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LET'S FACE FACTS, THESE MOUNTAINS WON'T GROW BACK:¹ 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.² In recent years, their beauty has been overshadowed by vast strips of moonscape plateaus, resulting from extensive mountaintop removal coal mining operations.³ 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.⁴ 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.

¹ *Contra The Colbert Report: Coal Comfort—Margaret Palmer* (Comedy Central television broadcast Jan. 18, 2010), available at <http://www.colbertnation.com/the-colbert-report-videos/261997/January-18-2010/coal-comfort---margaret-palmer> (“You’re all anti-mountaintop removal, but let’s face facts, these mountains will grow back.”).

* 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.

² See Wilma Dykeman, *Appalachian Mountains*, BRITANNICA CONCISE ENCYCLOPEDIA, <http://www.britannica.com/EBchecked/topic/30353/Appalachian-Mountains> (last visited Apr. 4, 2011).

³ See Mark Baller & Leor Joseph Pantilat, Comment, *Defenders of Appalachia: The Campaign to Eliminate Mountaintop Removal Coal Mining and the Role of Public Justice*, 37 ENVTL. L. 629, 630 (2007).

⁴ Sue Sturgis, *Mountaintop Removal Mining Study Will Test Obama’s Commitment to Science*, FACING SOUTH: THE ONLINE MAG. OF THE INST. FOR SOUTHERN STUD. (Jan. 10, 2010, 8:18 PM), <http://www.southernstudies.org/2010/01/mountaintop-removal-mining-study-will-test-obamas-commitment-to-science.html>.

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.⁵ 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.⁶

⁵ U.S. ENVTL. PROT. AGENCY, MOUNTAINTOP MINING/VALLEY FILLS IN APPALACHIA: FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT 2 (2005) [hereinafter FPEIS].

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 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.⁷ After the target terrain is deforested, removal is accomplished by blasting the mountaintop with explosives.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.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.¹⁰ This process is known as “swelling” and the excess material is referred to as “excess spoil” or “overburden.”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.¹²

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”¹³ From deforestation to air pollution, destruction of wildlife, and permanent loss of waterways, the effects of MTR on the environment are multifaceted.¹⁴

1. Impact on Vegetation and Animal Life

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

⁷ Baller & Pantilat, *supra* note 3, at 631.

⁸ *See id.*

⁹ *See* Zoe Gamble, Note, *Injustice in the Fourth Circuit: Bragg v. West Virginia Coal Association Is Moving Mountains for Industry*, 30 VT. L. REV. 393, 395 (2006).

¹⁰ *Id.* at 395–96; Sara Clark, *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).

¹¹ Gamble, *supra* note 9, at 396.

¹² *See id.*

¹³ Baller & Pantilat, *supra* note 3, at 630 (quoting Jim Hecker).

¹⁴ *See infra* Part I.B.1–3.

¹⁵ Baller & Pantilat, *supra* note 3, at 632.

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.”¹⁷ 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 as salamanders, have been replaced by reptiles,

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.

¹⁸ See Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. § 1202 (2006); see *infra* Part II.A.1.

¹⁹ See FPEIS, *supra* note 5, at 47.

²⁰ See U.S. ENVTL. PROT. AGENCY, THE EFFECTS OF MOUNTAINTOP MINES AND VALLEY FILLS ON AQUATIC ECOSYSTEMS OF THE CENTRAL APPALACHIAN COALFIELDS 63 (2009) [hereinafter EFFECTS OF MOUNTAINTOP MINES] (external review draft).

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.²⁶ These troublesome trends are a sign of the gradual destruction of biodiversity in the area.²⁷

The destructive impact on vegetation and animal life is further compounded by stream elimination and pollution.²⁸ The perturbing shift towards less diverse and more pollution-tolerant species is particularly visible in fish.²⁹ Elevated concentrations of sulfates and selenium in waterways, among other pollutants produced during MTR activities, have toxic effects on many aquatic organisms.³⁰ Excess selenium levels, for example, “cause teratogenic deformities in larval fish”³¹ In a chain reaction of environmental destruction, birds, which feed on the fish, are then affected and face reproductive failure.³²

2. Impact on Waterways

Perhaps the most pronounced and significant environmental impact of MTR is that on waterways.³³ Waterways are impacted in at least two ways: first, they are directly buried and consequently permanently destroyed when overburden is dumped in the valleys;³⁴ and second, they are polluted by toxic materials produced and released during mining operations.³⁵ One estimate suggests that over 1200 miles of rivers and streams had been buried under valley fills as of 2007.³⁶ 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 2002.³⁷ More recently, the figure has been increased to as much as 2000

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 2010.³⁸ 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.³⁹

Water pollution is another critical consequence of MTR in Appalachia.⁴⁰ Toxic chemicals such as arsenic, mercury, chromium, selenium, nickel, and boron are released in the water during mining operations.⁴¹ Acid mine drainage, high in sulfuric acid, is particularly detrimental to the environment.⁴² As a result of water toxicity, fish communities are changed or lost, and the aquatic ecosystem becomes sterile.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.”⁴⁴ MTR has pronounced effects on human communities, with varying degrees of impact on human health.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.⁴⁶

³⁸ Press Release, U.S. Env'tl. Prot. Agency, EPA Issues Comprehensive Guidance to Protect Appalachian Communities from Harmful Environmental Impacts of Mountain Top Mining (Apr. 1, 2010), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/2010_04_10_wetlands_guidance_appalachian_mtntop_mining_press_release.pdf; Sturgis, *supra* note 4; Jeff Friedrich, *Interview: Author and Anti-Coal Activist Jeff Biggers Talks About the 'Coal Roots' of Black History Month and Will Be Speaking Friday in Harlem*, THE INDYPENDENT (Feb. 25, 2010), <http://www.indypendent.org/2010/02/25/jeff-biggers-interview>.

³⁹ EFFECTS OF MOUNTAINTOP MINES, *supra* note 20, at 2.

⁴⁰ See Banks, *supra* note 33, at 142–44.

⁴¹ Baller & Pantilat, *supra* note 3, at 633–34.

⁴² See Banks, *supra* note 33, at 142–43.

⁴³ *Id.* at 143.

⁴⁴ Baller & Pantilat, *supra* note 3, at 634.

⁴⁵ *Id.* at 632–33.

⁴⁶ *Id.* at 631–33.

Conditions like asthma, headaches, chronic runny nose, nausea, diarrhea, vomiting, and various skin ulcerations occur in significantly increased rates.⁴⁷ Possible long-term effects include systemic organ failure, bone damage, and digestive tract cancers.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.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.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.”⁵¹ These health problems are additionally exacerbated by the general poverty of the Appalachian region⁵² and the fact that its residents largely lack access to adequate healthcare.⁵³

In addition to problems resulting from regular mining operations, human communities in the Appalachian region are frequently affected by flooding and mining accidents.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.⁵⁵

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

⁴⁷ See *id.* at 633.

⁴⁸ *Id.*

⁴⁹ *Chronic Illness Linked to Coal-Mining Pollution, Study Shows*, SCIENCE 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.*

⁵⁰ *Id.*

⁵¹ Sam Evans, *Voice from the Desecrated Places: A Journey to End Mountaintop Removal Mining*, 34 HARV. ENVTL. L. REV. 521, 528 (2010).

⁵² See *infra* Part I.C.1.

⁵³ See Banks, *supra* note 33, at 148.

⁵⁴ See *Learn More About Mountaintop Removal Coal Mining*, ILOVEMOUNTAINS.ORG, <http://ilovemountains.org/resources/#mtrcommunities> (last visited Apr. 4, 2011).

⁵⁵ See *id.*; FPEIS, *supra* note 5, at 71–73; Baller & Pantilat, *supra* note 3, at 633–34.

⁵⁶ ILOVEMOUNTAINS.ORG, *supra* note 54.

underground waterways leads to contamination of drinking water supplies.⁵⁷ Breaches can have devastating effects.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.’”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.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.’”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.”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.⁶³ The authors naturally concluded, “The human cost of the Appalachian coal mining economy outweighs its economic benefits.”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.”⁶⁵

⁵⁷ *See id.*

⁵⁸ *See id.*

⁵⁹ *Id.*

⁶⁰ *See* Michael Hendryx & Melissa M. Ahern, *Mortality in Appalachian Coal Mining Regions: The Value of Statistical Life Lost*, 124 PUB. HEALTH REP. 541, 542, 547 (2009).

⁶¹ Friedrich, *supra* note 38.

⁶² Hendryx & Ahern, *supra* note 60, at 541.

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ Hannah C. Halbert, Note, *From Picket Line to Courtroom: The Changing Forum for Regional Resistance, Environmental Reform and Policy Change in Appalachia*, 25 HAMLIN J. PUB. L. & POL'Y 375, 376 (2004).

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.⁶⁶ 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),⁶⁷ coal mining activity is most concentrated in the intersection of Kentucky, West Virginia, and Virginia.⁶⁸ The counties where coal mining, and MTR in particular, are most prevalent are also the counties where poverty is most rampant.⁶⁹ For example, forty counties in Kentucky and eleven counties in West Virginia have been designated “distressed counties” for the fiscal year 2010.⁷⁰ In 2006, one author reported a probable poverty rate as high as fifty percent in Letcher County, Kentucky.⁷¹ Eighty percent of the residents in the same county had no access to public water utilities.⁷²

Against the background of this devastating poverty, coal mining has emerged as “the only sustainable industry” in the region.⁷³ Coal mining remains crucial to the Appalachian economy.⁷⁴ A study conducted by the Appalachian Regional Commission reported that in 1997, for

⁶⁶ See Banks, *supra* note 33, at 125–26; *The Appalachian Region*, APPALACHIAN REG'L COMM'N, http://www.arc.gov/appalachian_region/TheAppalachianRegion.asp (last visited Apr. 4, 2011).

⁶⁷ APPALACHIAN REG'L COMM'N, *supra* note 66.

⁶⁸ See 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), available at http://www.arc.gov/assets/research_reports/CurrentEconomicImpactsofAppalachianCoalIndustry.pdf; see also 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), 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).

⁶⁹ See Baller & Pantilat, *supra* note 3, at 633.

⁷⁰ *ARC-Designated Distressed Counties, Fiscal Year 2010*, APPALACHIAN REG'L COMM'N, http://www.arc.gov/appalachian_region/ARCDesignatedDistressedCountiesFiscalYear2010.asp (last visited Apr. 4, 2011). Counties are designated distressed when “poverty and unemployment rates are at least 150 percent of the national average[] and where per capita market incomes . . . are no more than two-thirds of the national average.” *Poverty Statistics*, APPALACHIAN MINISTRIES, <http://www.appalachianministries.com/Poverty-Statistics.html> (last visited Apr. 4, 2011).

⁷¹ Banks, *supra* note 33, at 146–47.

⁷² *Id.* at 146.

⁷³ *Id.* at 127.

⁷⁴ *Id.* at 134.

example, coal mining earnings exceeded \$50 million in five counties in Kentucky, eight in West Virginia, and two in Virginia.⁷⁵ 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.⁷⁶ “The total impact of the coal mining industry accounted . . . for 29.9% of employment and 27.6% of earnings in the Central Appalachia region.”⁷⁷

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.⁷⁸ This is because MTR’s efficient utilization of machinery has largely replaced the need for manual labor.⁷⁹ 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.⁸⁰ Coal production from surface mines, measured in tons per miner per hour, is approximately three times higher than that from underground mines.⁸¹ As a result, while coal production is rising, mining employment is on the decline.⁸²

2. Pressure for Coal from the Outside

Coal is arguably the most important energy resource in the United States.⁸³ It directly contributes to the production of approximately half the electricity generated in the United States.⁸⁴ 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.⁸⁵

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.

⁸¹ *Most Requested Statistics—U.S. Coal Industry*, NAT’L MINING ASS’N, http://www.nma.org/pdf/c_most_requested.pdf (last updated Nov. 2010).

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.*

⁸³ *See, e.g.*, Reid Mullen, Note, *Statutory Complexity Disguises Agency Capture in Citizens Coal Council v. EPA*, 34 *ECOLOGY L.Q.* 927, 932 (2007).

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.

⁸⁹ Allison Subacz, Note, *Mountaintop Removal: Case Studies and Legislative Update of the Permitting Process*, 4 APPALACHIAN NAT. RESOURCES L.J. 49, 50 & n.8 (2010) (quoting the Energy Information Administration).

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.

⁹⁵ See, e.g., VA. DEP'T OF MINES, MINERALS & ENERGY, <http://www.dmme.virginia.gov/> (last visited Apr. 4, 2011); *Division of Mining and Reclamation*, W. VA. DEP'T OF ENVTL. PROT., <http://www.dep.wv.gov/dmr/Pages/default.aspx> (last visited Apr. 4, 2011).

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,⁹⁷ the Clean Water Act (“CWA”),⁹⁸ the National Environmental Policy Act (“NEPA”),⁹⁹ and the Administrative Procedure Act (“APA”).¹⁰⁰ SMCRA and CWA provide substantive standards for regulating surface mining,¹⁰¹ whereas NEPA and APA are procedural statutes that guide enforcement of the substantive laws.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.¹⁰³ On another, the states were ultimately in competition with each other for coal production in one global market reality.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.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.¹⁰⁶ Thus, in 1977, Congress passed the SMCRA.¹⁰⁷

The SMCRA is the only federal law that is specifically enacted to address problems and concerns arising from surface mining practices.¹⁰⁸ The law provides for the set up of the federal Office of Surface Mining

⁹⁷ Surface Mining and Reclamation Act, 30 U.S.C. §§ 1201–1328 (2006).

⁹⁸ Federal Water Pollution Control (Clean Water) Act, 33 U.S.C. §§ 1251–1387 (2006).

⁹⁹ National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321–4370 (2006).

¹⁰⁰ Administrative Procedure Act, 5 U.S.C. §§ 701–706 (2006) (explicating judicial review under the Act).

¹⁰¹ See Gamble, *supra* note 9, at 422–23.

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).

¹⁰³ See Gamble, *supra* note 9, at 423–24.

¹⁰⁴ See *id.* at 423.

¹⁰⁵ See *id.*

¹⁰⁶ *Id.* at 424.

¹⁰⁷ See Surface Mining and Reclamation Act, 30 U.S.C. §§ 1201–1328 (2006).

¹⁰⁸ See Gamble, *supra* note 9, at 423–24.

(“OSM”); “[g]ives enforcement power to the states” conditioned on prior approval of their SMCRA programs by OSM, which in turn requires the adoption of certain minimum requirements; mandates coal companies to get mining permits and reclamation bonds; and “[a]llows for citizen intervention in permit and enforcement decisions.”¹⁰⁹ 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.¹¹⁰

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.”¹¹¹ This requirement in essence prohibits surface mining in areas where subsequent “reclamation is not possible.”¹¹² 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.¹¹³

Another particularly important regulation of the SMCRA, known as the “buffer” zone rule,¹¹⁴ 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.”¹¹⁵ 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.”¹¹⁶

¹⁰⁹ See *SMCRA Overview*, KENTUCKIANS FOR THE COMMONWEALTH, <http://www.kftc.org/our-work/canary-project/resources/fight-back/smcra> (last visited Apr. 4, 2011).

¹¹⁰ See 30 U.S.C. § 1265 (2006).

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.¹¹⁷ 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.'"¹¹⁸ Surface mining operations necessarily implicate the CWA because valley fills frequently cause pollution and permanent destruction of entire streams.¹¹⁹

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.¹²⁰ This situation occurs, for example, when treated water from a sediment pond is released back to a stream.¹²¹ 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.¹²² 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."¹²³

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").¹²⁴ Unlike individual permits, which require comprehensive case-by-case evaluations

¹¹⁷ *Ohio Valley Env'tl. Coal. v. Aracoma Coal Co.*, 556 F.3d 177, 190 (4th Cir. 2009).

¹¹⁸ *Ohio Valley Env'tl. Coal.*, 556 F.3d at 190 (quoting 33 U.S.C. § 1251(a) (2000)).

¹¹⁹ *See supra* Part I.B.2.

¹²⁰ *Ohio Valley Env'tl. Coal.*, 556 F.3d at 190 (describing the permit processes surface mine operators must undertake to meet with CWA compliance).

¹²¹ *Id.*

¹²² *See id.* at 190–91.

¹²³ *Id.* at 191 (citing 33 C.F.R. § 320.4(a)(1) (2008); 33 C.F.R. § 320.4(a)(1) (2010)).

¹²⁴ *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. BAL'T. 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).

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.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.”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.¹²⁷

3. NEPA

The NEPA requires federal agencies to evaluate and account for “the potential environmental consequences of their actions.”¹²⁸ This includes preparing an Environmental Impact Statement (“EIS”) for actions “significantly affecting the quality of the human environment”¹²⁹ Determining “significance” of environmental effects in this context may additionally require the preparation of an Environmental Assessment (“EA”).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”].”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.¹³²

¹²⁵ See Julia Fuschino, Note, *Mountaintop Coal Mining and the Clean Water Act: The Fight over Nationwide Permit 21*, 34 B.C. ENVTL. AFF. L. REV. 179, 189–90 (2007) (describing the difference between an individual and a general permit).

¹²⁶ Federal Water Pollution Control (Clean Water) Act, 33 U.S.C. § 1344(e) (2006).

¹²⁷ See discussion *infra* Part II.C.

¹²⁸ *Ohio Valley Env'tl. Coal. v. Aracoma Coal Co.*, 556 F.3d 177, 191 (4th Cir. 2009) (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989)).

¹²⁹ National Environmental Policy Act of 1969, 42 U.S.C. § 4332(2)(C) (2006); see also *Ohio Valley Env'tl. Coal.*, 556 F.3d at 191 (discussing the EIS requirement of NEPA).

¹³⁰ *Ohio Valley Env'tl. Coal.*, 556 F.3d at 191 (discussing how significance is determined under NEPA).

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

¹³² 5 U.S.C. §§ 702, 706 (2006); see also *Ohio Valley Env'tl. 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

¹³³ 5 U.S.C. § 706(2)(A) (2006), cited in *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 413 n.30 (1971); see also *Ohio Valley Envtl. Coal.*, 556 F.3d at 192.

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.¹⁴⁵ 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.¹⁴⁶ 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.”¹⁴⁷ Consequently, entire mountains tumbled down with devastating consequences for the environment, while the economic development¹⁴⁸ that was supposed to invigorate the region and bring new jobs where they were so desperately needed never happened.¹⁴⁹

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”¹⁵⁰ approach in the SMCRA and creating the OSM was to ensure federal oversight of the process.¹⁵¹ 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.¹⁵² Instead of following the law, the OSM simply chose to ignore the situation.¹⁵³

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.¹⁵⁴ 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

¹⁴⁵ See *id.* at 64–69.

¹⁴⁶ See *id.* at 66–68.

¹⁴⁷ *Id.* at 66–67.

¹⁴⁸ See *supra* Part II.A.1 (discussing AOC waivers for promotion of economic development of mined regions).

¹⁴⁹ See McGinley, *supra* note 6, at 67, 70–71.

¹⁵⁰ *Id.* at 51.

¹⁵¹ See *id.* at 51–52.

¹⁵² *Id.*

¹⁵³ See *id.* at 68.

¹⁵⁴ 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_mtntop_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.”).

permits without making the requisite prior environmental impact assessments.¹⁵⁵ A deposition in the case revealed that one permit reviewer “assessed and approved 8,000 mining permits without conducting the required investigation.”¹⁵⁶

Law enforcement today is almost as grim as it was in the 1990s, although with a recent trend of improvement.¹⁵⁷ 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.¹⁵⁸ 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).”¹⁵⁹ This resulted in an “Enhanced Coordination Procedure” (“ECP”) review of seventy-nine pending permit applications for surface coal mining projects in six Appalachian states.¹⁶⁰ 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.¹⁶¹ 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”¹⁶² 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

¹⁵⁵ See *Bragg v. Robertson*, 72 F. Supp. 2d 642, 642 (S.D. W.Va. 1999); Baller & Pantilat, *supra* note 3, at 641; *infra* Part II.C.1.

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).

¹⁵⁷ See Press Release, U.S. Envtl. Prot. Agency, Obama Administration Takes Unprecedented Steps to Reduce Environmental Impacts of Mountaintop Coal Mining, Announces Interagency Action Plan to Implement Reforms (June 11, 2009), *available at* http://www.epa.gov/owow/wetlands/pdf/MTM_Release_6-11-09.pdf.

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ U.S. ENVTL. PROT. AGENCY, SURFACE COAL MINING ACTIVITIES ENHANCED COORDINATION PROCEDURES: QUESTIONS AND ANSWERS ABOUT THE FINAL LIST 1, 3 (2009), *available at* http://www.epa.gov/owow/wetlands/pdf/ECP_Q&A_09-30-09_final.pdf.

¹⁶¹ Letter from Peter S. Silva, EPA Assistant Adm'r, to Jo-Ellen Darcy, Assistant Sec'y of the Army, Civil Works (Sept. 30, 2009), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/wetlands_pdf_EPA_Letter_to_Army_Final_ECP_09-30-09.pdf.

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

¹⁶³ See *Surface Coal Mining Activities Enhanced Coordination Procedures—Project List*, U.S. ENVTL. PROT. AGENCY, <http://water.epa.gov/lawsregs/guidance/wetlands/mining-projects.cfm> (last updated Mar. 10, 2011).

¹⁶⁴ Press Release, U.S. Env'tl. Prot. Agency, EPA Issues Comprehensive Guidance to Protect Appalachian Communities from Harmful Environmental Impacts of Mountain Top Mining, (Apr. 1, 2010), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/2010_04_10_wetlands_guidance_appalachian_mnttop_mining_press_release.pdf; *see also* Guidance on Improving EPA Review of Appalachian Surface Coal Mining Operations, 75 Fed. Reg. 18,500 (Apr. 12, 2010); Memorandum from Peter S. Silva, Assistant Adm'r for Water, and Cynthia Giles, Assistant Adm'r for Enforcement and Compliance Assurance, to Shawn Garvin, Reg'l Adm'r, A. Stanley Meiburg, Acting Reg'l Adm'r, and Bharat Mathur, Acting Reg'l Adm'r, Detailed Guidance: Improving EPA Review of Appalachian Surface Coal Mining Operations Under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order (Apr. 1, 2010), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/2010_04_01_wetlands_guidance_appalachian_mnttop_mining_detailed.pdf [hereinafter EPA Guidance Summary] (memorandum to clarify expectations and responsibilities to improve compliance).

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).

¹⁶⁸ EPA Guidance Summary, *supra* note 164, at 2.

to serve as a benchmark in protecting aquatic life and preserving the biological integrity of Appalachian waters.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 streams¹⁷⁰ and which would have been "the largest in Appalachia."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"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.¹⁷³ Four cases, each of which enjoyed some success at the district

¹⁶⁹ *See id.* at 2–3.

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].

¹⁷¹ Erica Peterson, *EPA Spruce Mine Veto Criticized by Politicians, Cheered by Environmentalists*, W. VA. PUB. BROADCASTING (Jan. 14, 2011), <http://www.wvpubcast.org/newsarticle.aspx?id=18394>.

¹⁷² Final Determination, 76 Fed. Reg. 3126, 3127–28 (Jan. 19, 2011).

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.¹⁷⁴ 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.¹⁷⁵ 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."¹⁷⁶

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.¹⁷⁷ 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."¹⁷⁸ Nonetheless, the district court found in favor of the plaintiffs

¹⁷⁴ *Ohio Valley Env'tl. Coal. v. U.S. Army Corps of Eng'rs*, 479 F. Supp. 2d 607 (S.D. W. Va. 2007), *rev'd sub nom.* *Ohio Valley Env'tl. Coal. v. Aracoma Coal Co.*, 556 F.3d 177 (4th Cir. 2009); *Ohio Valley Env'tl. Coal. v. Bulen*, 410 F. Supp. 2d 450 (S.D. W. Va. 2004), *aff'd in part, vacated in part*, 429 F.3d 493 (4th Cir. 2005); *Kentuckians for the Commonwealth, Inc. v. Rivenburgh*, 204 F. Supp. 2d 927 (S.D. W. Va. 2002), *vacated*, 317 F.3d 425 (4th Cir. 2003); *Bragg v. Robertson*, 72 F. Supp. 2d 642 (S.D. W. Va. 1999), *rev'd sub nom.* *Bragg v. W. Va. Coal Ass'n*, 248 F.3d 275 (4th Cir. 2001).

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.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.”¹⁸⁰

3. OVEC v. Bulen

In *OVEC v. Bulen*, the issuance of general permits under section 404 of the CWA was challenged again.¹⁸¹ Specifically, the plaintiffs alleged that issuing NWP 21 for valley fills was inconsistent with the legislative history and the plain language of the CWA¹⁸² because valley fills by definition exceed the “minimal adverse environmental effects” required for issuance of NWP 21.¹⁸³ 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.¹⁸⁴

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

Most recently, in *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 FONSI¹⁸⁵ and granting four general mining permits.¹⁸⁶ OVEC further sought judicial review of the agency’s actions under the APA.¹⁸⁷ The district court again sided with the plaintiffs,

¹⁷⁹ *Kentuckians*, 204 F. Supp. 2d at 943, 946–47; Clark, *supra* note 10, at 145.

¹⁸⁰ Clark, *supra* note 10, at 145.

¹⁸¹ *Ohio Valley Env'tl. Coal. v. Bulen*, 410 F. Supp. 2d 450, 453 (S.D. W. Va. 2004), *aff'd in part, vacated in part*, 429 F.3d 493 (4th Cir. 2005).

¹⁸² *Id.*; see also *supra* Part II.A.2.

¹⁸³ Fuschino, *supra* note 125, at 180; see Clark, *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, *supra* note 125, at 189–206.

¹⁸⁴ Clark, *supra* note 10, at 145.

¹⁸⁵ *Ohio Valley Env'tl. Coal. v. U.S. Army Corps of Eng'rs*, 479 F. Supp. 2d 607, 607 (S.D. W. Va. 2007); see *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).

¹⁸⁶ *Ohio Valley Env'tl. Coal.*, 479 F. Supp. 2d, at 616; see Clark, *supra* note 10, at 145–46.

¹⁸⁷ *Ohio Valley Env'tl. Coal.*, 479 F. Supp. 2d, at 616; see Clark, *supra* note 10, at 146; *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.¹⁸⁸ 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.¹⁸⁹

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.¹⁹⁰ 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.¹⁹¹ 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 destruction¹⁹² caused by MTR and the relatively marginal economic benefit¹⁹³ provided by the practice, one might wonder what drives the continued lack of law enforcement¹⁹⁴ and judicial inaction.¹⁹⁵ 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

¹⁸⁸ *Ohio Valley Env'tl. Coal.*, 479 F. Supp. 2d, at 616, 626; see Clark, *supra* note 10, at 146.

¹⁸⁹ *Ohio Valley Env'tl. 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 Capture¹⁹⁶

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.¹⁹⁷ 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 2005.¹⁹⁸ 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 1996–2004.¹⁹⁹ This trend continued in 2006 and 2008, with total coal money contributions of over \$500,000 during each election cycle.²⁰⁰ In gubernatorial races, such donations accounted for up to twenty-six percent of total campaign contributions.²⁰¹

The inevitable result is that "running a political campaign against the coal industry in the Appalachian region is an election failure guarantee."²⁰² As one author observed, "the democratic political process favors the well-organized and well-funded mining industry at the expense of the

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.

¹⁹⁷ See Paul J. Nyden, *Coal Has Given Millions to Candidates, Report Says*, CHARLESTON GAZETTE, Nov. 27, 2005, available at http://www.wvoter-owned.org/news/2005/11_27.html.

¹⁹⁸ SUE O'CONNELL, INST. ON MONEY IN STATE POLITICS, COAL-MINING CONTRIBUTIONS IN THE STATES 2–3 (2006), available at <http://www.followthemoney.org/press/Reports/200606011.pdf>.

¹⁹⁹ Nyden, *supra* note 197; see also W. VA. PEOPLE'S ELECTION REFORM COAL., ANALYSIS OF COAL INDUSTRY CONTRIBUTIONS TO STATE POLITICAL CAMPAIGNS 1996–2004, at 4 (2005) [hereinafter PERC-WV], available at http://www.wvoter-owned.org/reports/perc2004_coall.pdf.

²⁰⁰ See W. VA. PEOPLE'S ELECTION REFORM COALITION, STUDIES LINK POOR HEALTH TO MINING PRACTICES BUT LITTLE IS BEING DONE 3 (2008), available at http://www.wvoter-owned.org/reports/health_in_coalfields.pdf.

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."²⁰³

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 2004.²⁰⁴ Approximately ninety percent of these donations went to Republican candidates.²⁰⁵ In the 2000 presidential election alone, the Bush campaign received close to \$4 million in coal industry money.²⁰⁶ Under these circumstances, it comes as no surprise that the Bush administration embraced a variety of measures geared towards facilitating MTR.²⁰⁷ 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.'"²⁰⁸

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.²⁰⁹ 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.²¹⁰ The industry routinely pours money into state Supreme Courts.²¹¹ Because state judges are elected, they tend to be "more . . . partial and sympathetic to the coal mining industry."²¹² This is one of the reasons why key MTR advocates, like Joe Lovett and Jim Hecker, choose to litigate exclusively in federal court.²¹³

However, problems exist on the federal level as well. Hecker and Lovett believe federal judges are frequently influenced by politics.²¹⁴ A study

²⁰³ Banks, *supra* note 33, at 151.

²⁰⁴ Christopher Drew & Richard A. Oppel, Jr., *Friends in the White House Come to Coal's Aid*, N.Y. TIMES, Aug. 9, 2004, at A1, *available at* <http://www.nytimes.com/2004/08/09/us/mines-mountaintops-rewriting-coal-policy-friends-white-house-come-coal-s-aid.html>.

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 (detailing 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.²¹⁵ Ties between the coal industry and the judiciary are also reflected in the high rates of judicial recusal in high-profile MTR cases.²¹⁶ In the Fourth Circuit alone, five of fourteen judges “have repeatedly recused themselves” because of “conflicts of interest with the coal industry.”²¹⁷

The ties between the coal industry and virtually every branch of the state and federal government are pervasive and disturbing.²¹⁸ 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.²¹⁹ Joe Lovett,²²⁰ 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.”²²¹

²¹⁵ *Id.* at 651.

²¹⁶ *See id.* at 652.

²¹⁷ *Id.*

²¹⁸ *See supra* Part II.D.

²¹⁹ *See* Joby Warrick, *Appalachia Is Paying Price for White House Rule Change*, WASH. POST, Aug. 17, 2004, at A01, available at <http://www.washingtonpost.com/wp-dyn/articles/A6462-2004Aug16.html>.

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*,²²² 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.²²³ 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.²²⁴

Even more devastating was Bush’s mark on the SMCRA and the buffer zone rule.²²⁵ 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 streams²²⁶ 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.²²⁷ The amendment “would effectively gut the buffer zone rule.”²²⁸ Environmentalists objected immediately, pointing out, among other criticisms, that the OSM failed to conduct an environmental impact assessment of the proposed new rule.²²⁹ 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.²³⁰

Shortly after President Obama took office, the MTR policy pendulum started swinging in the opposite direction.²³¹ In June 2009, recognizing

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).

²²⁶ See Excess Spoil, Coal Mine Waste, and Buffers for Perennial and Intermittent Streams, 73 Fed. Reg. 75,814, 75,818 (Dec. 12, 2008) (final 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.

²³¹ See Mireya Navarro, *E.P.A. Plans Closer Review of Mountaintop Mining Permits*, N.Y. TIMES, Mar. 25, 2009, at A21, available at <http://www.nytimes.com/2009/03/25/science/earth/25mining.html>; Eric Bontrager, *Obama Puts Brakes on Mountaintop Removal: Goal Is to Prevent Coal-Mining from Smothering Rivers and Streams*, SCI. AM. (June 11, 2009), <http://www.scientificamerican.com/article.cfm?id=obama-restricts-mountaintop-removal>; see also *supra* Part II.B.

the gravity of the problem, the Obama administration implemented an interagency action plan aimed at reducing the environmental impacts of MTR in Appalachia.²³² 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.²³³ 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.²³⁴ Specific proposals for amending the SMCRA and the CWA are discussed below.

²³² See Press Release, U.S. Env'tl. Prot. Agency, *supra* note 157.

²³³ See Stream Buffer Zone and Related Rules, 74 Fed. Reg. 62,664, 62,664, 62,667 (Nov. 30, 2009).

²³⁴ See Press Release, U.S. Env'tl. Prot. Agency, *supra* note 157; *supra* Part II.B.

1. 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.”²³⁵ This delicate balance took a serious hit when the OSM adopted a rule that effectively replaced the buffer zone rule²³⁶ 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.²³⁷

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 rule²³⁸ and stringent regulation of mining operations within 100 feet of the headwater streams that essentially sustain the entire aquatic system of Appalachia.²³⁹ This change is currently being contemplated in a notice of proposed rule-making issued by the OSM in late 2009.²⁴⁰ 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.²⁴¹ 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

²³⁵ Stream Buffer Zone and Related Rules, 74 Fed. Reg. at 62,667.

²³⁶ See *supra* Part II.A.1 (discussing the buffer zone rule under the SMCRA).

²³⁷ See Excess Spoil, Coal Mine Waste, and Buffers for Perennial and Intermittent Streams, 73 Fed. Reg. 75,814, 75,818 (Dec. 12, 2008).

²³⁸ See *id.* at 75,817.

²³⁹ See *The Impacts of Mountaintop Removal Coal Mining on Water Quality in Appalachia: Hearing Before the S. Subcomm. on Water and Wildlife*, 111th Cong. 3–4 (2009) [hereinafter *Senate Hearing*] (testimony of Margaret A. Palmer, University of Maryland Center for Environmental Science), available at http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=66fea6d0-9bce-4a9b-be47-aa264a471a89.

²⁴⁰ Stream Buffer Zone and Related Rules, 74 Fed. Reg. at 62,667.

²⁴¹ *Id.*

statute and the respective rules and regulations.²⁴² 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.²⁴³ This lack of emphasis on concrete means in turn provides wiggle room for violations and complicates law enforcement.²⁴⁴ Although OSM is rightly considering changes to the rules in favor of quantitative requirements,²⁴⁵ 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.²⁴⁶

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.²⁴⁷ 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,²⁴⁸ is expressly conditioned on a finding of minimal adverse environmental impact of an operation, both individually and cumulatively.²⁴⁹ 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.²⁵⁰

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.

²⁴⁵ See Stream Buffer Zone and Related Rules, 74 Fed. Reg. at 62,667–8.

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.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.²⁵² Although she correctly observed that the adequacy of the minimum-impact determinations by the Corps should be contested,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”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,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.

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.²⁵⁶ Although this problem is easy to acknowledge,

²⁵¹ Proposed Suspension and Modification of Nationwide Permit 21, 74 Fed. Reg. 34,311 (July 15, 2009) (The Corps proposes to prohibit the use of NWP 21 in “authoriz[ing] discharges of dredged or fill material into waters of the United States for surface coal mining activities in the Appalachian region of the following states: Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia until it expires on March 18, 2012”). See generally Fuschino, *supra* note 125, at 189–206 (describing the history of NWP 21, the use of NEPA and CWA in judicial challenges of granting NWP 21 for MTR, and suggesting ways of continuing the fight against NWP 21). Some scholars have gone even further and suggested that use of all section 404 permits should be abolished. See generally Evans, *supra* note 51, at 529–30 (arguing rather persuasively that MTR valley fills are waste, not fill, that the Corps has therefore been illegally issuing federal permits under section 404 of the CWA, and that the EPA should usurp back its jurisdiction and invalidate outstanding valley fill permits).

²⁵² See Fuschino, *supra* note 125, at 200–05.

²⁵³ *Id.* at 205.

²⁵⁴ *Id.* at 204.

²⁵⁵ See, e.g., Palmer et al., *supra* note 22, at 148.

²⁵⁶ See *supra* Part II.B.

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.²⁵⁷ 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.”²⁵⁸ These rates frequently translate into exorbitant fines.²⁵⁹ 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.²⁶⁰ Despite these penalties, violations continue to occur.²⁶¹

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.²⁶² 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.’”²⁶³ However, no definition as to what constitutes “material damage” is provided.²⁶⁴ 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.²⁶⁵ The lack of precise quantitative limits makes violations harder to detect.

²⁵⁷ See Ken Ward, *EPA to Trim Fines for Buried Streams*, CHARLESTON GAZETTE, Sept. 5, 2003 (on file with author).

²⁵⁸ *Id.*

²⁵⁹ See, e.g., Press Release, Earthjustice, Massey Energy to Pay Huge Penalty for Clean Water Act Violations (Jan. 17, 2008), available at <http://www.earthjustice.org/news/press/2008/massey-energy-to-pay-huge-penalty-for-clean-water-act-violations.html>.

²⁶⁰ *Id.*

²⁶¹ See *id.*

²⁶² See Stream Buffer Zone and Related Rules, 74 Fed. Reg. 62,664, 62,667–68 (Nov. 30, 2009).

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).

²⁶⁸ *See* Stream Buffer Zone and Related Rules, 74 Fed. Reg. at 62,667.

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.”²⁷³ In the context of concerns over agency capture by the coal industry,²⁷⁴ 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.²⁷⁵

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.²⁷⁶ As discussed previously, administrative actions and regulations are too frequently vulnerable to political influence and susceptible to change concurrent with changing administrations.²⁷⁷ 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.²⁷⁸ 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.²⁷⁹ 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 lush 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).

²⁸¹ NAT'L INST. ON MONEY IN STATE POLITICS, <http://www.followthemoney.org> (last visited Apr. 4, 2011) (tracks campaign financing in state politics).

²⁸² See *supra* Parts I.B.1, 2.

²⁸³ 30 U.S.C. § 1265(b)(3) (2006); see *supra* Part II.A.1.

²⁸⁴ Banks, *supra* note 33, at 165.

²⁸⁵ See *supra* Part III.B.

²⁸⁶ See Christine Dell'Amore, *High-Tech Energy “Oasis” to Bloom in the Desert?*, NAT'L GEOGRAPHIC NEWS (Jan. 22, 2010), <http://news.nationalgeographic.com/2010/01/100122-green-desert-oasis-sahara-forest>.

²⁸⁷ *Ski Dubai Resort Overview*, SKIDUBAI.COM, <http://www.skidubai.com/ski-dubai/resort> (last visited Apr. 4, 2011).

Unfortunately, recent scientific data suggest that fully reversing the environmental damage from MTR may never be possible.²⁸⁸ 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.”²⁸⁹ 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.²⁹⁰ 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.”²⁹¹ 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,²⁹² 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.²⁹³ Although a heightened environmental consciousness is certainly beginning to emerge in our society, the average person is still unlikely to really start worrying about

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,²⁹⁴ 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,²⁹⁵ but they certainly do care about other people dying. And, people in Appalachia *are* dying.²⁹⁶ 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.²⁹⁷ Constant exposure to dust particles caused by explosion blasts results in unprecedented levels of chronic disease.²⁹⁸ A risk increase of sixty-four percent for chronic obstructive pulmonary disease and seventy percent for kidney disease²⁹⁹ 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

²⁹⁴ See *id.* (explaining how events and issues may affect the trends in interest in the environment).

²⁹⁵ See *id.* (noting that less than half of respondents want the environment to be a top priority).

²⁹⁶ See *supra* Part I.B.3 (discussing statistically significant increases in mortality rates in Appalachian coal mining communities).

²⁹⁷ See *supra* Part I.B.3.

²⁹⁸ See *supra* Part I.B.3.

²⁹⁹ SCIENCEDAILY, *supra* note 49.

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.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.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.”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.

³⁰⁰ These include not only environmental organizations such as Earthjustice and the OVEC, but also legislators and politicians. See, e.g., Matt Saldaña, *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>.

³⁰¹ Mullen, *supra* note 83, at 932.

³⁰² Philip Elliott & Matthew Daly, *Obama Pushing Clean Coal, Green Jobs*, HUFFINGTON POST (Feb. 3, 2010, 7:19 PM), http://www.huffingtonpost.com/2010/02/03/obama-pushing-clean-coal-green-jobs_n_447204.html.

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.³⁰³ Therefore, banning MTR is projected to have only marginal effects on overall coal extraction.³⁰⁴ 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.³⁰⁵ 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.³⁰⁶ 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.³⁰⁷

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.³⁰⁸ 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.³⁰⁹ In

³⁰³ ILOVEMOUNTAINS.ORG, *supra* note 54.

³⁰⁴ *See id.*

³⁰⁵ *See id.*

³⁰⁶ *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.*

³⁰⁷ *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.

³⁰⁸ 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.

³⁰⁹ *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.³¹⁰ 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.³¹¹ 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.³¹² 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.³¹³ The authors thus concluded that “the mountain-top removal scenario is not defensible from the perspective of Raleigh County citizens”³¹⁴

On a final note, the correlation between poverty and coal production in Appalachia³¹⁵ suggests that “a continued reliance on the coal industry is not a viable option for long-term sustainable economic development.”³¹⁶ 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,³¹⁷ and directly because mining is one of the most hazardous jobs in the United States;³¹⁸ it promotes the exploitation of labor by a greedy and largely foreign state-owned³¹⁹ industry, which

³¹⁰ Evans, *supra* note 51, at 533 n.74 (citing ERIK REECE, LOST MOUNTAIN 58 (2006)).

³¹¹ See EVAN HANSEN ET AL., DOWNSTREAM STRATEGIES, LLC, THE LONG-TERM ECONOMIC BENEFITS OF WIND VERSUS MOUNTAINTOP REMOVAL COAL ON COAL RIVER MOUNTAIN, WEST VIRGINIA (2008), available at http://www.crmw.net/crmw/sites/default/files/Wind_vs_mountaintop_removal_coal_Coal_River_Mtn_Dec2008.pdf.

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.

³¹⁸ *Most Dangerous Jobs in America—Coal Miner*, CNNMONEY.COM http://money.cnn.com/galleries/2010/news/1004/gallery.Most_dangerous_jobs/7.html (last updated Apr. 8, 2010).

³¹⁹ See U.S. ENERGY INFO. ADMIN., PRIVATIZATION AND GLOBALIZATION OF ENERGY MARKETS 57 (1996), available at <http://www.eia.gov/FTP/ROOT/financial/060996.pdf>.

reaps economic benefits at the expense of local mining communities who get little more than a living wage;³²⁰ it contributes to a poor educational level because a high school diploma is hardly necessary for a mining job;³²¹ and it jeopardizes the efficiency of the democratic and political processes of the state.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.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.

³²⁰ See APPALACHIAN REG'L COMM'N, ECONOMIC OVERVIEW OF APPALACHIA 2010, at 1–2 (2011), available at <http://www.arc.gov/images/appregion/Jan2011/EconomicOverview-1-28-11.pdf>.

³²¹ *Id.* at 2.

³²² See *supra* Part II.D.1.

³²³ See Evans, *supra* note 51, at 533–34.