproportionately.[71] Further underscoring the way miners had interpreted their central role in the production of electricity a source of political power, the United Mine Workers invoked the idea of "energy fairness" and claimed that the strike was not only for miners, but for all the residents of West Virginia who felt they had been given a smaller energy ration than deserved. The growth of the strike quickly resulted in West Virginia Governor Arch Moore reversing a rule that had prevented anyone with more than a quarter of a tank from purchasing gasoline, but the strike continued.[72] Filling station owners, who felt they had no leverage to force the companies or the state to truck in additional supplies, supported the miners.[73] At the height of a nationwide energy crisis, the public would seemingly have had the most reason to lash out at the miners for striking for potentially intensifying fuel shortages. Still, many callers to West Virginia radio programs like the Don Lucas Show supported the strike. Even those who did not support the strike accepted the miner's central claim. Miners had a right to energy because they were engaged in energy production more broadly. Prioritizing gasoline access for miners to

71 UMW Research Department Memorandum, "West Virginia Gas Shortage," March 2, 1974. UMWPO, 203/16.

72 Arnold Miller, WLOG Announcement, aired once on March 7th and three times on March 8th, 1974. UMWPO, 203/15.

73 UMW Research Department Memorandum, "West Virginia Gas Shortage," March 3, 1974. United Mine Workers President's Office Records, 203/16.

secure other flows of energy seemed a reasonable approach to restabilizing a nation in panic. The strike's opponents instead suggested these claims should be brought to the bargaining table later that year when the new national contract was negotiated under the purview of the law.[74] The contention was not whether energy should be subject to bargaining, but under what conditions.

28 In the end, the miners were successful. Although an injunction issued by circuit judge H. E. Widener ordered the miners back to work, claiming they had unfairly targeted "the flow of bituminous coal in interstate commerce...as a source of energy," West Virginia governor Arch Moore lifted statewide restrictions on gasoline use for miners, and the Federal Energy Office promised 18 million gallons of increased gasoline supplies for the state in March.[75] Like the black lung and safety strikes in previous years, which had challenged the boundaries between workplace and politics structured by the postwar system of industrial relations, the gasoline strike made clear that energy served as a key bridge by which miners could negotiate with more power –literal and figurative– in an era that dominated by declension narratives of labor's power due to the ascendance of neoliberalism and globalization.

CONCLUSION : THE LONG SHADOWS OF COAL-FIRED POWER

29 Despite the fact that the massive expansion of electricity consumption had offered miners new forms of political leverage from their workplace in the long 1970s, the energy relationships represented through illumination along which this power flowed bore the mark of the original paradox. Darkness –and instability– could not be eliminated in an illumination-intensive, fossil-fueled energy system, only relocated. The energy regime produced many externalities –disemboweled Appalachian hillsides, the black lung epidemic, the constant threat of maiming or death. Alleviating the figurative darkness of looming death in the mines appeared to threaten the nation's ability to cheaply illuminate the nation's urban centers and growing suburban landscape –a belief only underscored as coal mining productivity plunged in the wake of the passage of the 1969 Federal Coal Mine Health and Safety Act.[76] More than a crisis of supply, the energy crisis was a political and industrial crisis that cut to the heart of the promise of prosperity in an age when affluence could be measured in kilowatt hours. The whole regime of energy production and consumption then, was built on this fundamental instability, which was overlooked in the rush to blame the Arabs, the regulatory state, or even the energy companies for the crisis.

30 Precisely because this tension was unstable, however, it also shifted the balance and contours of the energy relationships which defined American life. Examining the social relationships of energy, and the way that illumination necessarily cast shadows fundamentally challenges the way scholars of environmental degradation and energy production have conceptualized externalities. Typically considered as the costs of production that are charged up on the environment, this understanding leaves out the way that externalities, in certain social configurations, could actually be deployed as new forms of workplace or political power. Tying the externalities of coal to the illuminations omnipresent in American life allowed miners to make claims on the energy system more broadly, to connect places that might otherwise have seemed worlds apart. Thus, the very system that inscribed darkness –in the mine labyrinth, in and upon the bodies of the miners themselves– also allowed for miners to imagine beyond the confines of darkness, a future of energy fairness –even if ultimately, that aspiration has gone unrealized.

74 Don Lucas Show transcripts, March 11-13 1974, United Mine Workers President's Office Records, 203/15.

75 Memorandum Opinion, Armco Steel Corporation *et al.* v. United Mine Workers of America *et al.*, March 12, 1974. UMWPO, 203/16; UPI, "10,000 Miners End West Virginia Strike, 15,000 Still Idle," *New York Times*, March 15, 1974. UMWA Statement, March 13, 1974. UMWPO, 203/15.

76 General Accounting Office, "US Coal Development –Promises, Uncertainties: Report to the Congress" (Washington, DC: US General Accounting Office, 1977).

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