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The War on Coal

*John Copeland Nagle**

INTRODUCTION

Historians are not certain, but the War on Coal appears to have begun around 1997.¹ Congress did not take notice until 2009.² Now the battles are commonplace in our discussions of the future of coal. Coal's opponents decry it as responsible for many of the most serious environmental ills of our time. Coal's supporters insist that affordable energy, domestic energy security, and the social stability of countless communities all depend on the continued use of coal.

It is odd to war over the fossilized remains of ancient plants. Coal itself never did anything for or against anyone. It is a solid mass that is ethically neutral. It has been, and still can be, put to valuable uses. But it has caused, and can continue to cause, serious harms, including but not limited to, environmental harms.

This article contends that the War on Coal is misguided. But so is the war *for* coal. Coal has produced great societal benefits throughout human history. Now we are increasingly aware that coal also causes significant harms. Replacing coal, though, is complicated by the extensive reliance on coal, the persistence of energy poverty, and the challenges of scaling up alternative sources of energy. Therefore, this essay suggests the adoption of policies that produce a gradual weaning from reliance on coal as an energy source, with the pace of that transition determined by the availability of reliable alternatives and the imperative of economic development in the world's poorest communities.

Part I of this article describes the arguments and counterarguments regarding the use of coal. Part II, calls for the gradual and staggered replacement of coal. Part III then applies that approach to three Obama Administration programs designed to reduce the use of coal: the

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1. See Brian Lee, U.S. Electric Sector Plans EPA Mercury Report Assumptions, DOW JONES ENERGY SERV., Dec. 19, 1997 (quoting an attorney representing the utility industry who described a Clinton administration campaign against coal consumption as “really a ‘Holy War’ on coal”).

2. See RICHARD L. REVESZ & JACK LIENKE, STRUGGLING FOR AIR: POWER PLANTS AND THE “WAR ON COAL” 16 (2016) (quoting Representative Bob Latta, “[i]t almost looks like Obama and the Democrats declared war on Ohio and Indiana” after a May 2009 vote of the House Energy and Commerce Committee).

Environmental Protection Agency's (EPA) Clean Power Plan, the Secretary of the Interior's moratorium on coal leasing on federal public lands, and the Export Import Bank's (ExIm) restrictions on lending to coal projects in developing countries. These Obama Administrative initiatives, however, relied on unilateral executive action rather than explicit congressional approval. As a result, this places each of them at the mercy of President Trump once he takes office. If Trump has his way, the War on Coal will fundamentally transformed by the federal government switching sides and fighting for coal instead. Nonetheless, Part III suggests that the War on Coal may end regardless of what legal regulations are, or are not, enacted.

I. THE BATTLING ARMIES

Ricky L. Revesz and Jack Lienke find it “disheartening that challenges to regulatory policy—however important—so routinely rely on the vocabulary of armed conflict.”³ They downplay the militaristic language, arguing that complaints about a “war on coal” are “almost entirely ahistorical” and really limited to a few places.⁴ I am not a fan of the warfare metaphor, either, but it is more apt than they admit. We have fought similar “wars” at least since LBJ’s war on poverty during the 1960s.⁵ Like most wars, the fighting rages in battlefields that are found in some places, but not others. And, sadly, regional divisions are especially prevalent in our current debates about coal. Red states tend to be fierce coal defenders; blue states are increasingly combative opponents. The polarization of current U.S. attitudes toward coal can be seen in views toward climate change, which polls indicate is among the most polarized subjects in the country.⁶ The use of coal, in short, has shifted from universally supported to one of the more contested issues of our time.

3. REVESZ & LIENKE, *supra* note 2, at 2.

4. *Id.*

5. Lyndon B. Johnson, President of the U.S., Annual Message to Congress on the State of the Union (Jan. 8, 1964) (“This administration today, here and now, declares unconditional war on poverty in America.”).

6. See Cary Funk & Brian Kennedy, *The Politics of Climate*, PEW RESEARCH CTR. (Oct. 4, 2016), pewinternet.org/2016/10/04/the-politics-of-climate/ [https://perma.cc/D9TD-MA6R].

A. Coal During Its Antebellum Period

Coal has a long history.⁷ Indeed, its use dates back to prehistoric times.⁸ Coal became indispensable to human development during the Industrial Revolution. “It powered the ships that raised empires in the nineteenth century, and pierced the darkness and warmed the night in millions of homes. It [was] abundant, cheap, and spread liberally across the earth’s surface.”⁹

As the years progressed, coal played a significant, but not always leading, role in electricity generation, sharing the stage with water, wood, and other fuels. In the twentieth century, many U.S. presidents greatly furthered coal use for electricity generation. For example, Franklin D. Roosevelt encouraged the creation of the Tennessee Valley Authority (TVA) as a means of bringing electricity to the rural South, and the TVA quickly built coal-fired power plants to achieve that goal. Later, President John F. Kennedy expressed the need for further “development and use of our [nation’s] coal resources.”¹⁰ Moreover, President Jimmy Carter called for a doubling in coal production in response to the energy crisis of the 1970s—which he described as “the moral equivalent of war.”¹¹ By 1980, coal gained “its status as a dominant source for producing electricity,”¹² and was even described by the Democratic Platform “as our nation’s greatest energy resource.”¹³

By 2009, coal produced 30% of the electricity generated in the United States.¹⁴ That number has shrunk since then. Coal-fired generating

7. See REVESZ & LIENKE, *supra* note 2; RICHARD MARTIN, *COAL WARS: THE FUTURE OF ENERGY AND THE FATE OF THE PLANET* (2015); CHRISTINE L. CORTON, *LONDON FOG: THE BIOGRAPHY* (2015); BARBARA FREESE, *COAL: A HUMAN HISTORY* (2003). Freese observes that “[w]hile the Renaissance was still three centuries off in Europe, coal enabled the emergence of a sophisticated, centrally governed, technologically advanced society in China. “When China began using coal to make cheap iron in the eleventh century, . . . coal and iron spurred industrial development on a scale that the world had never before seen, and would not see again until Britain’s industrial revolution.” *Id.*

8. See U.S. DEP’T OF ENERGY, *A Brief History of Coal Use*, www.fe.doe.gov/education/energylessons/coal/coal_history.html [<https://perma.cc/CK84-UBKH>].

9. MARTIN, *supra* note 7, at 5.

10. See Comment Letter from Laurence H. Tribe and Peabody Energy Corp. to the U.S. Env’tl. Prot. Agency 6 (Dec. 1, 2014), [regulations.gov/document?D=EPA-HQ-OAR-2013-0602-23587](https://www.regulations.gov/document?D=EPA-HQ-OAR-2013-0602-23587) [<https://perma.cc/99M2-XGA6>] (quoting President Kennedy).

11. Sam Kalen, *Coal’s Plateau and Energy Horizon?*, 34 PUB. LAND & RESOURCES L. REV. 145, 151 (2013).

12. *Id.* at 150.

13. Tribe, *supra* note 10, at 8.

14. See REVESZ & LIENKE, *supra* note 2.

capacity fell 15% between 2010 and 2016.¹⁵ The reasons for the decline include “competitive pressure from low natural gas prices . . . and the costs and technical challenges of environmental compliance measures.”¹⁶ Those same forces are expected to decrease the production of coal even more significantly in coming years.

Yet coal still seems to be an important resource moving forward. In 2014, the White House released a report titled “The All-Of-The-Above Energy Strategy As A Path To Sustainable Economic Growth.”¹⁷ The White House described the all-of-the-above energy strategy as having “three key elements: to support economic growth and job creation, to enhance energy security, and to deploy low-carbon energy technologies and lay the foundation for a clean energy future.”¹⁸ The report added that the Obama Administration “is also supporting an ambitious program of carbon capture, utilization and storage for coal and natural gas power plants and for industrial facilities.”¹⁹ Moreover, President Obama signed legislation into effect earlier this year that makes it the policy of the United States “to promote an all-of-the-above energy development strategy for sub-Saharan Africa that includes the use of oil, natural gas, coal, hydroelectric, wind, solar, and geothermal power, and other sources of energy.”²⁰ Thus, it seems coal will continue to be a major resource throughout the world.

Even the passage of the Clean Air Act (CAA) in 1970 failed to dent the reliance on coal to generate energy. For instance, the CAA grandfathered existing coal-fired power plants from most of the new regulations.²¹ The apparent assumption was that new plants employing new pollution control technology would be replaced by the dirtier, older coal plants. The exemption, however, created an incentive to preserve the

15. See U.S. ENERGY INFO. ADMIN., *Operating Coal-Fired Generating Capacity Has Declined 15% Since 2011 In Response To Low Natural Gas Prices And Environmental Regulatory Compliance* (May 2016), eia.gov/electricity/monthly/update/archive/july2016/ [<https://perma.cc/7BZ7-D9L9>].

16. *Id.*

17. Jason Furman & Jim Stock, *New Report: The All-of-the-Above Energy Strategy as a Path to Sustainable Economic Growth*, COUNCIL OF ECON. ADVISORS, EXEC. OFFICE OF THE PRES. (May 29, 2014), whitehouse.gov/sites/default/files/docs/aota_report_updated_july_2014.pdf [<https://perma.cc/DM3K-X6RG>].

18. *Id.* at 2.

19. *Id.*

20. Electrify Africa Act of 2015, Pub. L. No. 114–121 130 Stat. 86, 87 (2016).

21. See Bruce R. Huber, *Transition Policy in Environmental Law*, 35 HARV. ENVTL. L. REV. 91, 93–94 (2011).

old plants for as long as possible. For illustration, in 2016, “some communities are still drawing power from coal plants built in the 1950s.”²²

B. War on Coal

The War on Coal faces challenges on several fronts including, but not limited to: the fact that environmental regulations are becoming stricter, economic forces have prompted a shift toward natural gas, and most existing coal-fired power plants are near the end of their useful lives. This section reviews the arguments against continued reliance on coal as a source of energy, and then examines the case for the continued use of coal as an energy resource.

1. Coal's Enemies

The War on Coal targets coal as the source of workplace fatalities, destroyed landscapes, pollution, and climate change. Mining coal has always been dangerous. For example, coal mines often collapse, trapping and killing miners. Further, exposure to coal dust may result in black-lung disease and other respiratory ailments. Thus, it is understandable that coal mining is sometimes viewed as America's most dangerous job.²³

Historically, air pollution has been the greatest environmental concern about coal. For instance, the burning of coal blackened the skies of London and other British cities during the nineteenth century, and the same happened in numerous American cities by the beginning of the twentieth century. Even as debates about the health effects of burning coal remained inconclusive, many urban activists complained that the smoke from coal interfered with the desirable urban landscape. The toxic effects of breathing air polluted by coal became obvious by the second half of the twentieth century. Additionally, emissions from coal-fired power plants also obscured natural scenic landscapes.

Further, the production of coal can destroy the land. Early, underground mining techniques often resulted in subsidence that compromised or simply swallowed up the structures on the land above it. Surface mining developed as an alternative to underground mining, but it led to demands for the reclamation of the land after the mining was

22. REVESZ & LIENKE, *supra* note 2, at 3–4. Revesz and Lienke express the view that the War on Coal is “the latest—and possibly final—chapter in a long-standing quest for redemption, a decades-long effort to counter the ill effects of a tragic flaw in one of our most important environmental laws.” *Id.* at 2–3.

23. See, e.g., David Kerley & Michael Murray, *Mining: The Most Dangerous Job?*, ABC NEWS (Apr. 6, 2010), abcnews.go.com/WN/mining-dangerous-job/story?id=10301377 [<https://perma.cc/N8RH-2NCH>].

completed. Most recently, a method referred to as mountaintop mining removal, has disfigured entire landscapes in the Appalachian Mountains.²⁴

Climate change is the source of the battles that have yielded the current War on Coal. As a fossil fuel, the burning of coal emits greenhouse gases that contribute to a changing climate. And unlike traditional pollutants, greenhouse gases remain in the atmosphere indefinitely and accumulate over time. That means both gases emitted in the nineteenth century combine with gases emitted in China today. One recent book on the coal wars proclaimed that “the struggle over the future of coal is a war that is as existential, imperial, and immensely destructive to life and property as the world wars of the twentieth century.”²⁵ Indeed, “at stake in the coal wars is our survival—perhaps not as a species, but certainly as people inhabiting societies and economies that are based on cheap, dirty energy.”²⁶

2. Coal's Defenders

There is another story, though. Coal made energy, especially electricity, affordable in many places where energy was absent before. The TVA, for example, turned to coal during the 1950s to provide “the backbone” of the region’s electric power system.²⁷ Since then, coal has fueled the rise of China from an impoverished developing country to a wealthy developed country. Or at least it has transformed parts of China.

Energy poverty still plagues many parts of the world today. Nearly 80% of those living in the world’s least developed countries, including 600 million people in sub-Saharan Africa, lack regular access to electricity.²⁸

24. See *Mingo Logan Coal Co. v. U.S. Evtl. Prot. Agency*, 829 F.3d 710 (D.C. Cir. 2016).

25. MARTIN, *supra* note 7, at 7; see also *id.* at 5 (“For the last century and a half we have made a devil’s bargain with coal, and now the payment has come due. If coal consumption is not drastically reduced in the next twenty years, a climatologist told me, ‘it’s game over.’”).

26. *Id.* at 7; see also *id.* at 252:

All of the above won’t work. Not wanting to alienate the fossil fuels industry, politicians and industry executives are fond of saying, “We need an ‘all of the above’ energy strategy.” Coal, renewables, nuclear, natural gas: throw it all in a basket and we will develop all of them simultaneously, building our way out of the trap we’ve fallen into.

27. See TENN. VALLEY AUTH., *Coal*, tva.gov/Energy/Our-Power-System/Coal [https://perma.cc/8ETC-LAOW].

28. See Lakshman Guruswamy, *Energy Poverty*, 36 ANNU. REV. ENVIRON. RESOURCES 139 (2011); Testimony of Paul O’Brien, Vice President for Policy and Campaigns, Oxfam America, to House Energy and Commerce Committee, Subcommittee on Energy and Power 1 (Feb. 27, 2014), docs.house.gov/meetings/IF/IF03/20140227/101797/HHRG-113-IF03-Wstate-OBrienP-20140227.pdf [https://perma.cc/F74V-86KS].

Energy, especially electricity, is the key to economic development. Electricity keeps health clinics operating, provides refrigeration, lights homes for children to complete schoolwork, powers water pumps, and facilitates agriculture. Coal is often the most accessible and affordable fuel to generate electricity and other forms of energy.

Energy poverty often accompanies other forms of poverty. In the U.S., coal's defenders emphasize that the poor are least able to afford increased energy costs. Coal has been our cheapest form of energy, both in the U.S. and throughout the world. Thus, while the wealthy can invest in more renewable and efficient energy, the poor have no choice but to spend more of their limited resources on energy.²⁹ The poor, in other words, struggle to afford energy produced by renewable sources so long as that energy is more expensive than coal.

Coal also contributes to energy independence. During the 1970s, the "energy crisis" was a crisis of supply because oil was controlled by the increasingly assertive Middle Eastern Organization of Petroleum Exporting States (OPEC). As oil prices spiked, the United States quickly sought more reliable, and less expensive, domestic sources of energy. That is why President Carter embraced coal.³⁰ Carter went so far as to champion coal gasification as a means of converting our abundant coal into more convenient forms.³¹ Today's supporters of coal continue to worry about reliance on unstable countries for our energy supplies.

Moreover, coal may not inevitably yield the environmental harms that it causes today. The U.S. Department of Energy is actively engaged in clean coal research.³² Carbon capture and storage (CCS) projects are perhaps the most promising, though much more work needs to be done before they achieve their desired results.³³ If such efforts succeed, then many of the harms associated with burning coal can be avoided.

Coal's defenders are especially concerned about those who rely on the use of coal to satisfy our energy needs. That includes coal miners and the communities in which they live. "Coal puts food on the table, pays the

29. See 161 CONG. REC. H2299 (daily ed. Apr. 16, 2015) (statement of Rep. Woodall) ("It is those folks who are trapped at the bottom of the income ladder, who don't have those opportunities to invest in more energy-efficient products, who are going to be hit the hardest by rising energy prices.").

30. See Kalen, *supra* note 11, at 145 (describing President Carter's support of coal).

31. See C. Peter Goplerud, III & Kevin C. O'Neil, *Coal Gasification: The Critical Issues*, 58 DENV. L.J. 35, 47–48 (1980) (describing President Carter's support for coal gasification programs).

32. See, e.g., U.S. DEP'T OF ENERGY, *Clean Coal Research*, energy.gov/fe/science-innovation/clean-coal-research [https://perma.cc/4UN6-6A5W].

33. See JOSEPH P. TOMAIN, *ENDING DIRTY ENERGY POLICY: PRELUDE TO CLIMATE CHANGE* 148–52 (2011).

bills, and supports our families,” explained one member of Congress from West Virginia.³⁴ Stated negatively, “the human toll of the war on coal” includes “lost jobs, lost benefits, bankruptcies” which threaten pension payments to retirees, lost tax revenue needed to support public services, and lost revenue for local businesses.³⁵ There are numerous programs and ideas for cushioning the blow to coal communities,³⁶ but “[t]he judgment of posterity has not been kind to America’s record of worker transition in other periods of economic upheaval.”³⁷

Questions about the suitability of possible alternatives offer the final argument for the continued use of coal. Renewable energy is preferable to coal in many respects, but it remains more expensive, it is more susceptible to power interruptions, and it causes environmental harms of its own.³⁸ History illustrates that attempts to transition to a new technology too quickly can result in costly failures. The U.S. should be grateful, in other words, that we did not pursue the 1970s fad to adopt coal gasification as our next big energy source.

34. 162 CONG. REC. H4909 (daily ed. July 13, 2016) (statement of Rep. Jenkins of W.V.).

35. 161 CONG. REC. H8869 (daily ed. Dec. 2, 2015) (statement of Rep. Shimkus). *See also* Murray Energy Corp. v. McCarthy, No. 5:14-CV-39, 2016 WL 6083946, at *9–11 (N.D. W. Va. 2016) (holding that EPA had failed to perform its statutory duty to “conduct continuing evaluations of potential loss or shifts of employment which may result from the administration or enforcement of the . . . Clean Air Act”); 162 CONG. REC. H4909 (daily ed. July 13, 2016) (statement of Rep. Jenkins of W.V.) (characterizing “lost jobs, lost revenues, lost taxes, lost resources” as “the real-world consequences” of environmental regulations on coal mining).

36. *See, e.g.*, Jennifer Yachnin, Clinton Touts Plan for Coal Communities at Latest Debate, E&E PUBL’G (Feb. 12, 2016); WildEarth Guardians, *Just Transition: A Plan to Protect our Climate and Help the Western United States Move on From Coal*, wildearthguardians.org/site/PageServer?pagename=priorities_climate_energy_coal_just_transition#.WCMmYC0rL3i [<https://perma.cc/Y27B-9M7L>]; MARTIN, *supra* note 7, at 35 (noting that “Coal Free Massachusetts, a coalition dedicated to phasing out coal plants in the state by 2020, has called for a realistic and substantive program to find new employment for the workers whose jobs will evaporate when those plants are shuttered[.]”).

37. MARTIN, *supra* note 7, at 35.

38. *See generally* John Copeland Nagle, *Green Harms of Green Projects*, 27 NOTRE DAME J.L. ETHICS & PUB. POL’Y 59 (2013).

II. THE GRADUAL AND STAGGERED REPLACEMENT OF COAL

The combatants in the War on Coal do not seem particularly interested in peace negotiations. This article suggests a possible treaty anyway. Eventually, coal should be replaced on a gradual and staggered basis. This section will explain those three criteria.

Replace. No one affirmatively desires the harms caused by coal, though the warring sides debate their extent. Coal is simply a means to an end. A purely utilitarian view seems appropriate because coal itself is amoral. If we can find a better way to generate energy, why wouldn't we adopt it? "Better," of course, requires a complex calculation involving environmental and social costs, access, efficiency, and other variables.

Gradually. There are three reasons why we should be cautious in how quickly we cast aside coal in favor of another source—or other sources—of energy. We should try to avoid rushing into a mistake, whatever the twenty-first century version of coal gasification entails. We need to develop energy alternatives that can provide the kilowatt hours currently generated by coal, at an affordable cost, while further minimizing their environmental harms. And communities need to be given the time and resources to become less dependent on coal.

A gradual approach is contrary to what many coal warriors support; they insist that the battle must be won as quickly and completely as possible.³⁹ To be sure, climate change is a very serious problem, especially in places that are least capable of addressing it. But the history of mistaken environmental apocalyptic predictions calls into question the claims that the fate of the world and human survival is at stake. It is difficult, perhaps impossible, to predict far enough into the future to know the consequences of various choices that are made now. We also tend to exaggerate our ability to control the future. Conversely we may be underestimating our ability to adapt to a changing world.

Many of those seeking to replace coal often acknowledge that coal will remain a critical source of energy for some time to come. In Secretary of the Interior Sally Jewell's words, "[e]ven as our nation transitions to cleaner energy sources, . . . coal will continue to be an important domestic

39. See, e.g., Evan Lehmann, *Obama Leans Forward on Climate, Calls to Revamp Coal*, E&E PUBL'G (Jan. 13, 2016) (quoting President Obama's assertion that "we've got to accelerate the transition away from dirty energy").

energy source in the years ahead.”⁴⁰ Power plants, transmission lines, and the other features of the electricity grid all depend on decisions that are made years and decades ahead of time. And a gradual replacement of coal could also help cushion the wrenching economic, social, and cultural changes facing those communities that have produced coal.

Staggered. The balance of coal’s harms and benefits varies at different times and places. Coal was essential to such cities as London during the nineteenth century, Pittsburgh in the mid-twentieth century, and China today. In each instance, the harms of burning coal eventually caught up with the benefits that it produced. That process is still underway in China, which continues to rely on extraordinary amounts of coal but which is facing growing popular opposition to the resulting air pollution.

Coal remains important in many places besides China today. The world’s next largest coal consumers are the United States, India, Japan, South Africa, and Russia.⁴¹ On a per capita basis, the ten leading coal consuming nations are Australia, Greece, North Korea, South Africa, the United States, Germany, Canada, Russia, Ukraine, and South Korea.⁴² An even clearer picture emerges from an examination of coal use on a more local level. While much of the European Union seeks to eschew reliance on coal, Poland remains a steadfast supporter of its coal industry.⁴³ In the United States, attitudes toward coal track the familiar red state versus blue state divide to a remarkable degree. China is not homogenous in its use of coal, with industrial regions consuming the most coal, massive urban areas still greatly reliant on coal, and much of the country’s countryside unaffected by coal (or any other modern source of energy).

40. Coral Davenport, *In Climate Move, Obama Halts New Coal Mining Leases on Public Lands*, N.Y. TIMES (Jan. 14, 2016), nytimes.com/2016/01/15/us/politics/in-climate-move-obama-to-halt-new-coal-mining-leases-on-public-lands.html?_r=0 [<https://perma.cc/RMZ6-EPD7>] (quoting Secretary Jewell); see also Kalen, *supra* note 11, at 147–48 (observing that “The Energy Information Administration (EIA) projects that coal will remain the nation’s largest energy source for, at least, several decades, although the electric utility industry is likely to retire roughly forty-nine gigawatts of coal-fired electric generation by 2022.”); Tribe, *supra* note 10, at 6 (quoting Hillary Clinton’s 2007 statement, “[Y]ou have got to admit that coal—of which we have great and abundant supply in America—is not going away.”).

41. *Countries with the Largest Coal Consumption Worldwide in 2015*, STATISTA, statista.com/statistics/265510/countries-with-the-largest-coal-consumption/ [<https://perma.cc/HQJ8-RDSW>] (last visited Oct. 30, 2016).

42. *Coal: Consumption per Capita*, NATIONMASTER, nationmaster.com/country-info/stats/Energy/Coal/Consumption-per-capita [<https://perma.cc/YQ63-S3RZ>] (last visited Nov. 9, 2016).

43. See Helena O’Rourke-Potocki, *Polish Government Chokes on Coal*, POLITICO (Dec. 28, 2015), politico.eu/article/poland-duda-szydlo-coal-emissions-pollution-cop21/ [<https://perma.cc/HDX4-8NZZ>].

The staggered replacement of coal responds to these local disparities. Generally, coal should be replaced more quickly in the most wealthy parts of the most developed countries. By contrast, we should be more accepting of the use of coal in the world's poorest communities, especially as they struggle to achieve the economic development necessary to satisfy the minimal standards of global health and welfare goals. Developing countries may be able to leapfrog directly to renewable sources of energy, but if that is economically or technologically infeasible, then the use of coal is more justified there than anywhere else.

These three criteria—replacement, gradually, and staggered—offer a framework for evaluating the many proposals respecting the continued and future use of coal. This article examines three such Obama Administration initiatives: EPA's Clean Power Plan, the Department of the Interior's moratorium on leasing coal on federal lands, and restrictions on the funding of overseas coal projects by international development organizations. It will then be considered whether a gradual, staggered replacement of coal will occur independent of any regulatory actions.

A. *The Clean Power Plan*

The Environmental Protection Agency (EPA) designed its Clean Power Plan (CPP) to reduce greenhouse gas emissions from coal-fired power plants. The CPP is an outgrowth of the Supreme Court's 2007 decision in *Massachusetts v. EPA*,⁴⁴ which held 5–4 that greenhouse gases qualify as “air pollutants” subject to EPA regulation under the CAA. According to EPA, the CPP will result in reductions in the emission of both greenhouse gases and traditional air pollutants.⁴⁵ It will do so by encouraging states to replace coal-fired power plants with other sources of energy. EPA emphasizes, though, that “coal and natural gas will remain the two leading sources of electricity generation in the U.S., with coal providing about 27[%] of the projected generation and natural gas providing about 33[%] of the projected generation.”⁴⁶

EPA is also aware of the social consequences of discouraging the use of coal. The CPP responds to two sets of comments related to those issues:

44. 549 U.S. 497 (2007).

45. See Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662, 64665 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt.60) [hereinafter Clean Power Plan] (“The EPA projects that these reductions, along with reductions in other air pollutants resulting directly from this rule, will result in net climate and health benefits of \$25 billion to \$45 billion in 2030.”).

46. Clean Power Plan, 80 Fed. Reg. at 64665.

(9) Approaches for addressing employment concerns. Some commenters brought to our attention the concerns of workers, their families and communities, particularly in coal-producing regions and states, that the ongoing shift toward lower-carbon electricity generation that the final rule reflects will cause harm to communities that are dependent on coal. Others had concerns about whether new jobs created as a result of actions taken pursuant to the final rule will allow for overall economic development. In the final rule, the EPA encourages states, in designing their state plans, to consider the effects of their plans on employment and overall economic development to assure that the opportunities for economic growth and jobs that the plans offer are manifest.

(10) Community and environmental justice considerations. Many community leaders, environmental justice advocates, faith-based organizations and others commented that the benefits of this rule must be shared broadly across society and that undue burdens should not be imposed on low-income ratepayers. We agree. The federal government is taking significant steps to help low-income families and individuals gain access to RE and demand-side EE through new initiatives involving, for example, increasing solar energy systems in federally subsidized homes and supporting solar systems for others with low incomes. The final rule ensures that bill-lowering measures such as demand-side EE continue to be a major compliance option. The CEIP will encourage early investment in these types of projects as well. In addition to carbon reduction benefits, we expect significant near- and long-term public health benefits in communities as conventional air pollutants are reduced along with GHGs. However, some stakeholders expressed concerns about the possibility of localized increases in emissions from some power plants as the utility industry complies with state plans, in particular in communities already disproportionately affected by air pollution. This rule sets expectations for states to engage with vulnerable communities as they develop their plans, so that impacts on these communities are considered as plans are designed. The EPA also encourages states to engage with workers in the utility power and related sectors, as well as their worker representatives, so that impacts on their communities may be considered. The EPA commits, once implementation is under way, to assess the impacts of this rule. Likewise, we encourage states to evaluate the effects of their plans to

ensure that there are no disproportionate adverse impacts on their communities.⁴⁷

Despite EPA's efforts, opponents of the CPP decry it as harmful to local communities and an economic burden for the poor.⁴⁸ EPA and the rule's opponents disagree concerning the extent to which the CPP will replace coal with other sources of energy, how quickly that will occur, and the uneven affects that the rule will have in different states. In other words, they acknowledge the significance of replacing coal gradually and on a staggered basis, but they perceive the CPP's approach to those goals in strikingly different ways.

Whether the CPP will actually become law is deeply uncertain. The CPP is one of the most contentious regulations in the history of environmental law. It raises a host of difficult legal questions.⁴⁹ It was stayed by the Supreme Court pending the resolution of the inevitable legal challenges.⁵⁰ Then Donald Trump was elected President. During his campaign, Trump promised to rescind the CPP.⁵¹ Thus, the CPP might itself become a casualty of the War on Coal.

B. Leasing on Federal Public Lands

Forty-one percent of the coal produced in the United States is mined from federally owned land.⁵² As such, federal law allows private parties to lease the mineral rights necessary to mine that coal.⁵³ The leasing process

47. Clean Power Plan, 80 Fed. Reg. at 64676–77.

48. See, e.g., *Interior, Environment, and Related Agencies Appropriations for 2017 Before the H. Subcomm. on Interior, Env't, and Related Agencies*, 114th Cong. 289 (2016) (statement of Rep. Jenkins) (describing the CPP as “the final chapter in this administration’s war on coal;” “For almost [eight] years, the administration has unapologetically and systematically worked to shut down our country’s most abundant, reliable, and cheapest form of energy: coal.”).

49. See *West Virginia v. EPA*, No. 15-01363 (D.C. Cir. Filed Oct. 23, 2015). The D.C. Circuit sat en banc for oral arguments on September 27, 2016.

50. See Jonathan H. Adler, *Supreme Court Puts the Brakes on the EPA’s Clean Power Plan*, WASH. POST (Feb. 9, 2016), [washingtonpost.com/news/volokh-conspiracy/wp/2016/02/09/supreme-court-puts-the-brakes-on-the-epas-clean-power-plan/?utm_term=.21880d8a9999](http://www.washingtonpost.com/news/volokh-conspiracy/wp/2016/02/09/supreme-court-puts-the-brakes-on-the-epas-clean-power-plan/?utm_term=.21880d8a9999) [<https://perma.cc/RfV2-HUXN>] (stating the U.S. Supreme Court stayed implementation of the CPP pending the resolution of legal challenges in the D.C. Circuit Court of Appeals).

51. See Donald Trump, Speech at the Economic Club of New York (Sept. 15, 2016) (calling for “scrapping the EPA’s so-called Clean Power Plan”).

52. U.S. DEP’T OF INTERIOR, SECRETARIAL ORDER NO. 3338, DISCRETIONARY PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT TO MODERNIZE THE FEDERAL COAL PROGRAM § 1 [hereinafter Environmental Impact Statement] (Jan. 15, 2016).

53. See generally Bruce R. Huber, *The Fair Market Value of Public Resources*, 103 CAL. L. REV. 1515 (2015) (describing the leasing process).

has been criticized from all sides, perhaps most notably by those who insist that the federal government is not receiving adequate compensation from the companies that mine and sell the coal.⁵⁴

In 2016, Secretary of the Interior Sally Jewell announced that she was imposing a moratorium on the lease of mineral rights pertaining to the lands under her authority, pending the completion of a comprehensive study of the leasing program.⁵⁵ The moratorium announcement followed a series of public listening sessions that identified “several recurring themes,” involving future coal production.⁵⁶

The Programmatic Environmental Impact Statement (PEIS) to be conducted will examine how “to foster the orderly development of [Bureau of Land Management] administered coal on [f]ederal lands in a manner that gives proper consideration to the impact of that development on important stewardship values, while also ensuring a fair return to the American public.”⁵⁷

None of the combatants in the War on Coal appear to be satisfied with moratorium. Advocates of continued coal production complain that the

54. *See id.* (summarizing the criticisms of the leasing process).

55. Press Release, Sec’y Sally Jewell, U.S. Dep’t of Interior, Secretary Jewell Launches Comprehensive Review of Federal Coal Program (Jan. 15, 2016).

56. Environmental Impact Statement, *supra* note 52, at 3. The following is a list of the recurring themes cited: (1) concern about global climate change and the impact of coal production and use; (2) concern about the loss of jobs and local revenues if coal production is reduced; (3) support for increased transparency and public participation in leasing and royalty decisions and concern about whether the structure of the leasing program does not provide for adequate competition or a fair return to the taxpayer for the use of federal resources; (4) support for increasing the coal royalty rate, because: (a) the royalty rate should account for the environmental costs of coal production; (b) the royalty rate should match the rate for offshore Federal leases; and (c) taxpayers are not receiving a fair return; (5) support for maintaining or lowering royalty rates, because: (a) the coal industry already pays more than its fair share because existing Federal rates are too high given current market conditions; (b) raising rates will lower production and revenues; and (c) raising rates will cost jobs and harm communities; (6) support for streamlining the current leasing process, so that the Federal coal program is administered in a way that better promotes economic stability and jobs, especially in coal communities which are already suffering from depressed economic conditions).

57. *Id.* at 1.

moratorium is an unnecessary ploy to “kill coal.”⁵⁸ The opponents of coal are not satisfied with the moratorium either. They want the prohibition on coal production from federal lands to become permanent. Toward that end, they have introduced the “Keep It In The Ground Act” in Congress. The proposed law would find that “the potential emissions resulting from extracting and burning all fossil fuels on [f]ederal land and waters amounts to a significant percentage of the greenhouse gas emissions limit,” and that “ending new leases for fossil fuels will prevent the release of 90[%] of the potential emissions from [f]ederal fossil fuels.”⁵⁹ The operative provisions of the bill would bar the issuance of any new coal, oil, or natural gas leases or the renewal of any nonproducing such leases on federal lands.⁶⁰

The moratorium makes sense from the perspective of a gradual and staggered replacement of coal. Coal should not be subsidized at a time when we are also trying to replace it. Whether the moratorium should become permanent raises more difficult questions involving the demand for coal and its supply beyond federal lands, the competing uses of federal lands, and an ongoing evaluation of coal’s environmental, economic, and social harms and benefits. But the moratorium itself may be short-lived if President Trump has his way.⁶¹

C. Export Assistance

The United States has fewer tools to eliminate energy poverty, mitigate climate change, and address coal’s other harms and benefits in other nations than in the United States itself. The regulation of energy production extraterritorially may be legally possible, but it is politically unimaginable that Congress would enact a statute that would regulate

58. See Brittany Patterson, *Jewell Told to ‘Be Honest’ about Phasing Out Coal*, E&E PUBL’G (Feb. 24, 2016) (quoting Sen. Barasso); see also Dylan Brown & George Cahlink, *Critics Plot Strategy to Undo Moratorium*, E&E PUBL’G (Jan. 15, 2016) (quoting Senator Mitch McConnell’s description of the moratorium as the latest front in Obama’s “war on coal” destroying jobs and communities in states like his own: “Americans want this Administration to focus on building opportunity for them, not advancing some regressive war that attacks Middle Class jobs and punishes the poor[.]”); Dylan Brown, *Obama Halts New Leases in Sweeping Reform Announcement*, E&E PUBL’G (Jan. 15, 2016) (quoting House Natural Resources Committee Chair Rob Bishop’s statement, “Yep, there they go again. Americans now know the ‘all-of-the-above’ energy agenda the president repeatedly claimed to support was an election-year lie.”).

59. Keep It in the Ground Act, H.R. 4535, 114th Cong. § 2(a)(7-8) (2016).

60. H.R. 4535, 114th Cong. § 2(b)(2).

61. See DONALDJTRUMP.COM, *An America First Energy Plan*, donaldjtrump.com/policies/energy/ [https://perma.cc/UN6X-P7VD] (listing “eliminate moratorium on coal leasing” as one of Trump’s visions).

conduct occurring overseas. Instead, the United States can affect global change by monitoring its spending.

The United States participates in several international organizations that support economic development in foreign countries. Poverty alleviation has been a key part of those efforts. Recently, the U.S. has sought to harmonize its desire to eradicate poverty and to promote clean energy. One non-governmental organization official testified to Congress that “[t]hrough its development and investment policies, the United States will determine whether our efforts to address energy poverty will position us as a laggard or leader in supporting pro-poor renewable energy technologies. As a global innovator, we believe the United States government should find the win-win in this equation.”⁶² But sometimes renewable energy is unavailable or unaffordable, and in those instances the U.S. must decide whether to subsidize, for example, coal-fired power plants in some of the less developed parts of the world.

Several international development organizations have adopted policies that decline to fund coal projects except in the least developed countries in the world, and only then if stringent environmental controls are in place. Congress, in turn, blocked the application of that policy in a rider to a funding bill for those organizations. The U.S. ExIm has been a particular target, though the ExIm Bank is also enmeshed in a broader dispute about whether the federal government should subsidize American corporations who seek to do business overseas. The debate is illustrated by a colloquy between a congressional leader and the Bank’s director during a 2015 hearing:

Chairman HENSARLING. [The ExIm Bank has] guidelines on high carbon intensity that many have dubbed the “no-coal rule.” In the Bank’s press release dated December 12, 2013, you said, “I strongly support the Administration’s efforts to build an international consensus such that other nations follow our lead in restricting financing of new coal-fired power plants. Now, as opposed to your other mandates, the no-coal mandate, Congress did not vote on that, correct?”

Mr. HOCHBERG. Congress voted on an environmental standard that was put in [twenty-three] years ago into our charter, sir.

Chairman HENSARLING. Okay. Where did the no-coal policy come from? Because you were the one who announced that on December 12th, 2013. It had not previously been imposed, correct?

62. Testimony of Paul O’Brien, *supra* note 28, at 6.

Mr. HOCHBERG. We actually support coal mining equipment, we support coal exports, we support coal-fired power plants in poor countries.

Chairman HENSARLING. Well, in poor countries. But in other countries, you do not. So I understand the asterisk. But the bottom line is you, and I assume your board, unilaterally made the decision not to support the other coal financing projects, correct?

Mr. HOCHBERG. The board reviewed it and—

Chairman HENSARLING. Did Congress vote on it?

Mr. HOCHBERG. The Congress voted an environmental standard. The Bank—

Chairman HENSARLING. So that is where you draw your authority from?

Mr. HOCHBERG. The Bank was sued under the Bush Administration for not applying the environmental standard sufficiently. And in the consent agreement . . .

Chairman HENSARLING. Okay. So you also talked about how this leads to a question of balance, I think is the word. Yes. You said, ‘The Bank engages in an important balancing act in supporting our exports, and weighs potential impacts of the environment associated with our financing.’⁶³

Mr. HOCHBERG. We don’t have a no-coal policy, sir.

Chairman HENSARLING. Okay. With the exception of poor countries. How about a mostly no-coal policy? The bottom line is Congress didn’t authorize it, Mr. Hochberg. You decided to do it.⁶⁴

A similar exchange occurred at another hearing with Secretary of the Treasury Jack Lew:

63. *Examining the Export-Import Bank’s Mandates: Joint Hearing Before the H. Subcomm. on Monetary Policy and Trade and the H. Subcomm. on Health Care, Benefits and Admin. Rules*, 114th Cong. 33 (Apr. 30, 2015).

64. *Id.* at 34.

Mrs. CAPITO. The Treasury Department recently announced revised guidelines on how the MLBs will be financing coal-fired power plants in emerging markets. As you can imagine, I represent a State that exports 30[%] of the total coal exports because we can't burn them at home, and we are having difficulty with the President's war on coal. And now, it seems like it is an international war on coal. Explain this policy to me. And are you really in the—as part of your stated goals, fast- growing African countries were supposed to present new opportunities for U.S. businesses. What kind of energy development is going on if we can't help them with the cheapest, most affordable, and reliable base load energy production that we have around the world?

Secretary LEW. Congresswoman, our policy on coal and on the climate impact is one that I know we have some differences on. But we believe very strongly domestically and internationally that we need to drive towards developing technologies that have a less adverse impact on the climate situation. So we have taken the view that at home, we need to use fuel more efficiently. We need to develop renewable energy technologies. We very much believe that we have a lot of potential to export technology overseas. You look at most of the developing countries, in some cases hydroelectric power is an abundant source of power. In many cases, highly distributed renewable energy is a very efficient form of technology [W]e believe in order to meet our international objectives on climate, it is important that we have a consistent approach domestically and internationally.⁶⁵

The problem with Secretary Lew's argument is his premise that we need a consistent domestic and international policy. The ExIm Bank's standard recognizes as much by excepting the least developed countries from the prohibition on funding coal projects. The congressional response is to seek to expand the list of countries that are entitled to such funding. It is hypocritical, in other words, for us to use coal, but deny it to those who still experience energy poverty. It is no longer necessary to subsidize

65. *Annual Testimony of the Secretary of the Treasury on the State of the International Finance System: Hearing Before the H. Financial Services Comm.*, 113th Cong. 16–17 (2013).

energy projects in China, for example.⁶⁶ By contrast, the Electrify Africa Act that President Obama signed in 2016 calls for efforts to “promote first-time access to power and power services for at least 50,000,000 people in sub-Saharan Africa by 2020 in both urban and rural areas;” to “encourage the installation of at least 20,000 additional megawatts of electrical power in sub-Saharan Africa by 2020 using a broad mix of energy options to help reduce poverty, promote sustainable development, and drive inclusive economic growth;” and perhaps most notably, to “promote an all-of-the-above energy development strategy for sub-Saharan Africa that includes the use of oil, natural gas, *coal*, hydroelectric, wind, solar, and geothermal power, and other sources of energy.”⁶⁷ That approach ensures that if the United States continues to use coal during our transition to cleaner forms of energy, then the countries in greatest need of cheap supplies of energy will be able to do so, too.

D. Unilateral Disarmament

The War on Coal may end not with a bang, but with a whimper. That is the view of Jay Rockefeller, who represented West Virginia in the U.S. Senate for twenty years until retiring in 2015. Senator Rockefeller gave a remarkable speech in 2012—notably, perhaps, after he had announced his plan not to seek reelection—in which he observed that “our coal reserves are finite and many coal-fired powerplants are aging . . . natural gas use is on the rise . . . and the shift to a lower carbon economy is not going away.”⁶⁸ Elaborating on his final point, Rockefeller proclaimed that:

It is a disservice—a terrible disservice—to coal miners and their families to pretend it is, to tell them everything can be as it was. It can’t be. That is over. Coal companies deny that we need to do anything to address climate change, despite the established scientific consensus and mounting national desire—including in West Virginia—for a cleaner, healthier environment.⁶⁹

66. See MARTIN, *supra* note 7, at 162. “China’s central government . . . is leading a ‘War on Coal’ that makes the Obama administration’s efforts look like a Quaker meeting. Chinese leaders face an essential dilemma that is rarely made explicit: coal is irreplaceable for continued economic growth, but growth is limited by the pollution, inefficiency, and social costs of continuing to burn coal.” *Id.*

67. Electrify Africa Act of 2015, Pub. L. No. 114–121 130 Stat. 86, 87 (2016) (emphasis added).

68. 158 CONG. REC. S4316 (daily ed. June 20, 2012) (statement of Sen. Rockefeller).

69. *Id.*

EPA has made the same point. The CPP itself recognized that “[t]he way that power is produced, distributed and used in the U.S. is already changing as a result of advancements in innovative power sector technologies and in the availability and cost of low-carbon fuel, RE and demand-side EE technologies, as well as economic conditions.”⁷⁰ The CPP continues:

These changes are taking place at a time when the average age of the coal-fired generating fleet is approaching that at which utilities and states undertake significant new investments to address aging assets. In 2025, the average age of the coal-fired generating fleet is projected to be forty-nine years old, and 20[%] of those units would be more than sixty years old if they remain in operation at that time. Therefore, even in the absence of additional environmental regulation, states and utilities can be expected to be, and already are, making plans for and investing in the next generation of power production, simply because of the need to take account of the age of current assets and infrastructure.⁷¹

Even the possible invalidation of the CPP fails to discourage those who eagerly anticipate the replacement of coal as our primary energy source. Ricky Revesz wrote:

Even if the D.C. Circuit does vacate the rule, plants that have already closed up shop almost certainly won’t come back into service. Nor will plants that have already invested in scrubbers and other pollution control technologies dismantle their expensive new equipment, although some might decide not to use it.⁷²

Similarly, a White House spokesperson responded to the Supreme Court’s order staying the effectiveness of the CPP by remarking that the December 2015 renewal of tax credits for renewable energy will prove more important in determining our future energy mix than the regulations imposed by the CPP.⁷³

Notre Dame offers another illustration of how the War on Coal may end. Notre Dame, it turns out, was the first university in the United States to generate electricity, thanks to a tiny generator that powered eight lights

70. Clean Power Plan, 80 Fed. Reg. at 64678.

71. *Id.*

72. REVESZ & LIENKE, *supra* note 2, at 157.

73. See Press Release, the White House: Office of the Press Secretary, Press Gaggle by Principal Deputy Press Secretary Eric Schultz en route Springfield, Illinois, (Feb. 10, 2016).

in the Main Building beginning in 1881.⁷⁴ Power needs grew so much that the university built its own power plant, whose familiar smokestack rises amidst the skyline on the north side of campus.

Power plants need power themselves. Notre Dame's power plant has burned coal. It burns cleaner, low-sulfur coal shipped from western states such as Wyoming, and the power plant has included state-of-the-art air pollution control equipment since 2008. The power plant has burned an increasing amount of natural gas in recent years, but coal has remained the mainstay of the campus power supply.

That is about to change. In September, Notre Dame President, Father John Jenkins, announced that the university's power plant will be phasing out the use of coal by 2020. Coal will still help power the university to the extent that half of our power is generated by off-site utilities that rely on coal (albeit in shrinking amounts). At the same time, the university will be investing over \$100 million in projects that will reduce CO₂ emissions by 47,500 tons.⁷⁵

Other universities have taken similar steps without generating national publicity. Notre Dame is different because its announcement coincided with the visit of Pope Francis and his message of a religious obligation to care for the natural environment. Notre Dame's action has three advantages that reflect, and even transcend, the remarks of Pope Francis. First, it explicitly relies on a moral understanding of the human relationship to the natural environment. As Father Jenkins explained, the recent papal encyclical articulates "a comprehensive moral vision about the environment, technology, the character of our communal lives, our responsibility to the poor and marginalized, the dangers of compulsive consumerism and the need for global solidarity."⁷⁶ Notre Dame's announcement prompted Gina McCarthy, the Administrator of the EPA, to make an impromptu visit to campus.⁷⁷ McCarthy praised the University's decision as an example of an institution "putting its investments where its values are."⁷⁸

74. UNIV. OF NOTRE DAME, *Notre Dame Utilities Department 3*, utilities.nd.edu/assets/12786/7635_utilitiesbrochure_09.pdf [https://perma.cc/SA96-WWAY].

75. Dennis Brown, *Notre Dame Goal: No Coal*, NOTRE DAME NEWS, Sept. 21, 2015, news.nd.edu/news/61083-notre-dame-goal-no-coal/ [https://perma.cc/HNG7-KCAT].

76. *Id.*

77. Coincidentally or not, McCarthy arrived at Notre Dame the day before her alma mater, the University of Massachusetts, played the Fighting Irish.

78. Michael O. Garvey, *EPA Administrator Speaks on the Urgency of Environmental Protection at Notre Dame*, NOTRE DAME NEWS, Sept. 25, 2015, news.nd.edu/news/61342-epa-administrator-speaks-on-the-urgency-of-environmental-protection-at-notre-dame/ [https://perma.cc/3FRD-DNVY].

Not everyone shares those values or that moral vision. More tellingly, not everyone likes the idea of relying on *any* moral vision. One political consultant labeled the approach as “toxic” when applied to the rough-and-tumble politics of the United States. And the Supreme Court recently implied that moral visions have no place in public policy, even as Pope Francis called on Congress and President Obama to act pursuant to such a vision during his visit. The praise that Notre Dame earned from EPA Administrator McCarthy and other government officials offers hope that the moral questions that are so frequently discussed on campus will once again find a home in our national discourse.

Notre Dame’s plan also has the virtue of being incremental. The university is not quitting coal cold turkey. It will burn its existing supply of coal as it transitions to other sources of energy. This incremental approach recognizes that burning coal is not necessarily evil. Coal has produced countless benefits to generations of people around the world. It has fueled the economic development that has lifted millions of people out of poverty. Now we are cultivating alternative sources of energy, but at this stage even so-called green technologies can have not-so-green results. Wind turbines kill birds and solar facilities displace wildlife habitat. A careful transition allows us to improve on alternative, renewable sources of energy while cushioning the blow for communities that have relied on coal for so long.

Notre Dame’s plan is also humble. It recognizes that there is no perfect way to produce energy. So while the university burns more natural gas as it reduces its use of coal, the university is also building geothermal systems, constructing a nearby hydroelectric dam, and exploring solar energy sites. This approach echoes that of Pope Francis, who has rightly been praised for his humility. The American way to exercise power would accept an opportunity to dine with congressional leaders rather than lunching with the homeless, as the Pope chose to do during his time in Washington.

In his remarks to Congress, Francis exhorted courage, not humility. There is a certain appeal to the call for courage when confronted with global environmental challenges. Yet humility, not courage, offers the better approach. The Catholic tradition has celebrated humility at least since St. Thomas Aquinas characterized humility as the greatest of virtues nearly 800 years ago. Humility reminds us that our limited knowledge of the world often leads to harmful environmental impacts. At the same time, humility reminds us that lawmakers and even expert administrators have a limited knowledge of the effects of our efforts to regulate those harms.

Therein is the tension: the same humility that reminds us not to harm the environment must also be exercised in our efforts to avoid that harm. Notre Dame’s decision to phase out the use of coal illustrates one way of

resolving that challenge by relying on voluntary decisions inspired by its moral commitment. The task is far more difficult for EPA Administrator McCarthy, who must seek to solve today's environmental problems within the bounds of laws that were written decades ago with different problems in mind.

CONCLUSION

War on Coal rhetoric was commonplace during the Obama Administration. Then Hillary Clinton's presidential bid became the war's most prominent casualty. She had proposed a program for displaced coal miners,⁷⁹ but had also boasted that "[w]e're going to put a lot of coal miners and coal companies out of business."⁸⁰ On election night, Pennsylvania was the state that sealed Donald Trump's victory.⁸¹ Political experts had expected the suburbs of Philadelphia to carry Clinton to victory, but instead, it was Clinton's crushing defeat in southwestern Pennsylvania that cost her.

Greene County, the southwestern most county in the state, used to vote overwhelmingly for Democratic candidates, but Trump defeated Clinton there by in a 69% to 27% landslide.⁸² Greene County was—and is—coal country. Half of Pennsylvania's coal production occurs there. More importantly, "[c]oal mining remains a strong factor of the character of Greene County."⁸³ The War on Coal transformed Greene County from reliably Democratic to a stalwart for Trump, and Pennsylvania gave Trump the electoral votes he needed to become President. Greene County

79. HILLARYCLINTON.COM, *Hillary Clinton's Plan for Revitalizing Coal Communities*, hillaryclinton.com/briefing/factsheets/2015/11/12/clinton-plan-to-revitalize-coal-communities/ [https://perma.cc/6BNF-HCL4].

80. Daniel Strauss, *Clinton Haunted by Coal Country Comment*, POLITICO (May 10, 2016), politico.com/story/2016/05/sanders-looking-to-rack-up-west-virginia-win-over-clinton-222952 [https://perma.cc/9AKJ-6ZQ3].

81. Antonio José Vielma, *Donald Trump Wins Pennsylvania, Wins U.S. Presidency*, NBC NEWS (Nov. 9, 2016), cnbc.com/2016/11/08/trump-and-clinton-face-off-for-pennsylvania-and-its-20-electoral-votes.html [https://perma.cc/CQP6-QB5S].

82. Anna Orso & Mark Dent, *How Donald Trump Won Pennsylvania, Then the White House*, BILLYPENN.COM (Nov. 9, 2016), billypenn.com/2016/11/09/how-donald-trump-won-pennsylvania-then-the-white-house/ [https://perma.cc/8ZBH-SEBA]. See also PBS NEWS HOUR, *Could Laid-Off Coal Workers Change Pennsylvania from Blue to Red?* (July 24, 2016), pbs.org/newshour/bb/laid-off-coal-workers-change-pennsylvania-blue-red/ [https://perma.cc/E3QL-EAFH] (predicting in July 2016 that for Trump to win Pennsylvania "he will need to run up the vote in white, working class counties in coal country").

83. See GREENE COUNTY GOVERNMENT, *A Rich Heritage: History of Green County, Pennsylvania*, <http://www.co.greene.pa.us/secured/gc2/history/gc-history.htm> [https://perma.cc/R2AM-XWWU] (last visited Nov. 11, 2016).

thus offers a cautionary tale to environmental activists who press to displace coal quickly rather than gradually.

The election of Donald Trump, a self-proclaimed foe of warring against coal, is just the latest twist in what promises to be an extended campaign. The prospect of a lengthy war is sure to frustrate both sides of the battle, but time may be precisely what we need to achieve to best resolution. Coal does need to be replaced as the dominant source of energy in the United States, and throughout the world as well. Yet coal's replacement should occur gradually in order to avoid the inevitable transition costs, and it should be staggered so that those who are least capable of making the transition are given more time to do so. Only then would the War on Coal be worth fighting.