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LET’S FACE FACTS, THESE MOUNTAINS WON’T GROW BACK: REDUCING THE ENVIRONMENTAL IMPACT OF MOUNTAINTOP REMOVAL COAL MINING IN APPALACHIA

DIANA KANEVA

INTRODUCTION

The Appalachian Mountains are over 300 million years old and are home to one of the most diverse ecosystems on the planet. In recent years, their beauty has been overshadowed by vast strips of moonscape plateaus, resulting from extensive mountaintop removal coal mining operations. As many as 500 mountain peaks have been obliterated, and 2000 miles of waterways have been permanently lost under valley fills formed during mining activities and post-mining reclamation efforts. This note will discuss the environmental impacts of mountaintop removal mining in Appalachia, trace the largely unsuccessful efforts that have been made to date to ameliorate these impacts, and conclude with policy proposals for eliminating, or at least reducing, the devastation caused by mountaintop removal.

2 J.D. Candidate, 2011, William & Mary School of Law. I would like to thank my family and friends for their constant support in all of my academic endeavors, the ELPR staff for their hard work in producing this publication, and the people of Appalachia and their defenders for their courage and persistence in fighting the battle against mountaintop removal.
Part I of this note will present a brief technical description of mountaintop removal and delineate the scope of the problems caused by the practice. The section will address, in turn, the environmental impacts on vegetation, animal ecosystems, waterways, and human communities. It will then shift to the economic impact of mountaintop removal and focus on the tension between electricity, jobs, and a green environment in what is one of the poorest regions in America.

Part II of this note will trace and assess efforts made to alleviate the problems of mountaintop removal through various institutional means. The section will include a review and analysis of pertinent federal legislation, law enforcement, judicial action, and constraints on regulation posed by politics and agency capture by the coal mining industry.

Finally, Part III of this note will propose and address the feasibility of various non-mutually-exclusive measures that can be implemented to eliminate the problems exposed in Part II. These measures will include: tightening the existent framework of laws and regulations; strengthening law enforcement; facilitating increased judicial action; severing the connection between the coal industry and policymakers; focusing on reclamation; re-conceptualizing the problem in terms of public health; and completely banning mountaintop removal. The last Part of this note will provide a brief conclusion, emphasizing the urgent need for multi-institutional change of mountaintop removal policy.

I. THE PROBLEM WITH MOUNTAINTOP REMOVAL COAL MINING

A. Mountaintop Removal Coal Mining Defined

Mountaintop removal ("MTR") is one of several surface methods of coal mining, utilized predominantly in the Appalachian mountains. Although MTR was known as early as the 1960s, it did not become a dominant form of coal mining in Appalachia until the 1990s when increased demand for high-grade low-sulfur coal forced the industry to seek more efficient and profitable means of coal extraction.

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6 MARC HUMPHRIES, CONG. RESEARCH SERV., RL 31819, U.S. COAL: A PRIMER ON THE MAJOR ISSUES 25 (2003); see also Patrick C. McGinley, From Pick and Shovel to Mountaintop Removal: Environmental Injustice in the Appalachian Coalfields, 34 WM. & MARY ENVTL. L. 21, 57 (2004); Baller & Pantilat, supra note 3, at 631–32.
As the name implies, the method involves removing tops of mountains, frequently as much as 800 to 1000 feet, in order to gain access to the seams of coal lying beneath.\textsuperscript{7} After the target terrain is deforested, removal is accomplished by blasting the mountaintop with explosives.\textsuperscript{8} The removed material or “spoil,” consisting mostly of soil and broken rock, is hauled away and later, following completion of the mining operation, replaced.\textsuperscript{9} However, the disruption of the rock results in significant expansion of the spoil by as much as fifteen to twenty-five percent due to voids and air incorporation.\textsuperscript{10} This process is known as “swelling” and the excess material is referred to as “excess spoil” or “overburden.”\textsuperscript{11} Because stability concerns limit the amount of expanded or de-compacted spoil that can be returned to the mountaintop, the overburden is pushed into the adjacent valleys, creating permanent “valley fills,” which can be as much as 1000 feet wide and several miles long.\textsuperscript{12}

\textbf{B. Environmental Impact}

MTR has been described as the activity responsible for “the greatest amount of environmental destruction caused by a single type of activity in the country today . . . .”\textsuperscript{13} From deforestation to air pollution, destruction of wildlife, and permanent loss of waterways, the effects of MTR on the environment are multifaceted.\textsuperscript{14}

1. Impact on Vegetation and Animal Life

The process of MTR begins with large-scale deforestation.\textsuperscript{15} One estimate suggests that as of 2007 over 300 square miles of forest have been destroyed as a result of MTR in Appalachia.\textsuperscript{16} Another study conducted by the government, focusing on an area of approximately twelve

\textsuperscript{7} Baller & Pantilat, \textit{supra} note 3, at 631.
\textsuperscript{8} See id.
\textsuperscript{10} Id. at 395–96; Sara Clark, \textit{In the Shadow of the Fourth Circuit: Ohio Valley Environmental Coalition v. United States Army Corps of Engineers}, 35 ECOLOGY L.Q. 143, 144 (2008).
\textsuperscript{11} Gamble, \textit{supra} note 9, at 396.
\textsuperscript{12} See id.
\textsuperscript{13} Baller & Pantilat, \textit{supra} note 3, at 630 (quoting Jim Hecker).
\textsuperscript{14} See infra Part I.B.1–3.
\textsuperscript{15} Baller & Pantilat, \textit{supra} note 3, at 632.
\textsuperscript{16} Id. at 633.
million acres and encompassing parts of Kentucky, Virginia, West Virginia, and Tennessee, showed that almost seven percent of the forested study area “has been or may be affected by recent and future (1992–2012) mountaintop mining.”

Although the Surface Mining Control and Reclamation Act (“SMCRA”) requires that upon completion of mining operations, the land be reclaimed and returned to its original condition as much as possible,18 large-scale reforestation has not taken place.19 Instead, the terrain, if replanted at all, has generally been replanted with various non-native species of grasses, which are both cheaper and easier to grow.20 Because trees are vital for removing carbon dioxide from the air and minimizing soil erosion, their destruction is catastrophic to the environment.21

Replacing the once luscious forests with grasslands has devastating consequences on the surrounding wildlife as well.22 The Appalachian forests “support some of the highest biodiversity in North America, including several endangered species.”23 Once the forests are gone, so too is the wildlife.24 Studies have suggested that entire species of forest songbirds have been depleted and replaced by grassland birds.25 Similarly, amphibians, such salamanders, have been replaced by reptiles,

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17 FPEIS, supra note 5, at 2, 4. This study was conducted as part of a settlement agreement in Bragg v. Robertson. Id. at 1. It was prepared jointly by the U.S. Army Corps of Engineers (“Corps”), the U.S. Environmental Protection Agency (“EPA”), the U.S. Department of Interior’s Office of Surface Mining (“OSM”), Fish and Wildlife Service (“FWS”), and the West Virginia Department of Environmental Protection (“WVDEP”). Id. Although the study does not examine the entire geographic area subject to this note, it is one of the few rigorous scientific studies on the subject and is used here as a representative illustration of the effects of MTR on the Appalachian mountains. The area explored in the study includes eastern Kentucky, southern West Virginia, western Virginia, and parts of eastern Tennessee, amounting to a total of 12 million acres and approximately 59,000 miles of streams. Id. at 2.


19 See FPEIS, supra note 5, at 47.


21 See Appalachian Regional Reforestation Initiative, Importance of This Initiative, OFFICE OF SURFACE MINING RECLAMATION & ENFORCEMENT, http://arri.osmre.gov/About/Importance.shtm (last visited Apr. 4, 2011).

22 Margaret A. Palmer et al., Mountaintop Mining Consequences, 327 SCI. 148, 148 (2010).

23 Id.

24 See id.

25 See FPEIS, supra note 5, at 4.
such as snakes. These troublesome trends are a sign of the gradual destruction of biodiversity in the area.

The destructive impact on vegetation and animal life is further compounded by stream elimination and pollution. The perturbing shift towards less diverse and more pollution-tolerant species is particularly visible in fish. Elevated concentrations of sulfates and selenium in waterways, among other pollutants produced during MTR activities, have toxic effects on many aquatic organisms. Excess selenium levels, for example, “cause teratogenic deformities in larval fish . . . .” In a chain reaction of environmental destruction, birds, which feed on the fish, are then affected and face reproductive failure.

2. Impact on Waterways

Perhaps the most pronounced and significant environmental impact of MTR is that on waterways. Waterways are impacted in at least two ways: first, they are directly buried and consequently permanently destroyed when overburden is dumped in the valleys; and second, they are polluted by toxic materials produced and released during mining operations. One estimate suggests that over 1200 miles of rivers and streams had been buried under valley fills as of 2007. This figure is supported by a Final Programmatic Environmental Impact Statement (“FPEIS”) released by the U.S. Environmental Protection Agency (“EPA”), which found that two percent of the streams in the study area, or approximately 1200 out of 59,000 miles of streams, were directly impacted by valley fills and other byproducts of MTR between 1992 and 2002. More recently, the figure has been increased to as much as 2000

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26 See id.
27 See Palmer et al., supra note 22, at 148.
28 See infra Part I.B.2.
29 See FPEIS, supra note 5, at 4, 44.
30 See Palmer et al., supra note 22, at 148.
31 Id.
32 Id.
33 See Bryan C. Banks, Note, High Above the Environmental Decimation and Economic Domination of Eastern Kentucky, King Coal Remains Firmly Seated on Its Gilded Throne, 13 BUFF. ENVTL. L.J. 125, 142 (2006).
34 Baller & Pantilat, supra note 3, at 632.
35 See Banks, supra note 33, at 142–43.
36 Baller & Pantilat, supra note 3, at 633.
37 FPEIS, supra note 5, at 2, 4.
miles of streams lost as of 2010.\textsuperscript{38} Furthermore, as the EPA recently observed in a draft report,

> Permits already approved from 1992 through 2002 are projected, when fully implemented, to result in the loss of 1,944 km of headwater streams. This represents a loss of almost two percent of the stream miles in the focal area (KY, TN, WV, and VA), a length that is more than triple the length of the Potomac River, just during this 10-year-period.\textsuperscript{39}

Water pollution is another critical consequence of MTR in Appalachia.\textsuperscript{40} Toxic chemicals such as arsenic, mercury, chromium, selenium, nickel, and boron are released in the water during mining operations.\textsuperscript{41} Acid mine drainage, high in sulfuric acid, is particularly detrimental to the environment.\textsuperscript{42} As a result of water toxicity, fish communities are changed or lost, and the aquatic ecosystem becomes sterile.\textsuperscript{43}

3. Impact on Human Communities

It is estimated that, “[i]n all, 1.4 million acres of the region’s land, home to people and wildlife, have been impacted by mountaintop mining—constituting an area of the size of Delaware.”\textsuperscript{44} MTR has pronounced effects on human communities, with varying degrees of impact on human health.\textsuperscript{45} Residents of communities in close proximity to mines are forced to constantly endure explosive noise, omnipresent dust particles, poisoned water supplies, and frequent flooding.\textsuperscript{46}


\textsuperscript{39} EFFECTS OF MOUNTAINTOP MINES, supra note 20, at 2.

\textsuperscript{40} See Banks, supra note 33, at 142–44.

\textsuperscript{41} Baller & Pantilat, supra note 3, at 633–34.

\textsuperscript{42} See Banks, supra note 33, at 142–43.

\textsuperscript{43} Id. at 143.

\textsuperscript{44} Baller & Pantilat, supra note 3, at 634.

\textsuperscript{45} Id. at 632–33.

\textsuperscript{46} Id. at 631–33.
Conditions like asthma, headaches, chronic runny nose, nausea, diarrhea, vomiting, and various skin ulcerations occur in significantly increased rates.\textsuperscript{47} Possible long-term effects include systemic organ failure, bone damage, and digestive tract cancers.\textsuperscript{48} Michael Hendryx, the Associate Director of the West Virginia University Institute for Health Policy Research, reports that the incidence of chronic disease in West Virginia counties increases proportionally to coal production.\textsuperscript{49} Residents of coal mining communities have a thirty percent greater chance of reporting hypertension, are sixty-four percent more likely to develop chronic obstructive pulmonary disease, and seventy percent more likely to develop kidney disease.\textsuperscript{50} Sam Evans reports gallbladder disease and kidney problems in ninety-eight percent of the adult population in Prenter Hollow, as well as elevated rates of cancer, illustrated by six new cases of brain cancer “on one 500-yard stretch of road.”\textsuperscript{51} These health problems are additionally exacerbated by the general poverty of the Appalachian region\textsuperscript{52} and the fact that its residents largely lack access to adequate healthcare.\textsuperscript{53}

In addition to problems resulting from regular mining operations, human communities in the Appalachian region are frequently affected by flooding and mining accidents.\textsuperscript{54} Flooding is more frequent and devastating following MTR operations, likely because deforestation destroys a natural absorptive barrier to excess water, stream burial eliminates natural drainage channels, and mine ponds are frequently constructed inadequately, causing run-off during heavy rains.\textsuperscript{55}

Inadequate construction of sedimentation ponds and sludge dams poses its own threats to human communities in proximity to mining sites.\textsuperscript{56} Because the material in these dams is highly toxic, leakage to

\textsuperscript{47} See id. at 633.
\textsuperscript{48} Id.
\textsuperscript{49} Chronic Illness Linked to Coal-Mining Pollution, Study Shows, SCIENCE\textsc{DAILY} (Mar. 27, 2008), http://www.sciencedaily.com/releases/2008/03/080326201751.htm. For example, data based on hospitalization records show that “COPD increases 1% for every 1,462 tons of coal,” whereas “hypertension increases 1% for every 1,873 tons of coal.” Id.
\textsuperscript{50} Id.
\textsuperscript{51} Sam Evans, Voice from the Desecrated Places: A Journey to End Mountaintop Removal Mining, 34 HARV. ENVTL. L. REV. 521, 528 (2010).
\textsuperscript{52} See infra Part I.C.1.
\textsuperscript{53} See Banks, supra note 33, at 148.
\textsuperscript{54} See Learn More About Mountaintop Removal Coal Mining, iLOVEMOUNTAINS.ORG, http://ilovemountains.org/resources/#mtrcommunities (last visited Apr. 4, 2011).
\textsuperscript{55} See id.; FPEIS, supra note 5, at 71–73; Baller & Pantilat, supra note 3, at 633–34.
\textsuperscript{56} iLOVEMOUNTAINS.ORG, supra note 54.
underground waterways leads to contamination of drinking water supplies.\textsuperscript{57} Breaches can have devastating effects.\textsuperscript{58} For example, in Kentucky, in 2000, a single sludge dam breach led to the leakage of “more than 300 million gallons of toxic coal sludge into tributaries of the Big Sandy [River], causing what the EPA called, “[t]he biggest environmental disaster ever east of the Mississippi.”\textsuperscript{59}

Combined, these effects lead to a statistically significant elevation of mortality rates in the Appalachian region as compared to the rest of the country.\textsuperscript{60} According to a study by the Physicians for Social Responsibility, “coal ‘contributes to four of the top five causes of mortality in the U.S. and is responsible for increasing the incidence of major diseases already affecting large portions of the U.S. population.’”\textsuperscript{61} In a shocking statistical analysis of mortality rates in Appalachian coal mining areas for 1979–2005, Michael Hendryx and Melissa Ahern reported that “the number of excess annual age-adjusted deaths in coal mining areas ranged from 3,975 to 10,923, depending on years studied and comparison group.”\textsuperscript{62} When these mortality estimates were converted to the value of statistical life lost, the number translated to an economic loss of “$18.563 billion to $84.544 billion, with a point estimate of $50.010 billion,” far exceeding the economic benefit of coal mining estimated at $8.088 billion.\textsuperscript{63} The authors naturally concluded, “The human cost of the Appalachian coal mining economy outweighs its economic benefits.”\textsuperscript{64}

C. Economic Impact

1. Appalachia’s Economy

Appalachia has been described as “one of the nation’s most desperate regions, on the brink of environmental and economic calamity.”\textsuperscript{65}

\begin{footnotes}
\item[57] See id.
\item[58] See id.
\item[59] Id.
\item[61] Friedrich, supra note 38.
\item[62] Hendryx & Ahern, supra note 60, at 541.
\item[63] Id.
\item[64] Id.
\end{footnotes}
Indeed, half a century after President Kennedy declared war on poverty, Appalachia continues to be plagued by shockingly low average income, high unemployment, low educational attainment, and a low standard of living.\footnote{See Banks, \textit{supra} note 33, at 125–26; \textit{The Appalachian Region}, APPALACHIAN REG'L COMM'N, \url{http://www.arc.gov/appalachian_region/TheAppalachianRegion.asp} (last visited Apr. 4, 2011).} While the Appalachian region includes parts of thirteen states (Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia),\footnote{APPALACHIAN REG'L COMM'N, \textit{supra} note 66.} coal mining activity is most concentrated in the intersection of Kentucky, West Virginia, and Virginia.\footnote{See \textit{Eric C. Thompson et al., CTR. FOR BUS. & ECON. RESEARCH, UNIV. OF KY., A STUDY ON THE CURRENT ECONOMIC IMPACTS OF THE APPALACHIAN COAL INDUSTRY AND ITS FUTURE IN THE REGION} 2 (2001), \url{available at http://www.arc.gov/assets/research_reports/CurrentEconomicImpactsofAppalachianCoalIndustry.pdf}; see also \textit{U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-10-21, SURFACE COAL MINING: CHARACTERISTICS OF MINING IN MOUNTAINOUS AREAS OF KENTUCKY AND WEST VIRGINIA} 2 (2009), \url{available at http://www.gao.gov/new.items/d1021.pdf} (stating that “73 percent of Appalachia’s surface coal production in 2008” occurred in the mountains of Kentucky and West Virginia).} The counties where coal mining, and MTR in particular, are most prevalent are also the counties where poverty is most rampant.\footnote{See \textit{Baller & Pantilat, \textit{supra} note 3, at 633.}} For example, forty counties in Kentucky and eleven counties in West Virginia have been designated “distressed counties” for the fiscal year 2010.\footnote{ARC-Designated Distressed Counties, Fiscal Year 2010, APPALACHIAN REG'L COMM'N, \url{http://www.arc.gov/appalachian_region/ARCDesignatedDistressedCountiesFiscalYear2010.asp} (last visited Apr. 4, 2011).} In 2006, one author reported a probable poverty rate as high as fifty percent in Letcher County, Kentucky.\footnote{\textit{Id.} at 127.} Eighty percent of the residents in the same county had no access to public water utilities.\footnote{\textit{Id.} at 134.}

Against the background of this devastating poverty, coal mining has emerged as “the only sustainable industry” in the region.\footnote{\textit{Id.} at 134.} Coal mining remains crucial to the Appalachian economy.\footnote{\textit{Id.} at 134.} A study conducted by the Appalachian Regional Commission reported that in 1997, for
example, coal mining earnings exceeded $50 million in five counties in Kentucky, eight in West Virginia, and two in Virginia. The percentage of coal mining gross product to total gross product was as high as fifty-four percent in Knott County, Kentucky, seventy-two percent in Boone County, West Virginia, and forty percent in Buchanan County, Virginia. “The total impact of the coal mining industry accounted . . . for 29.9% of employment and 27.6% of earnings in the Central Appalachia region.”

Despite these numbers, which reveal a close connection between coal mining and employment, many authors have suggested that the practice of MTR in particular has in fact led to the loss of thousands of mining jobs. This is because MTR’s efficient utilization of machinery has largely replaced the need for manual labor. What used to be accomplished by the painstaking efforts of miners working for hours in a traditional underground mine, is now achieved by several tons of explosives and the push of a button. Coal production from surface mines, measured in tons per miner per hour, is approximately three times higher than that from underground mines. As a result, while coal production is rising, mining employment is on the decline.

2. Pressure for Coal from the Outside

Coal is arguably the most important energy resource in the United States. It directly contributes to the production of approximately half the electricity generated in the United States. With increasingly intensifying conflicts in the Middle East and a growing desire to reduce America’s dependence on foreign oil, the importance of coal production is only projected to increase.

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75 THOMPSON ET AL., supra note 68, at 2.
76 Id.
77 Id.
78 See, e.g., Baller & Pantilat, supra note 3, at 633; Halbert, supra note 65, at 386; McGinley, supra note 6, at 21.
79 Baller & Pantilat, supra note 3, at 633.
80 See Halbert, supra note 65, at 386.
82 HUMPHRIES, supra note 6, at 15. For example, productivity, measured in tons per worker-hour rose by about twenty-one percent from 1996 to 2000, while at the same time the number of coal miners fell from 83,462 to 70,000. Id.
84 Id.
85 Id.
Although Appalachia is far from being the only geographical area in the United States where coal is extracted, bituminous and anthracite coal, the two types of coal that are most useful for electricity generation due to higher energy content and heating values, are found primarily in Appalachia.\(^86\) Kentucky and West Virginia are particularly famous for relatively clean-burning coal with a low sulfur level.\(^87\) This is one of the reasons why Appalachia has been dubbed “the ‘Saudi Arabia of coal.’”\(^88\) As of 2008, more than one-third of U.S. coal came from Appalachia.\(^89\)

Currently, only about a third of U.S. coal is obtained from traditional underground mines.\(^90\) The remaining two-thirds come from various methods of surface mining, which are both cheaper and more efficient, albeit more detrimental to the environment.\(^91\) However, “[a]ccording to the EPA, mountaintop removal accounted for less than 5% of US coal production as of 2001.”\(^92\) This number of course varies significantly by state.\(^93\) In West Virginia, for example, 2006 estimates indicate that approximately thirty percent of coal in the state is obtained through MTR.\(^94\)

II. EFFORTS TO AMELIORATE THE PROBLEM

A. Laws and Regulations

Although most of the Appalachian states have distinct state departments charged with regulation of mining activities,\(^95\) state mining laws and policies are functionally guided by federally imposed mandatory minimum regulatory requirements.\(^96\) This note, therefore, focuses

\(^86\) See HUMPHRIES, supra note 6, at 4–5.
\(^87\) Id. at 25.
\(^88\) See McGinley, supra note 6, at 24.
\(^90\) HUMPHRIES, supra note 6, at 3.
\(^91\) See id. at 3, 25; see also NAT’L MINING ASS’N, supra note 81 (listing production numbers in short tons from 2002–2009).
\(^92\) ILOVEMOUNTAINS.ORG, supra note 54.
\(^93\) See id.
\(^94\) Evans, supra note 51, at 571.
\(^96\) See Gamble, supra note 9, at 423.
exclusively on the federal laws and regulations that establish the legislative framework of MTR.

Four federal statutes play a significant role in regulating and enforcing standards for MTR mining and reclamation operations: the SMCRA,\textsuperscript{97} the Clean Water Act (“CWA”),\textsuperscript{98} the National Environmental Policy Act (“NEPA”),\textsuperscript{99} and the Administrative Procedure Act (“APA”).\textsuperscript{100} SMCRA and CWA provide substantive standards for regulating surface mining,\textsuperscript{101} whereas NEPA and APA are procedural statutes that guide enforcement of the substantive laws.\textsuperscript{102} Relevant aspects of these statutes are discussed below.

1. **SMCRA**

Regulating coal mining presents an interesting dilemma. On one hand, historically, regulation was left exclusively to the states, in recognition of the fact that each state had unique goals and concerns when it came to mining.\textsuperscript{103} On another, the states were ultimately in competition with each other for coal production in one global market reality.\textsuperscript{104} Recognizing that increased regulation inevitably imposes additional costs and decreases profit margins, no one state had an incentive to adopt safety regulations for fear that the rest would not follow suit.\textsuperscript{105} Congress’s answer to this dilemma was a “cooperative federalism” statute, one that essentially left regulation in the hands of the states but imposed federal minimum standards.\textsuperscript{106} Thus, in 1977, Congress passed the SMCRA.\textsuperscript{107} The SMCRA is the only federal law that is specifically enacted to address problems and concerns arising from surface mining practices.\textsuperscript{108} The law provides for the set up of the federal Office of Surface Mining


\textsuperscript{101}See Gamble, supra note 9, at 422–23.

\textsuperscript{102}See Ohio Valley Envtl. Coal. v. Aracoma Coal Co., 556 F.3d 177, 191–92 (4th Cir. 2009) (discussing NEPA and APA as procedural statutes in the opinion).

\textsuperscript{103}See Gamble, supra note 9, at 423–24.

\textsuperscript{104}See id. at 423.

\textsuperscript{105}See id.

\textsuperscript{106}Id. at 424.


\textsuperscript{108}See Gamble, supra note 9, at 423–24.
specific provisions of the SMCRA regulate disposal of excess spoil material from surface mining operations, construction of valley fills, and subsequent reclamation of the mined land. Reclamation requirements under the SMCRA mandate that upon completion of mining operations the disturbed land be restored to its “approximate original contour” (“AOC”) and returned to its prior condition, or to a condition that supports “higher and better uses.” This requirement in essence prohibits surface mining in areas where subsequent “reclamation is not possible.” However, in order to stimulate economic development, the SMCRA allows a coal operator to request an AOC requirement waiver based on proposing “commercial, industrial, residential, agricultural, and/or public uses” for the land following completion of mining operations.

Another particularly important regulation of the SMCRA, known as the “buffer” zone rule, provides that “[n]o land within one hundred feet . . . of an intermittent or perennial stream shall be disturbed by surface mining operations including roads unless specifically authorized by the Secretary.” Such authorization in turn requires a finding that “surface mining activities will not adversely affect the water quantity and quality or other environmental resources of the stream and will not cause or contribute to violations of applicable state or federal water quality standards.”

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111 30 U.S.C. § 1265(b); Gamble, supra note 9, at 401; KENTUCKIANS FOR THE COMMONWEALTH, supra note 109.
112 KENTUCKIANS FOR THE COMMONWEALTH, supra note 109.
113 30 U.S.C. § 1265(c); McGinley, supra note 6, at 64–65.
114 30 C.F.R. § 816.57 (2010) (imparting federal requirement that to comply with the SMCRA, the permittee or operator must not conduct surface mining activities within one hundred feet of a stream); see Gamble, supra note 9, at 403 (noting that the buffer zone regulation was promulgated by the Department of the Interior).
115 Gamble, supra note 9, at 403 (citing W. VA. CODE R. § 38-2-5.2). West Virginia’s regulations are very similar to 30 C.F.R. § 816.57 and worded more succinctly. Compare 30 C.F.R. § 816.57, with Gamble, supra note 9, at 403.
116 Gamble, supra note 9, at 403 (citing W. VA. CODE R. § 38-2-5.2).
2. CWA

In addition to obtaining SMCRA permits, coal companies are required to obtain permits certifying their projects’ compliance with the CWA.\footnote{Ohio Valley Envtl. Coal. v. Aracoma Coal Co., 556 F.3d 177, 190 (4th Cir. 2009).} The purpose of the CWA is to “‘restore and maintain the chemical, physical, and biological integrity of the Nation’s waters’ by eliminating ‘the discharge of pollutants into the navigable waters.’”\footnote{Ohio Valley Envtl. Coal., 556 F.3d at 190 (quoting 33 U.S.C. § 1251(a) (2000)).} Surface mining operations necessarily implicate the CWA because valley fills frequently cause pollution and permanent destruction of entire streams.\footnote{See supra Part I.B.2.}

Two types of CWA permits are particularly relevant to surface mining in general and MTR in particular. First, pursuant to section 402, a coal company must obtain a National Pollutant Discharge Elimination System (“NPDES”) permit, issued by the EPA, in order to be able to discharge potential pollutants from a point source within the mining operation into navigable waters.\footnote{Ohio Valley Envtl. Coal., 556 F.3d at 190 (describing the permit processes surface mine operators must undertake to meet with CWA compliance).} This situation occurs, for example, when treated water from a sediment pond is released back to a stream.\footnote{Id. at 190–91.} The second type of permit, pursuant to section 404, is required when a mining project involves disposal of excess spoil into navigable waters or, in other words, for the construction of a valley fill.\footnote{Id. at 191 (citing 33 C.F.R. § 320.4(a)(1) (2008)); 33 C.F.R. § 320.4(a)(1) (2010).} Section 404 permits are issued by the U.S. Army Corps of Engineers ("Corps") upon an evaluation process that requires the balancing of benefits “reasonably . . . expected to accrue from the proposal . . . against its reasonably foreseeable detriments.”\footnote{See Orit Zeevi, Recent Developments, Ohio Valley Environmental Coalition v. Bulen: The U.S. Court of Appeals for the Fourth Circuit Rules that Nationwide Permit 21 Issued by the Army Corps of Engineers Complies with the Clean Water Act, 13 U. BALTIMORE J. ENVTL. L. 251, 252 (2006) (describing Nationwide Permit 21 as a general permit that authorizes discharges of fill material associated with surface mining and reclamation efforts into waterways).}

The Corps can issue either individual permits, restricted to a particular mining site, or general nationwide permits, the most common of which is known as Nationwide Permit 21 ("NWP 21").\footnote{See id. at 190–91.} Unlike individual permits, which require comprehensive case-by-case evaluations
and can only be issued after notice and opportunity for a public hearing, general permits circumvent much of the evaluation process and authorize certain categories of activities with little, if any, regulatory involvement by the Corps.\textsuperscript{125} Issuance of general permits is conditioned upon the Corps finding that a category of activities involving dredged or fill material “are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment.”\textsuperscript{126} The Corps’s determination of what constitutes minimal adverse environmental effects is a highly controversial issue that has recently become subject to heated litigation.\textsuperscript{127}

3. NEPA

The NEPA requires federal agencies to evaluate and account for “the potential environmental consequences of their actions.”\textsuperscript{128} This includes preparing an Environmental Impact Statement (“EIS”) for actions “significantly affecting the quality of the human environment . . . ."\textsuperscript{129} Determining “significance” of environmental effects in this context may additionally require the preparation of an Environmental Assessment (“EA”).\textsuperscript{130} The purpose of an EA is to “provide sufficient evidence and analysis for determining whether to prepare an [EIS] or a finding of no significant impact [("FONSI")].”\textsuperscript{131}

4. APA

The APA comes into play in MTR regulation because it authorizes judicial review of federal agency action, such as action pursuant to the CWA and the NEPA, under an “arbitrary and capricious” standard.\textsuperscript{132}


\textsuperscript{127} See discussion infra Part II.C.


\textsuperscript{129} National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(C) (2006); see also \textit{Ohio Valley Envtl. Coal.}, 556 F.3d at 191 (discussing the EIS requirement of NEPA).

\textsuperscript{130} \textit{Ohio Valley Envtl. Coal.}, 556 F.3d at 191 (discussing how significance is determined under NEPA).

\textsuperscript{131} Id. (quoting 40 C.F.R. § 1508.9(a)(1) (2010), which regulates how EAs are conducted under NEPA).

\textsuperscript{132} 5 U.S.C. §§ 702, 706 (2006); see also \textit{Ohio Valley Envtl. Coal.}, 556 F.3d at 192.
Pursuant to section 10 of the APA, a court may set aside agency actions, findings, and conclusions that are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law . . . .”133 Although this standard is high and exceedingly deferential, with a presumption of validity of administrative agency action, it nonetheless provides an avenue for judicial recourse in cases of agency failure.134 The statute thus becomes particularly important in the context of agency capture.135

B. Law Enforcement

Given this rather sizable amount of laws and regulations, one might wonder how and why we continue to lose tens of mountaintops136 and hundreds of miles of waterways every year.137 The answer lies not so much in the lack of comprehensive laws and regulations as much as in the lack of stringent enforcement,138 facilitated by a history of political games and agency capture.139 In the words of Jim Hecker, a prominent environmental lawyer and defender of Appalachia,140 “[t]here is a consistent pattern that government regulators and enforcers let large numbers of serious violations go unpunished and uncorrected.”141

The lack of adequate law enforcement has been particularly visible with respect to the SMCRA.142 Since its very inception back in 1977, the SMCRA has faced significant opposition by the coal industry, including several constitutional challenges.143 Instead of standing their federally mandated ground in this dispute, state political and regulatory entities, including the very agencies responsible for administration and enforcement of the law, gave in to King Coal.144 In West Virginia, for

134 See Ohio Valley Envtl. Coal., 556 F.3d at 192.
135 See infra Part II.D.1.
136 See McGinley, supra note 6, at 55 n.176.
137 See id.
138 See Baller & Pantilat, supra note 3, at 648.
139 See infra Part II.D.1.
140 For background information on Jim Hecker, see generally Baller & Pantilat, supra note 3, at 637–38. Hecker’s environmental litigation efforts are discussed throughout the Comment.
141 Id. at 648.
142 See Banks, supra note 33, at 165; McGinley, supra note 6, at 54, 64–72, 76; see also Evans, supra note 51, at 558 (“Although SMCRA’s requirements are stringent on paper, they are poorly enforced.”).
143 See McGinley, supra note 6, at 53.
144 See id. at 64–70.
example, the state Department of Environmental Protection (‘‘DEP’’)
routinely failed to enforce the AOC requirements of the SMCRA.\footnote{See id. at 64–69.} Over a period of two decades, the DEP granted hundreds of mining permits despite the fact that mining applications failed to include the necessary AOC waivers and proposals for adequate post-mining land reclamation.\footnote{See id. at 66–68.} One estimate, based on a Freedom of Information request and review of mining permits, showed that in 1997, ‘‘75\% of active mountaintop removal mines in West Virginia were being operated in violation of state and federal law.’’\footnote{Id. at 66–67.} Consequently, entire mountains tumbled down with devastating consequences for the environment, while the economic development\footnote{See supra Part II.A.1 (discussing AOC waivers for promotion of economic development of mined regions).} that was supposed to invigorate the region and bring new jobs where they were so desperately needed never happened.\footnote{Id. at 66–67.}

It would be a mistake to place the blame for this lawlessness solely at the hands of the state regulatory authorities. The very purpose behind adopting a ‘‘cooperative federalism’’\footnote{Id. at 51.} approach in the SMCRA and creating the OSM was to ensure federal oversight of the process.\footnote{See id. at 51–52.} It is strictly the OSM’s obligation to ensure that the federally required standards are being followed and, upon a showing to the contrary, to assume exclusive federal jurisdiction over all state mining operations.\footnote{Id.} Instead of following the law, the OSM simply chose to ignore the situation.\footnote{See id. at 68.}

Lack of law enforcement is by no means exclusive to the SMCRA but extends to all statutes relevant to MTR regulation, including the CWA and the NEPA.\footnote{See Baller & Pantilat, supra note 3, at 641; see also U.S. ENVTL. PROT. AGENCY, APRIL 1, 2010 MEMORANDUM QUESTIONS & ANSWERS 3 (2010), available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/2010_04_02_wetlands_guidance_appalachian_mntop_mining_qa.pdf (‘‘EPA’s Permit Quality Review demonstrated that Appalachian States are not giving appropriate effect to their own narrative standards in the permitting process as required by the Clean Water Act.’’).} This became particularly obvious in Bragg v. Robertson, a suit in which the plaintiffs alleged that the Corps routinely violated aspects of the SMCRA, CWA, and NEPA by granting mining
permits without making the requisite prior environmental impact assessments. A deposition in the case revealed that one permit reviewer “assessed and approved 8,000 mining permits without conducting the required investigation.”

Law enforcement today is almost as grim as it was in the 1990s, although with a recent trend of improvement. In June 2009, recognizing the gravity of the problem, the Obama administration implemented an Interagency Action Plan aimed at reducing the environmental impacts of MTR in Appalachia. One of the objectives was to “[e]nsure coordinated and stringent environmental reviews of permit applications under the Clean Water Act (CWA) and Surface Mining Control and Reclamation Act of 1997 (SMCRA).” This resulted in an “Enhanced Coordination Procedure” (“ECP”) review of seventy-nine pending permit applications for surface coal mining projects in six Appalachian states. In September 2009, upon completion of its initial review, the EPA announced that each and every single one of the seventy-nine applications raised potential environmental concerns and required further review. Specifically, the EPA found that none of the applications contained sufficient information on reclamation and mitigation plans, the majority of applications failed to demonstrate avoidance and minimization of environmental impacts in accordance with the law, and over eighty percent of the applications exhibited a “potential for excursions from applicable state or Federal water quality standards . . . .”

As of March 24, 2011, the EPA website indicated that out of the original seventy-nine permit applications planned for ECP, forty-four were voluntarily withdrawn.

156 Baller & Pantilat, supra note 3, at 641 & n.115 (referencing the deposition of a permit reviewer in an earlier proceeding of the Bragg case).
158 Id.
159 Id.
162 Id.
by the applicants, twenty-five were awaiting start of ECP review due to pending additional information from the applicants, two were under review, and only eight permits were issued.163

In April 2010, under the leadership of the Obama administration, the EPA released two new scientific draft reports on MTR and took further steps to improve law compliance by issuing a comprehensive draft guidance, effective immediately, intended “to . . . clarify and strengthen environmental permitting requirements for Appalachian mountaintop removal . . . .”164 Without altering the legal regulatory framework per se,165 the EPA elaborated on its expectations with regard to permitting requirements and related activities under the CWA, the NEPA, and the Environmental Justice Order.166 Motivated by new scientific evidence167 and a recent Permit Quality Review conducted in West Virginia, Kentucky, Tennessee, and Ohio, during which “it became clear that many of the state-issued NPDES permits failed to comply with the requirements of the CWA in several respects,”168 the EPA endorsed, among other measures, a particular range of instream conductivity levels

165 The EPA was quick to note its guidance memoranda “do not represent a regulation, and are not subject to the formal provisions of the Administrative Procedure Act.” Guidance on Improving EPA Review of Appalachian Surface Coal Mining Operations, 75 Fed. Reg. 18,500 (Apr. 12, 2010).
166 See EPA Guidance Summary, supra note 164, at 1–6.
167 See, e.g., EFFECTS OF MOUNTAINTOP MINES, supra note 20; see also U.S. ENVTL. PROT. AGENCY, A FIELD-BASED AQUATIC LIFE BENCHMARK FOR CONDUCTIVITY IN CENTRAL APPALACHIAN STREAMS (2010) (external review draft).
to serve as a benchmark in protecting aquatic life and preserving the biological integrity of Appalachian waters.\textsuperscript{169}

In January 2011, exercising its veto power under section 404(c) of the CWA, the EPA vetoed the MTR permit for Arch Coal’s Spruce No. 1, a mine in Logan County, West Virginia, that was projected to disturb approximately 3.5 square miles and bury approximately 7.5 miles of streams\textsuperscript{170} and which would have been “the largest in Appalachia.”\textsuperscript{171} Citing “significant degradation of downstream aquatic ecosystems[,] . . . unacceptable adverse effects on wildlife,” and failure of Arch Coal to take corrective action, the EPA concluded that “these adverse impacts do not comply with the requirements of the Clean Water Act (CWA) and EPA’s implementing regulations . . . .”\textsuperscript{172}

Although the initiation of these recent steps, including the implementation of the interagency action plan, the issuance of the EPA’s new guidance, and the veto of the permit for Spruce No. 1, offer a glimmer of hope for improved law enforcement in the future, it also paints a shocking and sad picture of the current state of affairs. Lack of adequate MTR permit review, mining operations in clear violation of federal law, lack of coordination between different regulatory authorities, and devastating consequences for the environment are the hallmarks of this picture. Given the magnitude of the problems, it is unclear whether the EPA, even with its recently acquired willingness for change, will be able, on its own and without major regulatory overhauls, to turn the picture around.

C. Judicial (In)action

In the past several years, environmental organizations like the Ohio Valley Environmental Coalition (“OVEC”), Coal River Mountain Watch, and Kentuckians For The Commonwealth (“Kentuckians”) have initiated heated litigation in federal courts in an attempt to mandate more stringent law enforcement and to mitigate the environmental impact of MTR.\textsuperscript{173} Four cases, each of which enjoyed some success at the district

\textsuperscript{169} See id. at 2–3.
\textsuperscript{170} Final Determination of the Assistant Administrator for Water Pursuant to Section 404(c) of the Clean Water Act Concerning the Spruce No. 1 Mine, Logan County, WV, 76 Fed. Reg. 3126, 3126–27 (Jan. 19, 2011) [hereinafter Final Determination].
\textsuperscript{173} See generally Baller & Pantilat, supra note 3 (describing the key players driving MTR litigation, their goals, and their legal strategies).
court level, only to be later overturned by a conservative Fourth Circuit, are particularly illustrative of the issues in dispute and of the courts’ general reluctance to endorse the environmental cause and to require stricter enforcement of the federal laws. These are described below.

1. Bragg v. Robertson

In Bragg v. Robertson, the plaintiffs alleged that the West Virginia Department of Environmental Protection (“WVDEP”) violated relevant provisions of the SMCRA, the CWA, and the NEPA by various actions, including issuing mining permits without making the necessary findings required for granting variances under the AOC and buffer zone rules. The district court found in favor of the plaintiffs and issued an injunction to prevent issuance of the permits, but, on appeal, the Fourth Circuit reversed. Instead of deciding the case on the merits and engaging in a substantive review of the alleged violations, the appellate court disposed of the case by holding that “a federal judge did not have the authority to issue an injunction against state officials.”

2. Kentuckians for the Commonwealth, Inc. v. Rivenburgh

In Kentuckians for the Commonwealth, Inc. v. Rivenburgh, the plaintiffs challenged the issuance of general section 404 CWA permits for MTR by alleging that valley fills, resulting from MTR, did not fulfill the definition of “fill material” under section 404 but were better classified as waste. While litigation was ongoing, the Bush administration changed the definition of “fill material” under the CWA so that it specifically included “overburden from mining or other excavation activities.” Nonetheless, the district court found in favor of the plaintiffs

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175 Bragg, 72 F. Supp. 2d at 660–61; see Gamble, supra note 9, at 406–07; Baller & Pantilat, supra note 3, at 641.

176 Clark, supra note 10, at 144.

177 Kentuckians, 204 F. Supp. 2d at 930; Clark, supra note 10, at 144–45; see also supra Part II.A.2.

178 Clark, supra note 10, at 145.
and declared the change of the definition “ultra vires” and beyond the scope of authority granted to the administration.\textsuperscript{179} On appeal, the Fourth Circuit once again reversed, holding that “the district court’s invalidation of the Bush Administration’s new rules was beyond the scope of the issue.”\textsuperscript{180}

3. OVEC v. Bulen

In \textit{OVEC v. Bulen}, the issuance of general permits under section 404 of the CWA was challenged again.\textsuperscript{181} Specifically, the plaintiffs alleged that issuing NWP 21 for valley fills was inconsistent with the legislative history and the plain language of the CWA\textsuperscript{182} because valley fills by definition exceed the “minimal adverse environmental effects” required for issuance of NWP 21.\textsuperscript{183} Once again the district court found in favor of the plaintiffs, and once again the Fourth Circuit reversed, holding that the environmental impact review required for issuance of a NWP 21 was sufficient.\textsuperscript{184}

4. OVEC v. U.S. Army Corps of Engineers

Most recently, in \textit{OVEC v. U.S. Army Corps of Engineers}, the plaintiffs again challenged the issuance of general section 404 CWA permits for MTR valley fills, this time alleging that the Corps violated its duties by failing to conduct an adequate environmental impact assessment prior to issuing a FONSI\textsuperscript{185} and granting four general mining permits.\textsuperscript{186} OVEC further sought judicial review of the agency’s actions under the APA.\textsuperscript{187} The district court again sided with the plaintiffs,

\textsuperscript{179} \textit{Kentuckians}, 204 F. Supp. 2d at 943, 946–47; Clark, \textit{supra} note 10, at 145.
\textsuperscript{180} Clark, \textit{supra} note 10, at 145.
\textsuperscript{182} \textit{Id.}; see also \textit{supra} Part II.A.2.
\textsuperscript{183} Fuschino, \textit{supra} note 125, at 180; see Clark, \textit{supra} note 10, at 145. Fuschino also provides a detailed description of the debate over NWP 21, including a review of the legislative history and intent. See Fuschino, \textit{supra} note 125, at 189–206.
\textsuperscript{184} Clark, \textit{supra} note 10, at 145.
\textsuperscript{185} \textit{Ohio Valley Envtl. Coal. v. U.S. Army Corps of Eng’rs}, 479 F. Supp. 2d 607, 607 (S.D. W. Va. 2007); see \textit{supra} Part II.A.3 (discussing that the purpose of an environmental assessment is to determine whether to prepare an EIS or issue a FONSI).
\textsuperscript{186} \textit{Ohio Valley Envtl. Coal.}, 479 F. Supp. 2d, at 616; see Clark, \textit{supra} note 10, at 145–46.
\textsuperscript{187} \textit{Ohio Valley Envtl. Coal.}, 479 F. Supp. 2d, at 616; see Clark, \textit{supra} note 10, at 146; \textit{supra} Part II.A.4 (discussing the APA).
finding that the Corps failed to meet the standards of both the CWA and the NEPA and acted arbitrarily, capriciously, and contrary to its own regulations in failing to conduct an adequate environmental assessment. The Fourth Circuit reversed, holding that the Corps was not required to consider environmental impacts of the entire valley fill or undertake a functional assessment of its effects, and therefore did not act arbitrarily or capriciously in conducting its limited environmental review.

5. Conclusion

The picture that emerges from the cases summarized above is one of overall judicial inaction. Courts, the Fourth Circuit in particular, appear to be hesitant in assuming a more active role in determining the fate of future MTR policy and practice. Skepticism and general mistrust of environmental citizen actions, as well as unwillingness to step on the toes of policy-making institutions, such as federal agencies or state authorities, have been the hallmarks of much MTR litigation. It is unlikely that this trend will change in the future, especially without encouragement and clear guidance from the legislative and executive branches of government.

D. Politics and Agency Capture by the Coal Mining Industry

Given the magnitude of environmental destruction caused by MTR and the relatively marginal economic benefit provided by the practice, one might wonder what drives the continued lack of law enforcement and judicial inaction. As with most issues of global economic and environmental significance, the answer lies in politics and agency capture, both of which play a significant role in determining the direction of MTR policy. This section aims to expose the suspiciously close relationship between the coal industry and key players in MTR

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188 Ohio Valley Envtl. Coal., 479 F. Supp. 2d, at 616, 626; see Clark, supra note 10, at 146.
189 Ohio Valley Envtl. Coal. v. Aracoma Coal Co., 556 F.3d 177, 197, 209 (4th Cir. 2009) (holding that the Corps did not act in an arbitrary and capricious manner in issuing the permits).
190 See Clark, supra note 10, at 143.
191 See Baller & Pantilat, supra note 3, at 650–51.
192 See supra Part I.B.
193 See supra Part I.C.
194 See supra Part II.B.
195 See supra Part II.C.
regulation as well as to illustrate the impact of differing political agendas, represented by changing administrations, on global MTR policy.

1. Agency Capture

In a hardly surprising response to increased echoes of environmental concern, the coal industry has been pouring millions of dollars to promulgate coal-friendly policies. According to a report by Sue O’Connell of the Institute on Money in State Politics, the coal mining industry “contributed at least $8.57 million to state-level political candidates and party committees” between 1999 and 2005. Similarly, Julie Archer, a research analyst for the West Virginia People’s Election Reform Coalition, reported that coal operators and industry leaders donated over “$2 million to gubernatorial campaigns, $1.5 million to state legislative races, and $529,332 to Supreme Court candidates” in West Virginia during the election cycles of 1996–2004. This trend continued in 2006 and 2008, with total coal money contributions of over $500,000 during each election cycle. In gubernatorial races, such donations accounted for up to twenty-six percent of total campaign contributions.

The inevitable result is that “running a political campaign against the coal industry in the Appalachian region is an election failure guarantee.” As one author observed, “the democratic political process favors the well-organized and well-funded mining industry at the expense of the

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196 I am using the term “agency capture” broadly rather than literally. While this term usually implies the industry’s control over a regulating administrative agency, see Clark, supra note 10, at 148, in this instance I am using it to imply control over the entire policy-making and enforcement process. This includes “capture” of not just the administrative agencies involved, but also of the political, legislative, and judicial bodies that collaborate in establishing and implementing MTR policy.


201 Id. at 5.

202 Baller & Pantilat, supra note 3, at 656.
ordinary citizen’s interest rather than equally weighing the costs and benefits to all.”

The situation is no different at the federal level. According to the Center for Responsive Politics, coal companies donated $9 million to federal political candidates between 1998 and 2004. Approximately ninety percent of these donations went to Republican candidates. In the 2000 presidential election alone, the Bush campaign received close to $4 million in coal industry money. Under these circumstances, it comes as no surprise that the Bush administration embraced a variety of measures geared towards facilitating MTR. In the words of Jim Hecker, “it is impossible even to commence discussion with the Bush administration because it is ‘like negotiating with the coal industry.’”

When a regulatory body is captured or controlled by industry, the judiciary becomes a particularly important player in the effort to combat such capture and ensure independent and statutorily compliant decision-making. Unfortunately, in the case of MTR, this critical role of the judiciary is undermined by pervasive ties between the coal industry and members of the judiciary itself. The industry routinely pours money into state Supreme Courts. Because state judges are elected, they tend to be “more . . . partial and sympathetic to the coal mining industry.” This is one of the reasons why key MTR advocates, like Joe Lovett and Jim Hecker, choose to litigate exclusively in federal court.

However, problems exist on the federal level as well. Hecker and Lovett believe federal judges are frequently influenced by politics. A study

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203 Banks, supra note 33, at 151.
205 Id.
206 Baller & Pantilat, supra note 3, at 657.
207 See infra Part II.D.2. See generally EARTHJUSTICE, THE BUSH ADMINISTRATION’S COAL CONNECTIONS, available at http://www.wvoter-owned.org/reports/bush_coal_con.pdf (detailed connections between the coal industry and the Bush administration, including political appointments to the Corps, the Department of the Interior, and other key environmental positions).
208 Baller & Pantilat, supra note 3, at 658.
209 Mullen, supra note 83, at 931.
210 See, e.g., Nyden, supra note 197; PERC-WV, supra note 199, at 1–3.
211 See, e.g., Nyden, supra note 197; PERC-WV, supra note 199, at 1–3.
212 Baller & Pantilat, supra note 3, at 649.
213 Id. at 649.
214 Id. at 650.
conducted by the Environmental Law Institute in 2004 showed that on the appellate level, Republican appointees were six times more likely to decide cases against environmental plaintiffs than Democratic appointees. Ties between the coal industry and the judiciary are also reflected in the high rates of judicial recusal in high-profile MTR cases. In the Fourth Circuit alone, five of fourteen judges “have repeatedly recused themselves” because of “conflicts of interest with the coal industry.”

The ties between the coal industry and virtually every branch of the state and federal government are pervasive and disturbing. It is not the purpose of this note to explore the legality or illegality of these connections or the respective financial contributions, but merely to point out the overwhelming evidence that the coal industry plays an impermissible part in deciding the future of MTR. This is a clear recipe for disaster in a field that should be governed by public policy rather than by private financial stake and where a huge potential for conflict between public policy and private financial stake exists.

2. Politics

MTR policy, regulation, and law enforcement are highly dependent on the political agenda of the administration in charge. This section illustrates this relationship by comparing the state of affairs under the Bush and Obama administrations.

The general trend of the Bush administration was to pave the way for increased mining activity and to remove as many of the roadblocks established by existing laws as possible. Joe Lovett, a prominent environmental lawyer and executive director of the Appalachian Center for the Economy and the Environment in Lewisburg, West Virginia, characterized the Bush administration’s policies as “a complete collapse of any effort to effectively regulate the coal mining industry and apply the laws that are on the books.”

215 Id. at 651.
216 See id. at 652.
217 Id.
218 See supra Part II.D.
220 For background on Joe Lovett, see Baller & Pantilat, supra note 3, at 638–41.
221 Id. at 657.
In 2002, for example, in the midst of one of the most important judicial decisions on MTR, *Kentuckians for the Commonwealth, Inc. v. Rivenburgh*, the Bush administration changed the definition of “fill material” under the CWA to include specifically “overburden from mining,” in effect deciding the case in favor of allowing dumping of mining waste in streams. Despite Judge Haden’s objection that such a change was “contrary to the spirit and letter of the Clean Water Act” the Bush administration, aided by a conservative Fourth Circuit, ultimately prevailed.

Even more devastating was Bush’s mark on the SMCRA and the buffer zone rule. In 2004, the OSM drafted a proposal to amend SMCRA regulations in a way that would eliminate the requirement for extensive regulatory review prior to granting permits for mining operations within one hundred feet of intermittent or perennial streams and replace it with a requirement that mining operators use, “to the extent possible . . . the best technology currently available” to avoid environmental damage to the area. The amendment “would effectively gut the buffer zone rule.” Environmentalists objected immediately, pointing out, among other criticisms, that the OSM failed to conduct an environmental impact assessment of the proposed new rule. They succeeded in slowing down the process and forcing the OSM to conduct an EIS, but the rule ultimately passed anyway in 2008 as Bush’s parting gift to the coal industry.

Shortly after President Obama took office, the MTR policy pendulum started swinging in the opposite direction. In June 2009, recognizing

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222 *See supra* Part II.C.2.
223 *Clark, supra* note 10, at 145.
224 *Kentuckians for the Commonwealth, Inc. v. Rivenburgh*, 204 F. Supp. 2d 927, 946 (S.D. W. Va. 2002); *see Clark, supra* note 10, at 145.
225 *See supra* Part II.A.1 (discussing the buffer zone rule).
227 *Id.*
228 *Baller & Pantilat, supra* note 3, at 649.
229 *See Excess Spoil, Coal Mine Waste, and Buffers for Perennial and Intermittent Streams, 73 Fed. Reg. at 75,818.
230 *See id.* at 75,814, 75,818.
the gravity of the problem, the Obama administration implemented an interagency action plan aimed at reducing the environmental impacts of MTR in Appalachia. Among the first changes that resulted from this action plan was a proposal for repeal of the buffer zone rule adopted by the Bush administration and a return to the 1983 version of the rule. Although changes in rules and regulations can always be expected with changing administrations and are certainly understandable in light of global partisan policy differences, the effect of politics on rule-making presents a significant obstacle in the path of adopting a stable and consistent policy with regard to MTR.

III. PROPOSALS FOR CHANGE

The goal of this section is to introduce and evaluate some of the changes that can be implemented to ameliorate the negative impacts of MTR on the environment and on human communities. The proposals discussed here attempt to address the problem from a multitude of sometimes overlapping institutional perspectives—legislative, judicial, administrative, industry-specific, environmental, social, and scientific. These perspectives are neither mutually exclusive nor completely compatible and harmonious with each other. They are necessarily constrained by the inherently differing interests of different institutions. There is no solution to MTR that will leave everyone happy. Nor is there a solution, short of banning MTR altogether, that will completely solve the problems with MTR by eliminating any and all devastating effects of the practice on the environment and on human communities. However, if implementation of even one of the measures discussed here results in alleviation of some aspect of the MTR problem, then it is a step in the right direction and one desperately worth making.

A. Amending Laws and Regulations

Tightening the existing legal and regulatory framework of MTR is the first step to ameliorating some of the negative impacts of MTR on the environment and on human communities. Some action in this direction has already been suggested by the Obama Administration. Specific proposals for amending the SMCRA and the CWA are discussed below.

SMCRA

One of the main purposes of the SMCRA is to “strike a balance between protection of the environment and agricultural productivity and the Nation’s need for coal as an essential source of energy.” This delicate balance took a serious hit when the OSM adopted a rule that effectively replaced the buffer zone rule with a requirement for using the best technology currently available to prevent environmental damage when dumping overburden within 100 feet of intermittent or perennial streams.

The most immediate change to the SMCRA rules and regulations that should be implemented is, at a minimum, a return to the 1983 version of the buffer zone rule and stringent regulation of mining operations within 100 feet of the headwater streams that essentially sustain the entire aquatic system of Appalachia. This change is currently being contemplated in a notice of proposed rule-making issued by the OSM in late 2009. The agency is also considering further strengthening regulation by: “apply[ing] the prohibitions and restrictions of the buffer zone rule to all segments of all perennial and intermittent streams and to the surface of all lands within 100 feet of those streams”; establishing a “rebuttable presumption that the placement of excess spoil or coal mine waste in an intermittent or perennial stream is prohibited because it would result in an unacceptable level of environmental damage”; or prohibiting “placement of excess spoil or coal mine waste in perennial and intermittent streams . . .” altogether while restricting such deposits in ephemeral streams. Each of these proposals has tremendous potential for alleviating some of the devastating effects of MTR on the environment, and particularly on Appalachia’s waterways.

Another important change to the SMCRA involves the adoption of more precise quantitative definitions to many of the terms used in the

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236 See supra Part II.A.1 (discussing the buffer zone rule under the SMCRA).
238 See id. at 75,817.
241 Id.
statute and the respective rules and regulations. The current version of the statute is focused primarily on objectives, such as minimizing environmental damage, at the expense of providing concrete quantitative means for achieving these objectives. This lack of emphasis on concrete means in turn provides wiggle room for violations and complicates law enforcement. Although OSM is rightly considering changes to the rules in favor of quantitative requirements, it might make more sense to ultimately adopt some of these changes at the legislative level, however long and complicated the process, in order to circumvent the inherent instability of administrative agency action resulting from agency capture and political influence by changing administrations.

2. CWA

Perhaps the single most important amendment of the CWA that should be undertaken to ameliorate the negative impacts of MTR is the elimination of general permits under section 404 of the CWA available to MTR coal mining operators for discharging dredge and fill into mountain valleys. Such general permitting, which circumvents at once the process of notice and opportunity for a hearing and a detailed case-by-case assessment of the impact of a potential mining site on the surrounding aquatic environment, is expressly conditioned on a finding of minimal adverse environmental impact of an operation, both individually and cumulatively. As I hope this note has demonstrated, there is nothing minimal about the environmental impact of MTR. It takes but a single look at a picture of a fish with two eyes on one side and an abnormal spine curvature to realize this.

The fight over section 404 general permits for MTR, and NWP 21 permits in particular, has already begun, albeit without successful

242 See id. at 62,667–8.
243 See id. at 62,665–6.
244 See infra Part III.B.
246 See supra Part II.D. But see Evans, supra note 51, at 531 (arguing against a legislative solution and in favor of administrative agency action).
247 See supra Part II.A.2 (discussing the different permit requirements under section 402 and section 404 of the CWA).
248 See Fuschino, supra note 125, at 189–90.
249 Zeevi, supra note 124, at 252.
250 See Palmer et al., supra note 22, at 148.
resolution to date.\textsuperscript{251} While analyzing MTR litigation under the CWA in federal courts, Julia Fuschino suggested various arguments for challenging the issuance of NWP 21 to MTR coal mining operators.\textsuperscript{252} Although she correctly observed that the adequacy of the minimum-impact determinations by the Corps should be contested,\textsuperscript{253} her argument that by “requiring . . . [such determinations] before a project commences, the chance of significant environmental harm occurring can be minimized, if not eliminated”\textsuperscript{254} is naïve and misplaced. It implicitly endorses the erroneous view that there are circumstances in which the issuance of a general permit for a valley fill would be acceptable and thus ignores the amount of scientific data available to support the fact that a finding of minimal impact in the context of valley fills is never possible. Given the weight of the scientific evidence,\textsuperscript{255} restricting the approval of MTR mining operations through granting of only individual permits under section 404 and requiring a thorough case-by-case assessment of environmental harm in each project, or alternatively disposing with section 404 permits in general, are the only ways to implement the legislative intent behind the CWA and preserve the nation’s waterways from the devastating effects of MTR.

\textbf{B. Strengthening Law Enforcement}

As previously discussed, lack of stringent law enforcement is one of the leading contributing factors to the continued environmental degradation caused by MTR.\textsuperscript{256} Although this problem is easy to acknowledge,
knowing how to fix it, short of hoping that the government will just start doing a better job, presents significant challenges.

Perhaps the most traditional method of improving compliance with legal and regulatory requirements is to increase penalties for violations. In the mining industry, however, severe penalties for violations are already part of the established legal framework. Operating a mine in violation of the CWA, for example, results in “civil penalties of up to $25,000 per day” and potential criminal penalties “of up to $50,000 per day.” These rates frequently translate into exorbitant fines. In 2008, for example, Massey Energy, a coal mining company operating in West Virginia, was fined $20 million for what the federal government determined were some 4600 violations of the CWA. Despite these penalties, violations continue to occur.

Perhaps a better way of approaching the problem of law enforcement is to make it easier to detect violations. Currently, one of the obstacles precluding stringent enforcement is the difficulty of interpreting certain provisions of the laws expressed through qualitative descriptions rather than strict quantitative limits. For example, one of the provisions of the SMCRA and its associated administrative rules and regulations conditions approval of mining permits on a finding by the regulatory authorities that “the proposed operation ‘has been designed to prevent material damage to the hydrologic balance outside the permit area.’” However, no definition as to what constitutes “material damage” is provided. Similarly, the SMCRA does not currently impose quantitative limits on the size of valley fills, the amount of watershed that can be disturbed by mining operations, or the total number of miles of streams that can be covered by overburden at any one time. The lack of precise quantitative limits makes violations harder to detect.

258 Id.
260 Id.
261 See id.
263 Id. at 62,668.
264 Id.
265 Id. at 62,667 (imposing quantitative limits was included in proposals that the OSM is considering).
The OSM is currently entertaining the idea of changing these and other provisions of the SMCRA regulations in order to provide more exacting definitions and precise quantitative limits.266 Similarly, the EPA has begun to endorse more quantitative measures of acceptable levels of damage under the CWA.267 However, such changes are necessarily constrained by the level of available science and technology.268 While inviting comments on relevant advances in science, the OSM remarked that as of 2005, “existing studies provided an insufficient basis to determine a bright-line threshold of the nature described in this alternative.”269

In conclusion, despite the imperfections of these measures as the be-all and end-all solutions to law enforcement problems, both increasing civil and criminal penalties, and enhancing the capacity for detection of violations by adopting more quantitatively precise regulations, have the potential of ameliorating some of the disastrous effects of MTR. Additionally, increasing the government’s budget devoted to inspections of mining operations could facilitate an improvement in law enforcement.

C. Facilitating Judicial Action

Although a complete discussion of the complexities of environmental citizen suits and standing issues is beyond the scope of this note, it is worth pointing out that there are numerous obstacles precluding more prominent action in the judicial arena with respect to MTR.270 One such obstacle involves the inability, according to a ruling by the Fourth Circuit, of a federal court to issue a permanent injunction against a state official in a citizen suit under the SMCRA.271 In fact, this issue is what precluded the Fourth Circuit from ever reaching the substantive arguments made in Bragg v. Robertson, arguments that would otherwise have had a significant impact on MTR policy and practice.272

Another obstacle to judicial action is the potential for preclusion of citizen suits in cases when administrative action under the CWA has already been initiated by an administrative agency, even when such

266 Id. at 62,667–68.
267 See supra notes 163–66 and accompanying text (discussing conductivity level benchmarks in new EPA guidance).
269 Id.
270 See Baller & Pantilat, supra note 3, at 651–52.
271 Bragg v. W. Va. Coal Ass’n, 248 F.3d 275, 286 (4th Cir. 2001); Fuschino, supra note 125, at 194.
272 See supra Part II.C.1.
action is “de minimus . . . such as writing a letter expressing interest in investigating a mining permit.” In
the context of concerns over agency capture by the coal industry, and given the usual lack of agency
resources, citizen suits should be allowed to proceed concurrently with government investigations, so long as careful measures are taken to ensure that there are no duplicative penalties.

Facilitating judicial action by removing some of these obstacles could result in significant advances for MTR jurisprudence. Creating an avenue for judicial recourse to the MTR problem is especially important because of the relative stability that accompanies a judicial decision as opposed to administrative agency action or rule-making. As discussed previously, administrative actions and regulations are too frequently vulnerable to political influence and susceptible to change concurrent with changing administrations. A policy based on judicial interpretation of a congressional statute, on the other hand, could potentially provide an effective justification for stable and consistent administrative action.

D. Severing Connections Between Industry and Policymakers

As previously described, financial ties between the coal industry and policymakers exacerbate the already difficult process of implementing policy changes towards a reduced impact of MTR. Although the interests of the coal industry are certainly important to any debate on MTR and should be taken into account, they should not be allowed to drive policy at the expense of the interests of the larger public, and particularly those of the communities neighboring mining sites.

Stringent policies with regard to campaign financing should be implemented to prevent any temptation for bias by any official involved in MTR policy, be that a governor, a legislator, or an officer of the court. Furthermore, bringing increased public attention to the issue by exposing the financial ties between the coal industry and policymakers through mass media could serve as a powerful tool for change. To this goal, MTR policy would benefit from a collaboration between leading

273 Baller & Pantilat, supra note 3, at 658.
274 See supra Part II.D.1.
275 See Baller & Pantilat, supra note 3, at 658.
276 See id. at 648.
277 See supra Part II.D.2.
278 See supra Part II.D.1.
279 See Banks, supra note 33, at 175 (making the case for tightening campaign finance rules in Kentucky).
environmental organizations, such as Earthjustice,280 and organizations involved in policing campaign financing, such as the National Institute on Money in State Politics.281

E. Focusing on Reclamation

One possible way to ameliorate the destructive environmental impact of MTR is through increased reliance on science in improving post-mining reclamation and mitigation procedures. Currently, deforestation and stream destruction, combined with the accompanying loss of ecosystems and biodiversity, constitute the greatest threats to the environment caused by MTR.282 Although the SMCRA requires that mined land be returned to its approximate original contour, which includes reestablishing a vegetative cover,283 many mining companies find ways to go around the law; for example, by declaring bankruptcy and avoiding reclamation altogether, or by reclaiming the land in ineffective ways, such as planting cheap weeds where beautiful forests once stood.284 Strengthening law enforcement with respect to reclamation,285 as well as increasing investment in scientific research aimed at improving currently available reclamation techniques, can have profound consequences on the environment.

Science has the theoretical potential of providing the only mutually acceptable compromise to the environment-coal dilemma. In an age when genetics is part of our everyday lives, scientists clone sheep, and engineers construct “green buildings,” it is particularly hard to accept that reclamation science is in as poor condition as it is. If Dubai can build luscious green oases in the middle of the desert286 and ski slopes in the middle of malls,287 why can’t we figure out how to reclaim a mountain?

280 EARTHJUSTICE, http://www.earthjustice.org (last visited Apr. 4, 2011) (non-profit environmental justice organization that, among other services, provides legal representation for citizen groups and other parties in environmental litigation to compel government and private organizations to follow environmental laws and regulations).
282 See supra Parts I.B.1, 2.
284 Banks, supra note 33, at 165.
285 See supra Part III.B.
Unfortunately, recent scientific data suggest that fully reversing the environmental damage from MTR may never be possible. A study published in the magazine Science in January 2010 concluded that the “preponderance of scientific evidence” shows that MTR’s environmental impacts are “pervasive and irreversible and that mitigation cannot compensate for losses.” According to Margaret Palmer, a leading environmental scientist with expertise on stream ecosystems and restoration ecology, neither of the two methods currently utilized for mitigating MTR’s environmental damage to waterways—stream creation and stream restoration—has proven to work. In fact, “there is not a single study in the peer-reviewed literature providing evidence that streams created for mitigation replace the functions and structures of natural headwater streams.” Given these constraints, it might make more sense to invest money in offsetting any potential economic loss resulting from a ban on MTR than to put it in further studies of reclamation science in hope for a scientific miracle.

F. Re-conceptualizing MTR in Public Health Terms

One other approach to MTR that has not been widely adopted, except by a few public health scientists, is to rephrase the problem from environmental terms into public health terms. Although the environmental degradation caused by MTR is most certainly devastating, conceptualizing the problem in strictly environmental terms allows us to shrug off some of the urgency that is necessary for an effective solution. Regrettable as this may be, most people tend to think of environmental problems as ones with primarily long-term consequences that do not usually affect our everyday lives directly. Although a heightened environmental consciousness is certainly beginning to emerge in our society, the average person is still unlikely to really start worrying about

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288 See, e.g., Palmer et al., supra note 22, at 148–49; Senate Hearing, supra note 239, at 2–3, 10–11.
289 Palmer et al., supra note 22, at 149.
290 See Senate Hearing, supra note 239, at 8–10.
291 Id. at 11.
292 See supra Part I.B.3 (discussing the work of Michael Hendryx and Melissa Ahern).
293 See, e.g., Do We Care About the Environment?: Study Shows Steady Decrease in Concern over Ecosystem’s Well-Being, ABC News (Feb. 8, 2006), http://abcnews.go.com/Technology/story?id=1589525&page=1 (explaining that concern for the environment has decreased because of a shift in priorities—it is when people perceive the environment as an immediate threat that they have a greater concern).
climate change before something drastic and immediate happens,\footnote{See id. (explaining how events and issues may affect the trends in interest in the environment).} say for example, the California coast starts sinking. Similarly, while there is still water running in our faucets and electricity lighting up our homes, the few hundreds of miles of streams and mountaintops lost during MTR can become a speculative and distant threat. This allows us to misconstrue and ignore the true magnitude of the problems with MTR.

Instead of waiting for environmental consciousness to progress to a level when everyone would care about even a single mountain lost, what we can do, and do now, is re-conceptualize MTR as a problem of public health. Most people may not care about trees, and water, and mountaintops,\footnote{See id. (noting that less than half of respondents want the environment to be a top priority).} but they certainly do care about other people dying. And, people in Appalachia\footnote{See supra Part I.B.3 (discussing statistically significant increases in mortality rates in Appalachian coal mining communities).} are dying.\footnote{See supra Part I.B.3.} In addition to the health hazards usually associated with the practice of coal mining, such as black lung disease, MTR causes a myriad of health problems for the communities neighboring mining sites.\footnote{See supra Part I.B.3.} Constant exposure to dust particles caused by explosion blasts results in unprecedented levels of chronic disease.\footnote{See supra Part I.B.3.} A risk increase of sixty-four percent for chronic obstructive pulmonary disease and seventy percent for kidney disease\footnote{SCIENCEDAILY, supra note 49.} is not only disturbing, it is immediate, urgent, and unacceptable.

Re-conceptualizing the problem in public health terms can have numerous consequences for MTR policy. For example, it would allow direct and increased regulation of mining operators by the federal Department of Health and Human Services and its respective state counterparts. In an approach similar to that of the EPA in requiring environmental impact assessments for water pollution permits, these agencies could require coal operators to conduct human health impact assessments prior to the beginning and throughout the duration of mining operations. Threshold levels of public health risk can be set, and severe criminal and civil penalties can be imposed for violations. Furthermore, as a public health parallel to current environmental mitigation and reclamation requirements, the agencies could require coal operators to implement a variety of human health mitigation procedures. These could include paying for scientific and medical research on diseases
associated with MTR, improving healthcare access by setting up clinics and other treatment facilities in Appalachia, and paying for preventative as well as curative healthcare services in the neighboring communities. This approach would effectively require coal mining operators to internalize some of the exorbitant healthcare costs of MTR.

Currently, it is difficult to determine the most effective means for achieving such re-conceptualization and to assess with any certainty the feasibility of this approach. Regardless, because of this approach’s unique emphasis on human health and its potential to deliver relief to those who need it most—the Appalachian human communities—action can and should be taken. By a combination of grass-roots campaigning, political lobbying, the democratic process of electing officials, and judicial enforcement of tort liability, we can fight to ameliorate the effects of MTR on the people of Appalachia.

G. Complete Ban of Mountaintop Removal

Many have argued, and argued fervently, for a complete ban of MTR.\textsuperscript{300} In essence, this is the only true solution for the problem, the one that will obviate the need for all the proposed changes discussed above. But is it feasible?

When analyzing the proposal for banning MTR, it is imperative to keep in mind that this is not a proposal for banning coal mining as a whole, or even the majority of it. Over half the electricity used in our nation comes from coal.\textsuperscript{301} It will be far too naïve to even suggest the possibility of eliminating coal as an energy resource. But, as our President has stated, the coal that we do produce has to be “clean coal.”\textsuperscript{302} I hope this note has shown that there is nothing clean about MTR coal.

The only conceivable argument against banning MTR is based on the economic impact that such a ban could have on the Appalachian communities and our nation as a whole in terms of lost energy resources, lost tax revenues, and lost jobs. These are addressed in turn below.

\textsuperscript{300}These include not only environmental organizations such as Earthjustice and the OVEC, but also legislators and politicians. See, e.g., Matt Saldaña, \textit{Bill to Ban Mountaintop Removal Coal in N.C. Introduced}, INDEPENDENT WEEKLY (Feb. 26, 2009, 11:05 PM), http://www.indyweek.com/triangulator/archives/2009/02/26/bill-to-ban-mountaintop-removal-coal-in-nc-introduced.

\textsuperscript{301}Mullen, \textit{supra} note 83, at 932.

With regard to lost energy resources, it helps to keep in mind that less than five percent of the total coal produced in the United States comes from MTR mining.\footnote{ILOVEMOUNTAINS.ORG, supra note 54.} Therefore, banning MTR is projected to have only marginal effects on overall coal extraction.\footnote{See id.} Furthermore, banning MTR will not preclude coal mining using a variety of alternative methods. Although such methods might be more expensive, the corresponding increase of electricity prices would likely be negligible, given the small percentage of coal currently produced by MTR.\footnote{See id.} Furthermore, prices of electricity are already artificially deflated because they do not take into account the “hidden costs” of coal to human health and human lives.\footnote{See Friedrich, supra note 38. A study by the National Academy of Scientists found that these “hidden costs” amount to over $62 billion in “external damages” to our health and lives.” Id. “[T]he coal industry ‘costs the Appalachian region five times more in early deaths than it provides in economic benefits.’” Id.} On a more philosophical level, the idea of securing the cheapest possible electricity can itself be challenged on the grounds that it disincentivizes conservation, efficiency, sustainability, and development of renewable energy sources.\footnote{See Mountaintop Removal’s Environmental Double Whammy, THE ECONOMIST (Oct. 20, 2009, 3:00 PM), http://www.economist.com/blogs/democracyinamerica/2009/10/mountaintop_removals_double_en.}

With regard to revenues generated by coal taxes, it is difficult to estimate how much money comes from MTR as opposed to other coal mining methods.\footnote{Some estimates are available with regard to the economic contribution of the entire coal industry, as opposed to MTR in particular, to Appalachia. See Hendryx & Ahern, supra note 60, at 546 (reporting that the coal industry contributed approximately $6.5 billion in 1997 and $8 billion in 2005, including direct, indirect, and induced earnings impacts, as well as state income from coal severance taxes). Most state departments of mining appear to keep statistics based on underground versus surface mining methods without further subcategorizing surface mining into MTR and other methods.} In any case, however, an argument for a substantial impact of banning MTR on tax revenues necessarily relies on the idea that the amount of coal produced by MTR and hence the corresponding tax revenues will not be replaced by coal produced by alternative mining methods. There is no reason to assume this is so.

With regard to employment, the data show that because of MTR’s technological advances in efficient utilization of machinery over people, MTR mining has actually resulted in a net loss of mining jobs.\footnote{See supra Part I.C.1.}
Kentucky, for example, the shift from traditional mining to MTR caused a decrease in coal jobs of approximately sixty percent. These data have obliterating effects on any argument rooted in the idea that banning MTR would result in an unacceptable impact on local rates of employment.

A recent study on behalf of Coal River Mountain Watch provides an instructive response to concerns over the loss of energy, tax revenues, and jobs associated with MTR. The study examined three different scenarios for energy development of Coal River Mountain in Raleigh County, West Virginia—two involving wind energy and one involving MTR—and compared the economic benefits and costs under each scenario. The data showed that the economic benefits of the wind scenarios far exceeded those of the MTR scenario, with twenty-eight percent to three-hundred fourteen percent more jobs depending on which of the wind energy scenarios was implemented, and with over $1 million more tax revenues per year. The authors thus concluded that “the mountaintop removal scenario is not defensible from the perspective of Raleigh County citizens . . . .”

On a final note, the correlation between poverty and coal production in Appalachia suggests that “a continued reliance on the coal industry is not a viable option for long-term sustainable economic development.” Dependence on coal seems to be Appalachia’s problem, not its solution. It contributes to health deterioration, both indirectly by virtue of pollution and environmental degradation, and directly because mining is one of the most hazardous jobs in the United States; it promotes the exploitation of labor by a greedy and largely foreign state-owned industry, which

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310 Evans, supra note 51, at 533 n.74 (citing ERIK REECE, LOST MOUNTAIN 58 (2006)).
312 Id. at vi. “Economic benefits [were] quantified based on increased jobs, earnings, and economic output”; economic costs accounted for excess deaths and illnesses with MTR; externalities such as global environmental costs, tourism, and property values were not taken into account. Id.
313 Id. at 35.
314 Id. at vi.
315 See supra Part I.C.1.
316 Halbert, supra note 65, at 386.
317 See supra Part I.B.3.
reaps economic benefits at the expense of local mining communities who get little more than a living wage;\textsuperscript{320} it contributes to a poor educational level because a high school diploma is hardly necessary for a mining job;\textsuperscript{321} and it jeopardizes the efficiency of the democratic and political processes of the state.\textsuperscript{322} What Appalachia needs is new horizons, new industries, new jobs, and a complete restructuring of the economy in a way that will be sustainable in the long run.\textsuperscript{323} In this sense too, banning MTR may ultimately prove to be more beneficial than detrimental to Appalachia’s economy. It is thus the conclusion of this author that the obstacles that stand in the way of full MTR ban are political rather than practical in nature and driven by a largely self-serving coal industry.

CONCLUSION

MTR impacts the environment and public health in devastating and unacceptable ways as mountains tumble, waterways vanish, ecosystems degrade, and people die. Regulation of the practice has not been successful in adequately addressing all aspects of the problem or controlling the rate of degradation caused by MTR. Urgent policy changes are needed to ensure that when we wake up tomorrow, the treasure in our backyard that is the Appalachian mountains will still be there.

The goal of this note has been not only to expose the devastating effects of MTR but also to illuminate the many different and intricately interwoven social, political, legal, scientific, and economic forces at play contributing to the disaster. A multifaceted problem requires a multifaceted solution. It is therefore imperative that in order for some measurable amount of change to occur we adopt a multi-institutional approach, affecting all levels of government and society. Nothing less than the concerted action of legislative, regulatory, political, economic, scientific, and social reform will suffice in the effort to preserve Appalachia.

\textsuperscript{321} Id. at 2.
\textsuperscript{322} See supra Part II.D.1.
\textsuperscript{323} See Evans, supra note 51, at 533–34.