

West Virginia's Alternative and Renewable Energy Portfolio Act: The "Mountain State's" Latest Attempt to Quit its Addiction to Coal

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ABSTRACT

This note's purpose is to objectively analyze West Virginia's recently enacted Alternative and Renewable Energy Portfolio Act ("AREPA") to determine whether it is the most ambitious alternative and renewable energy legislation that West Virginia can enact given its current political climate. Although coal may currently provide substantial economic benefits to West Virginia, future reliance on coal resources will be detrimental to the state's overall welfare due to dwindling coal reserves and coal's hazardous effects on the environment and public health. Because of coal's negative public health and environmental effects, coal-mining states face tremendous federal, state, and local pressures to implement cleaner energy production methods. In 2009, West Virginia enacted AREPA to quell some of these mounting concerns. The legislation, however, has an unusually permissive definition of "alternative" energy sources and technologies and has no minimum requirement for renewable energy. In order to truly diversify from coal, the West Virginia Legislature should amend its "renewable energy resources" standard to *require* that at least twenty percent of its energy portfolio come from actual renewable energy sources by 2025. The legislature must also amend AREPA to exclude many of the most heavily polluting "alternative" energy sources instead of ensuring their continued existence and harm to the state. Because of West Virginia's dwindling

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coal reserves, the state's wealth of renewable energy resources, and a growing anti-coal movement, the Mountain State should diversify from coal-based energy resources and establish an appropriate alternative energy portfolio standard that is more heavily geared towards truly promoting renewable energy.

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I. INTRODUCTION

West Virginia often evokes images of the state's culture and folklore: picturesque rolling hills, isolated mountain communities, and most importantly, coal mining. Coal mining, however, is more than merely part of West Virginia's culture—it is an integral reason for the Mountain State's economic development. West Virginia coal played a critical role in the nation's industrialization,¹ and it remains one of the world's most important energy sources.² However, in recent years coal mining in West Virginia has become increasingly politicized and controversial due to its adverse effects on the environment, on the climate in the form of global warming, and on public health. In fact, in 2007, *Forbes* magazine ranked West Virginia last out of all fifty states in its list of America's "greenest" states, citing West Virginia's enormous carbon footprint and toxic waste problems.³

West Virginia coal mining has received widespread criticism due to the devastating effects it has on public health and local mountain ecosystems.⁴ Due to increased awareness of these issues, lawmakers at all levels find themselves striving to find a balance between protecting the environment and increasing coal production.⁵

In 2009, the West Virginia Legislature passed an Alternative Energy Portfolio Standard ("AEPS") called the Alternative and Renewable Energy Portfolio Act ("AREPA") to rebut criticisms of its environmental

¹ Rhonda Janney Coleman, *Coal Miners and their Communities in Southern Appalachia, 1925–1941*, 15 W. VA. HIST. SOC'Y Q. (Apr. 2001), available at <http://www.wvculture.org/history/wvhs1502.html>.

² See *Electric Power*, U.S. DEPT. OF ENERGY, <http://www.energy.gov/energysources/electricpower.htm> (last visited June 13, 2011).

³ Brian Wingfield & Miriam Marcus, *America's Greenest States*, FORBES (Oct. 17, 2007, 6:00 AM), http://www.forbes.com/2007/10/16/environment-energy-vermont-biz-beltway-cx_bw_mm_1017greenstates.html.

⁴ Mary Caperton Morton, *West Virginia Coal: Dirty Water, Dirtier Politics*, EARTH MAG. (Sept. 2, 2008), <http://www.earthmagazine.org/earth/article/101-7d8-9-2>.

⁵ See *id.*

policies.⁶ The standard, however, is severely lacking of substance. The once-abundant supply of coal in West Virginia is depleting just as rapidly as a national anti-coal movement is growing, and the state is rich in renewable energy resources such as wind and biomass. Therefore, the Mountain State can and must establish appropriate alternative and renewable energy standards that truly encourage a movement towards renewable energy.⁷

In this note I critically examine West Virginia's AREPA to determine if it is in fact the most practically ambitious legislation the state can enact or if it is simply a superficial attempt to appease local and federal critics. First, I explore how and why coal mining has become West Virginia's largest industry. Second, I reveal numerous incentives that make an amended bill not only an environmentally, but economically smart decision. I concentrate on coal mining's substantial contribution to global warming, water pollution, irreparable destruction of the state's topography, and dangers to public health. I also explain how increased local activism presents a significant challenge to the coal industry's viability. I then focus on federal legislative and regulatory pressures on coal mining and the recent success of anti-coal lawsuits, all of which endanger the industry and make coal mining more expensive. I also explain how rising costs and persistent depletion of coal in West Virginia present a compelling argument in favor of the state finding more sustainable energy sources.

Next, I discuss alternative energy and renewable portfolio standards in general and explore the many reasons that have led states to voluntarily initiate such legislation. I then examine West Virginia's AEPS, compare it to other states' energy portfolios, and on the basis of this comparison,

⁶ Alternative and Renewable Energy Portfolio Act, W. VA. CODE § 24-2F (2009); *see* Database of State Incentives for Renewables and Efficiency, West Virginia (Apr. 21, 2010), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WV05R&re=1&ee=1 [hereinafter DSIRE W. Va.].

⁷ *See* RORY MCILMOIL & EVAN HANSEN, THE DECLINE OF CENTRAL APPALACHIAN COAL AND THE NEED FOR ECONOMIC DIVERSIFICATION 3–4 (Downstream Strategies Jan. 2010).

propose workable amendments to the state's standards. I show how, due to West Virginia's abundant natural energy resources such as wind and biomass, an amendment that requires at least twenty percent of the portfolio to come from renewable energy resources by 2025 is practically attainable. Lastly, I recommend an amendment that redefines the current definition of "alternative energy sources" to more accurately reflect a movement towards cleaner energy.

II. COAL MINING IN WEST VIRGINIA

Coal mining is one of West Virginia's preeminent industries due to the many natural coal seams and coal fields throughout the state's valleys and hills.⁸ The state's economy has been highly dependent on coal mining for more than 250 years, largely due to the jobs and taxes that the industry provides.⁹ The mining industry supplies the state with approximately 40,000 jobs and contributes about \$3.5 billion to its economy each year.¹⁰ In the 2010 fiscal year alone, West Virginia collected over \$379 million in coal severance taxes.¹¹ According to the U.S. Energy Information Administration (EIA), West Virginia is the second largest coal-producer in the country, producing approximately 137.1 million tons in 2009, or over seven percent of the country's total coal production.¹² There is a strong incentive to produce more coal in West Virginia: almost half of the electricity produced in the United States derives from coal-fired power plants,¹³ our nation's energy demand is increasing exponentially, and oil and natural gas prices continue to soar.

⁸ See Morton, *supra* note 4.

⁹ See MCILMOIL & HANSEN, *supra* note 7, at 1.

¹⁰ See Morton, *supra* note 4.

¹¹ *The Coal Severance Tax*, W. VA COAL ASS'N (May 27, 2010), <http://www.wvcoal.com/taxes.html>.

¹² U.S. ENERGY INFORMATION ADMIN., U.S. COAL PRODUCTION BY COAL-PRODUCING REGION AND STATE, 2008-2009 (Feb. 2011), available at <http://www.eia.gov/cneaf/coal/page/acr/tables2.html>.

¹³ *Electric Power*, *supra* note 2.

Consequently, critics of a more renewable energy-reliant standard insist that until the United States can meet its increasing energy needs with renewable or carbon-neutral sources, West Virginia's coal industry is critical to maintaining the nation's energy infrastructure.¹⁴ This argument is fatally shortsighted. As awareness of the cost of coal production and competition from other coal mining states grow, the coal industry's future in West Virginia will become progressively more vulnerable. Therefore, making an investment in renewable energy is an intelligent, urgent, and practical decision for West Virginia.¹⁵

A. COAL MINING AND GLOBAL WARMING

First, coal-fired power plants account for the largest source of carbon dioxide (CO₂) in the United States.¹⁶ Coal is the most carbon-intensive of the fossil fuels and represents about one-third of the U.S. carbon load, which makes it a bigger emitter than cars, trucks, buses, trains, and boats combined.¹⁷

While carbon capture and storage presents a method for reducing CO₂ emissions from coal-fired power plants, this technology is expensive and has not been deployed on a commercial scale.¹⁸ In June 2011, American Electric Power ("AEP") shelved plans to build a full-scale carbon-capture plant in Mountaineer, West Virginia, where the company had captured and buried CO₂ in a pilot program for two years.¹⁹ AEP

¹⁴ E.g., *Coal Utilization Research Council, 2011 Activities*, COAL UTILIZATION RESEARCH COUNCIL, <http://www.coal.org/aboutus/> (last visited Sept. 17, 2011).

¹⁵ See MCILMOIL & HANSEN, *supra* note 7, at 1–4.

¹⁶ N. Cole, *What Are the Options for the Vast Stores of Coal Around the World*, UNION OF CONCERNED SCIENTISTS (May 1, 2009), http://www.ucsusa.org/global_warming/science_and_impacts/science/coal-and-global-warming-faq.html#Figure_2_US_CO2_Emissions_by_Source_2006.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Matthew L. Wald & John M. Broder, *Utility Shelves Ambitious Plan to Limit Carbon*, N.Y. TIMES, July 13, 2011, at A1, available at <http://www.nytimes.com/>

made the decision due to doubts that state regulators would let it recover its costs by passing them on to customers.²⁰ The Mountaineer carbon-capture plant was the "nation's most prominent effort to capture carbon dioxide from a coal-burning power plant," making AEP's decision a severe blow to "clean coal" advocates.²¹

In addition to emitting CO₂, coal and disturbed rock strata release large amounts of methane into the atmosphere.²² Methane is also a potent greenhouse gas with a global warming potential ("GWP") that is twenty-three times more harmful than CO₂.²³ An Environmental Protection Agency ("EPA") study estimates that methane emissions from all coal mining-related activities, including extraction, transport, and storage, account for approximately fifteen percent of total U.S. anthropogenic methane emissions.²⁴

Therefore, as the "largest single source of global warming pollution in the world," coal is the greatest threat facing our climate, and thus stands in direct contradiction to growing efforts to rein in emissions responsible for global warming.²⁵

2011/07/14/business/energy-environment/utility-shelves-plan-to-capture-carbon-dioxide.html.

²⁰ *Id.*

²¹ *Id.*

²² *Questions and Answers: The Methane to Markets Partnership*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/methane/qanda.html> (last updated June 22, 2010).

²³ *Id.*

²⁴ David A. Kirchgessner, Stephen D. Piccot & Sushma S. Masemore, *An Improved Inventory of Methane Emissions from Coal Mining in the United States*, J. AIR & WASTE MGMT. ASSOC. 1 (2004), available at <http://www.epa.gov/ttnchie1/ap42/ch14/related/mine.pdf>.

²⁵ *Coal*, GREENPEACE, <http://www.greenpeace.org/usa/en/campaigns/global-warming-and-energy/coal/> (last visited July 14, 2011); see Wald & Broder, *supra* note 19.

B. COAL MINING'S ADVERSE EFFECTS ON WEST VIRGINIA'S WATER SYSTEMS

Exposed coal seams, often from abandoned deep mines,²⁶ adversely affect the hydrology and aquatic habitats of West Virginia.²⁷ Acid mine drainage occurs when pyrite from an exposed coal seam comes into contact with water and air, creating a chemical reaction that produces sulfuric acid.²⁸ This acidic runoff subsequently contaminates ground and surface water and leaves subsoil around the mine infertile.²⁹ The drainage can be devastating to nearby streams, rivers, and lakes by acidifying and killing fish and plants.³⁰ In a 2008 report, EPA biologists found that mayfly populations, which account for approximately half of the insect population in West Virginia streams during the springtime, were drastically reduced when located downstream from mining operations.³¹ As the EPA study illustrates, effluent from acid mine drainage wreaks havoc on aquatic ecosystems and continues to be one of the leading water quality problems in West Virginia.³²

²⁶ See generally *Acid Mine Drainage*, EXPLORING THE ENV'T, <http://www.cof.edu/ete/modules/waterq/wqacidmine.html> (last updated Nov. 10, 2004).

²⁷ See Morton, *supra* note 4.

²⁸ OFFICE OF SOLID WASTE, U.S. ENVTL. PROT. AGENCY, EPA530-R-94-036, TECHNICAL DOCUMENT: ACID MINE DRAINAGE PREDICTION (Dec. 1994), available at http://water.epa.gov/polwaste/nps/acid_mne.cfm#fact (last updated July 18, 2011).

²⁹ *Id.*

³⁰ Fred Bosselman, *The Ecological Advantages of Nuclear Power*, 15 N.Y.U. ENVTL. L.J. 1, 30 (2007).

³¹ Gregory J. Pond et al., *Downstream Effects of Mountaintop Removal Coal Mining: Comparing Biological Conditions Using Family- and Genus-Level Macroinvertebrate Bioassessment Tools*, 27 J. N. AM. BENTHOL. SOC. 717 (2008), available at <http://www.epa.gov/region3/mtntop/pdf/downstreameffects.pdf>; see Morton, *supra* note 4.

³² *Acid Mine Drainage*, *supra* note 26.

C. IRREPARABLE TOPOGRAPHICAL DAMAGES OF COAL MINING

The coal mining process, most significantly mountaintop removal methods used in approximately seventy percent of the surface-mined coal in West Virginia,³³ also destroys hundreds of square miles of mountain ecosystems and irreparably alters the state's landscape.³⁴ To meet growing energy demands, the coal industry has adopted more vigorous methods for extracting the remaining fifty-two billion tons of recoverable coal in West Virginia.³⁵ Through the use of explosives and large machinery, mountaintop removal is the most efficient and profitable method of mining coal.³⁶ Miners first clear-cut a mountain peak's forest and then literally remove its peak by shattering its rock with high explosives.³⁷ The miners then dump the byproducts of the blast into nearby valleys, often burying miles of streams in rubble.³⁸

Hundreds of feet of elevation are sometimes removed from mountains and placed in these valley fills, which can be "1,000 feet wide

³³ EVAN HANSEN ET AL., LONG-TERM ECONOMIC BENEFITS OF WIND VERSUS MOUNTAINTOP REMOVAL COAL ON COAL RIVER MOUNTAIN, WEST VIRGINIA 3 (Downstream Strategies, Dec. 2008), available at <http://www.coalriverwind.org/wp-content/uploads/2008/12/coalvswindoncoalrivermtn-final.pdf>.

³⁴ See Rebecca Lindsey, *Coal Controversy in Appalachia*, NASA EARTH OBSERVATORY (Dec. 21, 2007), <http://earthobservatory.nasa.gov/Features/MountaintopRemoval/>.

³⁵ Morton, *supra* note 4.

³⁶ John McQuaid, *Mining the Mountains*, SMITHSONIAN MAG., Jan. 2009, at 74, available at <http://www.smithsonianmag.com/science-nature/Mining-the-Mountain.html>.

³⁷ John G. Mitchell, *When Mountains Move: The Quest for Appalachian Coal has Led to Mountaintop Removal, a Process That's Been Called Strip Mining on Steroids*, NAT'L GEOGRAPHIC, March 2006, at 105, available at <http://ngm.nationalgeographic.com/2006/03/mountain-mining/mitchell-text/1>.

³⁸ *Id.*

and a mile long."³⁹ Between 1985 and 2001, valley fills buried at least 724 miles of Appalachian streams.⁴⁰ One mountaintop removal mine may destroy "up to ten square miles" of land, thereby decimating local habitats and biodiversity.⁴¹ Mountaintop removal has altered "at least 500 mountaintops and roughly 1.2 million acres in four [Appalachian] states."⁴² An Appalachian Voices report estimates that in West Virginia alone, "352,000 acres and 136 mountains have been affected."⁴³ Mountaintop removal not only ironically undermines the very nickname of the "Mountain State," but it is one of coal mining's most destructive elements, leaving to waste thousands of acres of one of the nation's most idyllic mountain landscapes.

D. COAL MINING DANGERS AND THE PUBLIC HEALTH

Additionally, mountaintop removal and other methods used to mine coal prove to be incredibly dangerous and result in tragic coal mining disasters and illnesses that leave many people injured or dead each year. According to a CNN study, the fatality rate among coal miners is 34.8 per 100,000 workers, making it the seventh most dangerous job in America.⁴⁴ Mine shafts and tunnels are constantly subject to cave-ins, floods, and

³⁹ *Moving Mountains for Dirty Coal*, NATURAL RESOURCES DEFENSE COUNCIL, <http://www.nrdc.org/energy/coal/mtr/about.asp> (last visited Sept. 13, 2011).

⁴⁰ Lindsey, *supra* note 34.

⁴¹ *Moving Mountains for Dirty Coal*, *supra* note 39.

⁴² Tom Zeller, Jr., *A Battle in Mining Country Pits Coal Against Wind*, N.Y. TIMES, Aug. 14, 2010, at BU1, available at <http://www.nytimes.com/2010/08/15/business/energy-environment/15coal.html?pagewanted=1>; ROSS GEREDIEN, ASSESSING THE EXTENT OF MOUNTAINTOP REMOVAL IN AN ANALYSIS USING VECTOR DATA (Appalachian Voices 2009), available at http://www.ilovemountains.org/reclamation-fail/details.php#extent_study.

⁴³ Zeller, *supra* note 42.

⁴⁴ *Most Dangerous Jobs in America: Coal Miner*, CNNMONEY, http://money.cnn.com/galleries/2010/news/1004/gallery.Most_dangerous_jobs/7.html (last updated Apr. 8, 2010) [hereinafter *Most Dangerous Jobs in America*].

failed ventilation systems.⁴⁵ Because mining liberates toxic and flammable gases like methane, miners are vulnerable to suffocation and explosions on a daily basis.⁴⁶ Build-ups of hazardous gases, known as damp, are also known to suddenly explode, often killing dozens of workers.⁴⁷

In fact, West Virginia is the site of the worst coal mining disaster in U.S. history, the Monongah Mine disaster of 1907, where a firedamp explosion cost 362 men their lives.⁴⁸ In 2006, a methane explosion at the Sago Mine in West Virginia tragically resulted in the deaths of 12 miners.⁴⁹ In April 2010, 29 miners died at the Upper Big Branch mine in West Virginia, making it the "worst mine disaster in four decades."⁵⁰

Although federal and state regulations have reduced some of the risk associated with coal mining, it is still significantly more dangerous than other types of mining, such as metal mining.⁵¹ United Mine Workers spokesman Phil Smith explains: "Metals aren't explosive, they don't liberate methane when you mine them[,] and the dust doesn't catch fire."⁵²

Furthermore, coal mining has devastating effects on local residents. Mining towns not only suffer from damage caused by rock slides,

⁴⁵ *See id.*

⁴⁶ *See id.*

⁴⁷ Jeff L. Lewin et al., *Unlocking the Fire: A Proposal for Judicial or Legislative Determination of the Ownership of Coalbed Methane*, 94 W. VA. L. REV. 563, 566 (1992).

⁴⁸ *Mining Disasters—An Exhibition*, U.S. DEP'T OF LABOR MINE SAFETY AND HEALTH ADMIN., <http://www.msha.gov/disaster/monongah/monon1.asp> (last visited Sept. 13, 2011).

⁴⁹ Ian Urbina, *No Survivors Found after West Virginia Mine Disaster*, N.Y. TIMES, Apr. 9, 2010, at A1, available at <http://www.nytimes.com/2010/04/10/us/10westvirginia.html>.

⁵⁰ *Id.*

⁵¹ *See Most Dangerous Jobs in America*, *supra* note 44.

⁵² *Id.*

catastrophic floods, and constant blasting,⁵³ but recent studies also suggest that exposure to coal byproducts has deleterious impacts on public health.⁵⁴ Although it is commonly known that exposed miners are vulnerable to such chronic lung diseases as pneumoconiosis, or "black lung,"⁵⁵ a recent research study from West Virginia University reveals that residents of coal mining communities are also at an increased risk of developing chronic heart, lung, and kidney diseases.⁵⁶ The study ultimately found that as coal production increases, so does the incidence of chronic illnesses.⁵⁷

In fact, the University's research shows that residents of coal mining communities "have a [seventy] percent increased risk for developing kidney disease, [. . .] a [sixty-four] percent increased risk for chronic obstructive pulmonary diseases such as emphysema [. . .] and are [thirty] percent more likely to report high blood pressure."⁵⁸ Hospitalization records in mining communities also indicate that chronic obstructive pulmonary diseases increase one percent for every 1462 tons of coal, and hypertension increases one percent for every 1873 tons of coal.⁵⁹ As the data from the West Virginia University report suggests, the costs of coal mining pollution are borne by the citizens of West Virginia.⁶⁰

⁵³ Mark Baller & Leor Joseph Pantilat, *Defenders of Appalachia: The Campaign to Eliminate Mountaintop Removal Coal Mining and the Role of Public Justice*, 37 ENVTL. L. 629, 632 (2007).

⁵⁴ See *Chronic Illness Linked to Coal-mining Pollution, Study Shows*, SCIENCE DAILY (Mar. 27, 2008), <http://www.sciencedaily.com/releases/2008/03/080326201751.htm> [hereinafter Health Sciences Center Study].

⁵⁵ See Amit Dhingra, M.D., *Coal Worker's Pneumoconiosis*, MEDSCAPE, <http://emedicine.medscape.com/article/297887-overview> (last updated July 19, 2010).

⁵⁶ Health Sciences Center Study, *supra* note 54.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ Ken Ward, Jr., *Obama and Coal Mining: Attacks on EPA over Coal Continue at U.S. House Hearing*, W. VA. GAZETTE, July 14, 2011, at P1C, available at

E. LOCAL ANTI-COAL ACTIVISM

Due in large part to the increase in mountaintop removal mining in the state, the coal industry has found itself criticized by local activists and grassroots organizations. The opposition consists primarily of local residents who loathe the devastating effects that the coal industry has on the environment, public health, tourism, and the economy. Although some skeptics may argue that the coal industry is secure in the back pockets of West Virginia's politicians,⁶¹ these local anti-coal organizations have mounted a substantial attack on "Big Coal" and present a significant risk to the future of coal mining and coal-friendly politicians.

The recent surge in anti-coal activism has been led by groups such as Coal River Mountain Watch ("CRMW"), which has been quite successful in its determined efforts to curb mountaintop removal.⁶² CRMW began its crusade against coal in 1999 with only a few volunteers, but by 2009 it had helped motivate the EPA to object to seventy-nine mountaintop removal permits that would have probably otherwise been granted.⁶³

In addition to the recent increase in grassroots organizations, many local activists are also attracting international attention to the harmful consequences of coal mining. In March 2009, anti-coal activism erupted in the nation's largest act of civil disobedience against coal power when an estimated 2500 people protested in front of the Washington, D.C. Capitol Power Plant.⁶⁴ The protestors came from all over the world, with

<http://wvgazette.com/News/201107141451>. See Health Sciences Center Study, *supra* note 54.

⁶¹ *E.g.*, Morton, *supra* note 4.

⁶² See *National and Local "No Coal" Organizations*, GreenAmerica, <http://www.greenamerica.org/programs/climate/action/localcoalgroups.cfm> (last visited July 7, 2011).

⁶³ *A Banner Year in Review*, COAL RIVER MOUNTAIN WATCH MESSENGER 4, 1 (Coal River Mountain Watch, Whitesville, W.V.), Winter 2009, at 1, available at <http://www.crmw.net/sites/default/files/newsletters/Winter2009.pdf>.

⁶⁴ Kate Sheppard, *Thousands Protest against Coal in Front of D.C.'s Capitol Power Plant*, GRIST (Mar. 3, 2009), <http://www.grist.org/article/A-Capitol-offense>.

many belonging to mining towns affected by coal mining.⁶⁵ The protest symbolizes the solidarity and momentum of the anti-coal movement and foreshadows a "[wave] of direct action across the country against coal plants."⁶⁶

One such activist is Maria Gunnoe, a coal miner's daughter raised in Boone County, West Virginia.⁶⁷ In 2009, Gunnoe was the recipient of the Goldman Environmental Prize for her efforts in organizing against mountaintop removal in West Virginia.⁶⁸ Gunnoe's determination to end mountaintop removal derives from her personal experience.⁶⁹ In 2000, a large mine began operation on the ridge above her ancestral home, and in the years since, toxic coal sludge has flooded her property seven times, contaminating her water and forcing her family to use bottled water for cooking and drinking.⁷⁰

In 2004, Gunnoe began working for the Ohio Valley Environmental Coalition ("OVEC"), and only three years later, OVEC and partner groups won a federal lawsuit against the Army Corps of Engineers.⁷¹ Gunnoe also testified before the U.S. Senate about the negative impacts of mountaintop removal.⁷² Her formidable community leadership embodies the frustration of West Virginia residents towards the coal industry and serves as a perfect example of the recent surge of local anti-coal activism.

⁶⁵ *See id.*

⁶⁶ *Id.*

⁶⁷ *See* Maria Gunnoe, *USA Oil & Mining*, GOLDMAN PRIZE, <http://www.goldmanprize.org/2009/northamerica> (last visited July 22, 2011) (Boone County is one of the most active mountaintop removal regions in the United States).

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.* *See* Ohio Valley Env'tl. Coal v. U.S. Army Corps of Engineers, 528 F. Supp. 2d 625 (2007) (repealing removal valley fill permits that were granted by the U.S. Army Corps without adequate environmental consideration).

⁷² *A Banner Year in Review*, *supra* note 63.

Skeptics may view local activism as merely a chink in the formidable armor of Big Coal due to the industry's deep pockets and historically persuasive influence in local politics.⁷³ In 2008, while a multimillion dollar lawsuit was pending against Massey Energy⁷⁴ in the West Virginia Supreme Court of Appeals, the *New York Times* published pictures of West Virginia Supreme Court Justice Elliot Maynard vacationing in the French Riviera with Massey CEO Don Blankenship.⁷⁵

West Virginia Governor Joe Manchin's (D) 2010 midterm election campaign advertisement provides another less egregious, yet highly illustrative example of Big Coal's influence over West Virginian politics. In response to his opponent's criticism of his lack of support for the coal industry, Gov. Manchin demonstrated his loyalty in quite a theatrical way—by literally "taking aim and shooting [at] . . . the federal cap-and-trade bill passed by [Congress]."⁷⁶ Although arguably over-dramatic, the ad helped turn the race back in Manchin's favor, and he ultimately won the Senate seat.⁷⁷

Despite these illustrations of coal's dominance in West Virginia, the local movement against the industry is clearly having its impact. In December 2009, then U.S. West Virginia Senator Robert Byrd (D), who was raised in the coal mining region of southern West Virginia by a coal miner father,⁷⁸ gave this warning about West Virginia's reliance on coal:

⁷³ See Morton, *supra* note 4.

⁷⁴ See Morton, *supra* note 4 (Massey Energy is the third-largest coal mining company in West Virginia).

⁷⁵ Adam Liptak, *Motion Ties W. Virginia Justice to Coal Executive*, N.Y. TIMES (Jan. 15, 2008), http://www.nytimes.com/2008/01/15/us/15court.html?_r=1.

⁷⁶ Chris Cillizza, *The Best Campaign Ads of 2010*, WASH. POST (Nov. 18, 2010), <http://voices.washingtonpost.com/fix/fix-notes/the-best-ads-of-2010.html> (last visited June 28, 2011).

⁷⁷ *Id.*

⁷⁸ Kathy Kiely, *Senator Takes on White House and Wins Fans*, USA TODAY, June 23, 2003, at 10A, available at http://www.usatoday.com/news/washington/2003-06-23-byrd_x.htm.

"West Virginians can choose to anticipate change and adapt to it, or resist and be overrun by it. The time has arrived for the people of the Mountain State to think long and hard about which course they want to choose."⁷⁹ As Senator Byrd's words clearly indicate, although Big Coal remains dominant in West Virginia, even the State's most beloved and coal-supportive politicians have begun to realize the dangers that such a substantial reliance on coal will have on future generations. Local activism against coal mining is not only educating West Virginians, but it is also creating a movement—one that is evident even in the words of some of the most loyal friends of coal, West Virginia politicians.

F. WANING SUPPORT FROM THE FEDERAL GOVERNMENT

As the longest-serving senator and member in the history of the United States Congress,⁸⁰ Senator Byrd was very perceptive of changing attitudes in Washington. In November 2009, he noted that:

It is [. . .] a reality that the practice of mountaintop removal mining has a diminishing constituency in Washington. It is not a widespread method of mining, with its use confined to only three states. Most members of Congress, like most Americans, oppose the practice, and we may not yet fully understand the effects of mountaintop removal mining on the health of our citizens.⁸¹

⁷⁹ See Ken Ward, Jr., *A Day in Coal News: Are West Virginia's Political Leaders Moving Forward or Stuck in the Past?*, W. VA. GAZETTE (Apr. 15, 2011), <http://blogs.wvgazette.com/coalattoo/2011/04/15/a-day-in-coal-news-are-west-virginias-political-leaders-moving-forward-or-stuck-in-the-past/>.

⁸⁰ Tom Cohen, *West Virginia's Byrd Becomes the Longest-Serving Member of Congress*, CNN (Nov. 18, 2009), <http://www.cnn.com/2009/POLITICS/11/18/robert.byrd.congress.record/index.html>.

⁸¹ Robert Byrd, Op-Ed, *Coal Must Embrace the Future*, METRONews (Dec. 3, 2009), available at <http://www.wvmetronews.com/index.cfm?func=displayfullstory&storyid=33928>.

As his words indicate, support for coal mining is quickly waning on Capitol Hill, and an adequate AEPS would therefore be beneficial to West Virginia.

In June 2009, the House of Representatives passed the "American Clean Energy and Security Act."⁸² The bill, introduced by Representatives Henry Waxman (D-CA) and Edward Markey (D-MA), provided for "an economy-wide, greenhouse gas cap-and-trade system" geared towards building a clean energy economy and mandated "that [twenty] percent of electricity [come] from renewable sources [. . .] by 2020."⁸³ Although the bill never made it through the Senate,⁸⁴ it was significantly more comprehensive and ambitious than prior legislative attempts, and it signifies Washington's increased determination to transition to a clean energy economy.⁸⁵ Unsurprisingly, a cap-and-trade system that sets such high targets also means that energy prices and unemployment rates may rise in states where power utilities depend on coal.⁸⁶ Therefore, "the economic hammer [of a federal climate bill] would fall heaviest" on coal-

⁸² H.R. 2454 111th Cong. (2009); see also *The American Clean Energy and Security Act (Waxman-Markey Bill)*, PEW RESEARCH CTR. ON GLOBAL CLIMATE CHANGE, <http://www.pewclimate.org/acesa> (last visited Sept. 24, 2011) [hereinafter PEW RESEARCH CENTER].

⁸³ PEW RESEARCH CENTER, *supra* note 82; Lisa Lerer & Patrick O'Connor, *House Passes Climate Change-Bill*, POLITICO (June 25, 2009), http://www.politico.com/news/stories/0609/24232_Page2.html.

⁸⁴ Daniel J. Weiss, *Anatomy of a Senate Climate Bill Death*, CTR. FOR AM. PROGRESS (Oct. 12, 2010), http://www.americanprogress.org/issues/2010/10/senate_climate_bill.html.

⁸⁵ See *H.R. 2454: American Clean Energy and Security Act of 2009*, GOVTRACK.US, <http://www.govtrack.us/congress/bill.xpd?bill=h111-2454> (last visited Sept. 24, 2011).

⁸⁶ See Kevin Bullis, *The Real Price of Obama's Cap-and-Trade Plan*, TECH. REV. (Mar. 4, 2009), <http://www.technologyreview.com/business/22247/>; Jan. Vineyard, *Cap & Trade Will Hurt West Virginia*, COALITION FOR MOUNTAINTOP MINING (Nov. 23, 2009), <http://www.mtmcoalition.com/press.html?start=40>.

dependent states like West Virginia, which would be disastrous for the state.⁸⁷

Legislators are not the only ones in Washington with growing impatience towards America's addiction to coal. Unlike President George W. Bush's administration,⁸⁸ President Barack Obama's administration has taken on a significant role in tackling the issue of climate change.⁸⁹ As the president of Sterling Mining proclaimed at a U.S. House Committee hearing: "[The Obama administration] has declared war on coal."⁹⁰ Although the president of Sterling Mining's proclamation may seem a bit hyperbolic, it is not without some merit. For example, in his 2011 State of the Union Address, Obama called for a new energy goal, saying that eighty percent of America's electricity should come from clean energy sources by 2035.⁹¹ To achieve this goal, Obama stated that it would be necessary to use wind, solar, nuclear, clean coal, and natural gas—essentially every energy source except dirty coal⁹²—giving many critics

⁸⁷ See Vineyard, *supra* note 86.

⁸⁸ E.g., *Leaving a Mountain of Research on Mountaintop Removal Strip Mining*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/scientific_integrity/abuses_of_science/mountaintop-removal-mining.html (last visited Sept. 24, 2011).

⁸⁹ See Doug McKelway, *Obama Coal Crackdown Sends Message to Industry*, FOX NEWS (Jan. 17, 2011), <http://www.foxnews.com/politics/2011/01/17/obama-coal-crackdown-sends-message-industry/>.

⁹⁰ Ward, *supra* note 60.

⁹¹ President Barack Obama, State of the Union Address (Jan. 25, 2011) (transcript available at <http://www.npr.org/2011/01/26/133224933/transcript-obamas-state-of-union-address>).

⁹² See Marilyn Berlin Snell, *Can Coal Be Clean?*, SIERRA, Jan./Feb. 2007, available at <http://www.sierraclub.org/sierra/200701/coal.asp> ("Dirty coal" refers to the traditional process of burning coal that produces hazardous emissions.). E.g., David Roberts, *Obama's Energy Gambit: A Call for Less Coal*, GRIST (Jan. 26, 2011), <http://www.grist.org/article/2011-01-26-the-significance-of-obamas-energy-gambit> ("Coal plants that capture and bury the majority of their carbon emissions" are considered "clean coal" technologies.).

the impression that what Obama was actually doing was urging Congress to reduce the amount of dirty coal America uses.⁹³

Recently, the administration, through the Office of Surface Mining Reclamation and Enforcement ("OSMRE"), proposed standards for water quality and restrictions on mining methods that affect streams near coalmines.⁹⁴ OSMRE predicts that these protections would reduce coal production and the existing 80,600 coal mining jobs in America by approximately 7000.⁹⁵ Infuriated pro-coal agencies like the National Mining Association allege that the administration severely underestimates the economic impact of these regulations and claim that such rules would destroy tens of thousands of coal-related jobs.⁹⁶

Increased scrutiny of the coal industry by these two branches of the federal government has magnified West Virginia's vulnerability and its need for a sufficient AEPS. Due to diminishing support for the coal industry in Washington, any federal climate change legislation that may be enacted in the future presents troubling prospects for West Virginia. West Virginia's decision not to pass a legitimate and adequate AEPS is, at best, futile and, at worst, fatally damaging to the state's economic, social, and environmental well-being. If West Virginia does not enact a capable AEPS soon, it will miss its already fleeting opportunity to prepare itself for future federal legislation and regulation.

G. RECENT ANTI-COAL SUCCESS IN COURTS

A litigious and successful anti-coal movement has also forced the judiciary to revisit such legislation as the Clean Air and Endangered

⁹³ President Barack Obama, *supra* note 91; Roberts, *supra* note 92.

⁹⁴ Associated Press, *Obama's Mining Plan Cut Thousands of Coal Jobs*, PITTSBURGHLIVE.COM (Jan. 27, 2011), http://www.pittsburghlive.com/x/pittsburghtrib/business/s_720001.html.

⁹⁵ *Id.*

⁹⁶ *Id.*

Species acts⁹⁷ and has made producing coal in West Virginia much more expensive. Recently, the coal industry has found itself increasingly burdened with mounting litigation and adverse decisions. Despite recent wins for the industry,⁹⁸ environmentalist organizations and the federal government have rebounded with a flurry of lawsuits against coal corporations.

In August 2010, a U.S. District Court held Patriot Coal in contempt and ordered the company to install equipment to clean up selenium pollution at two of its West Virginia operations.⁹⁹ The court's decision marked the first time selenium had been judicially treated in West Virginia and may stand as a "lesson to the [EPA] and the coal industry."¹⁰⁰ Also, in November 2010, the U.S. Fourth Circuit Court of Appeals upheld a ruling that requires West Virginia regulators to improve the treatment of acid mine drainage and other pollution at abandoned coal mines.¹⁰¹

⁹⁷ Ken Ward, Jr., *New Water Pollution Suit Filed Against Massey*, W. VA. GAZETTE (Apr. 27, 2010), <http://blogs.wvgazette.com/coalattoo/2010/04/27/new-water-pollution-suit-filed-against-massey/>; *Dumping Mountaintops in Coal Country Streams Illegal, Lawsuit Claims*, ENVT. NEWS SERVICE (Jan. 18, 2009), <http://www.ens-newswire.com/ens/jan2009/2009-01-18-092.html>.

⁹⁸ *See, e.g.*, *Ohio Valley Env'tl. Coal. v. Bulen*, 429 F.3d 493 (4th Cir. 2005) (the 4th U.S. Circuit Court of Appeals reinstated streamlined permitting for mountaintop removal coal mines in West Virginia after a U.S. District Court in 2004 revoked 11 permits issued by the U.S. Army Corps of Engineers under the Nationwide Permit 21 process which is intended for activities that cause no more than minimal environmental damage).

⁹⁹ *Ohio Valley Env'tl. Coal. v. Apogee Coal Co.*, Order No. 3:09-CV-01167 (S.D. W. Va. Sept. 1, 2010), available at <http://media.mcclatchydc.com/static/pdf/schoof-selenium.pdf>; see Ken Ward, Jr., *Judge Orders Selenium Cleanup*, THE CHARLESTON GAZETTE, Sept. 1, 2010, at P1A. <http://www.wvgazette.com/News/MiningtheMountains/201008311031>.

¹⁰⁰ Ward, *supra* note 99.

¹⁰¹ *W. Virginia Highlands Conservancy, Inc. v. Huffman*, 625 F.3d 159 (4th Cir. 2010).

This litigation is significant not only because of the financial effect it has on the coal industry, but also because of its economic impact on the state. The coal industry pays millions of dollars in taxes and fees annually, all of which are based upon production, price, or both.¹⁰² Because litigation and adverse judgments quell production, the state receives less in severance taxes.¹⁰³ Protracted litigation, court-imposed fines, and denied permits also result in soaring prices of coal-derived energy, which further acts as a burden on the local economy.¹⁰⁴ Less tax revenue for the state and higher energy prices illustrate the need for cheaper and cleaner energy sources in West Virginia. An amended AEPS will not only prevent the coal industry from further painful blows delivered by the judiciary, but it will appropriately and slowly wean the state off of its expensive reliance on coal.

H. DEPLETION OF THE MOST PRODUCTIVE COAL RESERVES

The continued depletion of the most productive coal reserves in West Virginia is also a primary factor for the rising costs of coal production and presents one of the most compelling and exigent reasons for West Virginia to adopt an AEPS that focuses more on renewable energy.¹⁰⁵ As a recent report by Downstream Strategies reveals, mines are steadily producing less coal each year.¹⁰⁶ From 2005 to 2009 alone, West Virginia produced 13.4 percent less coal.¹⁰⁷ Even the state's vast amount of reserve coal does not guarantee that coal will be economically feasible to

¹⁰² Beth Gorczyca Ryan, *High Stakes: Lawsuits Challenge Coal Industry*, STATE J. (last updated Oct. 20, 2006, 4:06 PM), http://statejournal.com/story.cfm?func=view_story&storyid=15198.

¹⁰³ *Id.*

¹⁰⁴ See MCILMOIL & HANSEN, *supra* note 7, at 1.

¹⁰⁵ *Id.* at 9, 8, 20.

¹⁰⁶ *Id.* at 1.

¹⁰⁷ *U.S. Coal Supply and Demand 2009 Review*, U.S. ENERGY INFO. ADMIN. (Apr. 2010), <http://www.eia.doe.gov/cneaf/coal/page/special/tbl2.html>.

produce.¹⁰⁸ As the most productive coal seams are depleted, coal mining companies require greater labor to mine the more difficult seams, which has already more than doubled coal prices since 2000.¹⁰⁹ This unsurprisingly results in the reduced competitiveness of West Virginian coal, especially when coal is more easily minable in western states like Wyoming.¹¹⁰ The severe impact that declining productivity has had on the market competitiveness of West Virginia's coal industry all but guarantees that demand for coal will inevitably shift to other regions,¹¹¹ making coal production simply an economically poor decision for West Virginia.

III. RENEWABLE PORTFOLIO STANDARDS AND ALTERNATIVE ENERGY PORTFOLIO STANDARDS

Due to environmental and economic incentives, an increasing number of states have enacted renewable portfolio standards ("RPSs") or AEPSs, which generally require that renewable or alternative energy sources provide an increasing share of a state's electricity.¹¹² As of July 7, 2011, thirty-seven states have enacted some type of RPS or AEPS.¹¹³ The

¹⁰⁸ See MCILMOIL & HANSEN, *supra* note 7, at 11.

¹⁰⁹ See *id.*

¹¹⁰ In 2009, West Virginia coal averaged \$63.83 per short ton, compared with \$12.41 for Wyoming coal. U.S. ENERGY INFO. ADMIN., ANNUAL COAL REPORT 2009, at 56, available at <http://www.eia.doe.gov/cneaf/coal/page/acr/table28.html>; see MCILMOIL & HANSEN, *supra* note 7, at 14.

¹¹¹ MCILMOIL & HANSEN, *supra* note 7, at 24.

¹¹² See Eileen Clausen, *Foreword* to BARRY G. RABE, RACE TO THE TOP: THE EXPANDING ROLE OF U.S. STATE RENEWABLE PORTFOLIO STANDARDS, PEW RESEARCH CTR. ON GLOBAL CLIMATE CHANGE iii (June 2006), available at <http://www.pewclimate.org/docUploads/RPSReportFinal.pdf>.

¹¹³ *Comparison of Qualifying Resources for Individual States' RPS and AEPS*, PEW CTR. ON GLOBAL CLIMATE CHANGE, <http://www.pewclimate.org/docUploads/State-RPS-%20Detail.pdf> (last visited Sept. 12, 2011) [hereinafter *Comparison of Qualifying Resources*].

standards deliver significant GHG reductions, and the increased use of renewable energy creates jobs, energy security, and cleaner air.¹¹⁴

A. DIFFERENCES IN STATES' STANDARDS

Due to states' diverse resources, politics, and economic feasibilities, energy portfolio programs vary substantially. In fact, the primary reason for their recent proliferation and success is the flexibility that the legislation allows.¹¹⁵ These programs give states the opportunity to consider state-specific policy objectives, local resources, political atmospheres, and the actual capacity to expand renewable energy production.¹¹⁶ States have found this flexibility much more preferable to proposed federal standards, which are broader and often make sweeping, unrealistic judgments about states' capabilities.¹¹⁷

An energy portfolio program gives the state the benefit of customization and the ability to design the standard to fully take advantage of local resources.¹¹⁸ For instance, Maryland includes poultry-litter incineration in its standard, "which uses a byproduct from a long-standing Maryland industry."¹¹⁹ Some coastal states, like California, take advantage of their proximity to the ocean and incorporate wave energy into their standards.¹²⁰ RPSs and AEPSs therefore give states the ability to tailor climate change legislation to effectively and sustainably exploit

¹¹⁴ Clausen, *supra* note 112, at 7.

¹¹⁵ See Mary Ann Ralls, *Congress Got it Right: There's No Need to Mandate Renewable Portfolio Standards*, 27 ENERGY L.J. 451, 468 (2006).

¹¹⁶ See *id.*

¹¹⁷ *Id.* at 451, 472.

¹¹⁸ *Id.* at 468.

¹¹⁹ *Id.*

¹²⁰ *Id.*

local natural resources and thereby promote a movement towards clean, renewable energy at a rate appropriate to that state.¹²¹

Also crucial in producing a viable standard is the ability of states to create detailed programs that incorporate state-specific structures, targets, and resource eligibilities.¹²² For example, California requires that all electric utilities increase their sales of eligible renewable energy resources by thirty-three percent by 2020,¹²³ while Pennsylvania requires that each electric distribution company and electric generation supplier supply eighteen percent of its electricity using alternative energy resources by 2020.¹²⁴ Due to the intricacies of each standard, the ability to easily amend or restructure the programs when standards are set too high or low (or factors change) is "essential in designing and operating an energy portfolio program."¹²⁵ State programs also allow implementers to constantly gauge their programs' efficacy and maintain a realistic view of practical renewable energy goals "while safeguarding the need for safe, reliable, and affordable power."¹²⁶

Other provisions in states' standards may include "carve-outs," which specify that a percentage of the portfolio be generated from a specific

¹²¹ *Id.* at 457–58, 468.

¹²² *Id.* at 464.

¹²³ CAL. ENERGY COMM'N, ENERGY ACTION PLAN II, 6 (Sept. 2005), *available at* http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF; *see also* Database of State Incentives for Renewables and Efficiency, California, (Apr. 12, 2011), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA25R&state=CA&CurrentPageID=1.

¹²⁴ *See* Database of State Incentives for Renewables and Efficiency, Pennsylvania, (Aug. 23, 2011), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA06R&state=PA&CurrentPageID=1.

¹²⁵ Ralls, *supra* note 115, at 458.

¹²⁶ *Id.* at 463.

energy source, such as wind or solar power.¹²⁷ Some programs include incentives to encourage the development of particular resources,¹²⁸ other states' standards allow utilities to comply with the RPS or AEPS through tradable credits.¹²⁹ States' standards also apply to numerous sectors of the industry, from all utilities and retail suppliers, such as Delaware's standard, to investor-owned utilities, like Nevada's standard.¹³⁰

Finally, RPSs and AEPSs offer the best way to manage the cost-effectiveness of renewable resources.¹³¹ Since the cost-effectiveness of resources such as wind and solar is often unreliable, states constantly have to wrestle with costs.¹³² For example, "New Mexico amended its RPS statute to include a reasonable threshold standard [where], if the cost of the renewable energy resource [rose] above a state commission-established level, the utility [did not have to] add that renewable [energy source] to its portfolio."¹³³

While flexibility affords most states an opportunity to shape effective and efficient RPSs and AEPSs, it unfortunately also results in the possibility that some state legislatures might create disingenuous and ineffective standards that may appease local special interests groups but do not reflect a genuine movement towards renewable energy.

¹²⁷ *Renewable and Alternative Energy Portfolio Standards*, PEW CTR. ON GLOBAL AND CLIMATE CHANGE, <http://www.pewclimate.org/sites/default/modules/usmap/pdf.php?file=5907> (last updated Aug. 25, 2011).

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ Ralls, *supra* note 115, at 458, 466–67.

¹³¹ *Id.* at 454.

¹³² *Id.* at 465.

¹³³ *Id.* at 467.

**B. WEST VIRGINIA'S 2009 ALTERNATIVE AND RENEWABLE
ENERGY PORTFOLIO ACT**

Recognizing that "[t]he nation is on a rapid course of action to produce electrical power with an ever decreasing amount of emissions,"¹³⁴ West Virginia passed the "Alternative and Renewable Energy Portfolio Act" in June 2009.¹³⁵ The AEPS requires electric utilities to supply twenty-five percent of retail electric sales from eligible alternative and renewable energy sources by 2025 and provides for interim targets of ten percent by 2015 and fifteen percent by 2020.¹³⁶ To qualify, electricity produced by alternative and renewable sources must be generated or purchased from a facility in West Virginia or in the PJM Service Territory (the regional transmission organization that serves the state).¹³⁷ Furthermore, the standard measures compliance based on tradable credits for electricity produced by alternative and renewable sources.¹³⁸ An individual credit is equal to one megawatt-hour ("MWh") of alternative or renewable electricity generation.¹³⁹ The program awards credits differently based on whether the electricity is generated from an alternative energy resource facility or a renewable energy resource facility.¹⁴⁰ One credit is awarded for each MWh of alternative energy generation, two credits for renewable energy generation, and three credits for renewable energy generation located on a reclaimed surface mine.¹⁴¹ The Public Service Commission ("PSC") is also authorized to award one credit to an electric utility for each ton of CO₂ equivalent reduced or offset by approved projects.¹⁴²

¹³⁴ W. VA. CODE § 24-2F-2 (2009).

¹³⁵ W. VA. CODE § 24-2F (2009).

¹³⁶ W. VA. CODE § 24-2F-5 (2009).

¹³⁷ W. VA. CODE § 24-2F-4 (2009).

¹³⁸ W. VA. CODE § 24-2F-5 (2009).

¹³⁹ W. VA. CODE § 24-2F-4 (2009).

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

Finally, the PSC may award one credit to an electric utility for each MWh of electricity conserved by an approved energy efficiency or demand-side management project.¹⁴³

The program further required that utilities first submit compliance plans to the PSC by January 1, 2011 and then subsequently submit annual reports outlining their progress towards compliance.¹⁴⁴ The PSC will evaluate compliance after January 1, 2015, and impose non-compliance assessments for failure to meet the standard.¹⁴⁵

West Virginia also includes an "alternative energy" section in its standard, which consists of numerous coal-derived sources of energy.¹⁴⁶ Applicable "alternative energy resources" include "advanced coal technology," which is defined as technology that is used in a new or existing energy generating facility to reduce airborne carbon emissions associated with the combustion or use of coal.¹⁴⁷ This includes carbon capture and sequestration technology, supercritical technology, ultra-supercritical technology, pressurized fluidized bed technology, and any other resource, method, project or technology certified by the PSC as advanced coal technology.¹⁴⁸ Other "alternative energy resources" in the standard include coal bed methane, natural gas, fuel produced by a coal gasification or liquefaction facility, synthetic gas, integrated gasification combined cycle technologies, waste coal, tire-derived fuel, and pumped storage hydroelectric projects.¹⁴⁹

Finally, the standard's "renewable resources" section includes solar photovoltaic energy, solar thermal energy, wind power, run of river

¹⁴³ *Id.*

¹⁴⁴ W. VA. CODE § 24-2F-6 (2009).

¹⁴⁵ W. VA. CODE § 24-2F-5 (2009).

¹⁴⁶ *See* DSIRE W. Va., *supra* note 6.

¹⁴⁷ W. VA. CODE § 24-2F-3 (2009).

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

hydropower, geothermal energy, biomass, biologically derived fuel, and fuel cell technology.¹⁵⁰ Unlike most RPSs, West Virginia does not require that a mandatory amount of the state's energy be derived from renewable sources.¹⁵¹

IV. VIABLE AMENDMENTS TO WEST VIRGINIA'S AREPA

Although the state's AEPS shares many similarities with other states' energy portfolio programs, certain other provisions are "unique to West Virginia"¹⁵² and clearly make concessions to the coal industry. Because West Virginia's standard does not require a minimum contribution from renewable energy resources, it is possible that utilities can comply with the standard by using only alternative resources and zero renewable resources.¹⁵³ Therefore, the renewable energy portion of the bill functions more like a "non-binding goal."¹⁵⁴ In order to truly diversify from coal, West Virginia needs to amend its "renewable energy resources" standard to *require* that at least twenty percent of its energy portfolio come from renewable energy sources by 2025.¹⁵⁵ This is feasible because of the state's abundance of renewable energy resources.¹⁵⁶

¹⁵⁰ *Id.*

¹⁵¹ See DSIRE W. Va., *supra* note 6.

¹⁵² *WV Alternative Energy Standard*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/chp/funding/funding/weswvalternativeenergystandard.html> (last updated Sept. 27, 2011).

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ McIlmoil and Hansen of Downstream Strategies recommend that each state in the Appalachian region should "require that [twenty-five] percent of [its] energy portfolio come from truly renewable energy sources by 2025." MCLMOIL & HANSEN, *supra* note 7, at 4. This proposal is certainly reasonable considering RPSs in other states and West Virginia's abundant supply of natural resources. See *Comparison of Qualifying Resources*, *supra* note 113 (Illinois' RPS requires twenty-five percent of the state's power come from renewable sources by 2025, Maine's RPS requires forty percent of the state's power come from renewable sources by 2017 and Delaware's RPS requires twenty-five percent of the state's power come from renewable sources by 2025-2026).

Also, the standard's "alternative energy resources" section is defined more broadly than definitions of "alternative energy" found in most other states' standards.¹⁵⁷ The AREPA defines "alternative" energy to include numerous energy sources that emit significant quantities of GHGs, as well as other harmful pollutants.¹⁵⁸ Therefore, the state should amend its standard to exclude many of these heavily polluting sources, including at the very least old tires and waste coal, instead of ensuring their continued existence and harm to the environment. While the very passage of West Virginia's AREPA presents a significant step in the right direction, the state must adopt more stringent rules and regulations to truly break its addiction to coal.

A. REQUIRE TWENTY PERCENT OF THE STANDARD TO COME FROM RENEWABLE ENERGY RESOURCES

West Virginia's "renewable energy" provision is a start, but it lacks a distinct renewable energy target and merely presents electric utilities with an opportunity to voluntarily use renewable resources.¹⁵⁹ The bill, similar to those in Michigan, Ohio, and Pennsylvania (other coal mining states), may seem to make sense from a political standpoint;¹⁶⁰ however, as a recent Yale and George Mason study shows, "[sixty-eight] percent of

However, because this article's goal is to propose *practical* amendments to West Virginia's AREPA, I chose the twenty percent figure to act as a more prudent compromise between the Downstream Strategies proposal and already existing renewable energy targets in other states' AEPs. The twenty percent target is also supported by figures in the Yale and George Mason study, *see discussion infra* p. 24, and American Clean Energy and Security Act, *see discussion supra* p. 13.

¹⁵⁶ See MCILMOIL & HANSEN, *supra* note 7, at 4.

¹⁵⁷ *WV Alternative Energy Standard*, *supra* note 152.

¹⁵⁸ Sue Sturgis, *Power Politics: West Virginia redefines Dirty Energy as "alternative,"* INST. FOR S. STUD. (July 13, 2009), <http://www.southernstudies.org/2009/07/power-politics-west-virginia-redefines-dirty-energy-as-alternative.html>.

¹⁵⁹ See Ken Ward, Jr., *Early Thoughts on Manchin's Energy Plan*, THE CHARLESTON GAZETTE (Feb. 11, 2009, 8:59 PM), <http://blogs.wvgazette.com/coalattoo/2009/02/11/early-thoughts-on-manchins-energy-plan/>.

¹⁶⁰ *Id.*

Americans support requiring electric utilities to produce at least [twenty] percent of their electricity from renewable energy sources, even if it costs the average household an extra [one hundred dollars] a year."¹⁶¹ This figure "includes [fifty-eight] percent of Republicans, [sixty-four] percent of Independents, and [eighty-two] percent of Democrats."¹⁶² According to the study, over half of Americans would even pay five percent more on their monthly utility bills to get electricity from renewable energy sources.¹⁶³

Without a distinct renewable energy target, the state's AEPS does not actually incentivize the development of a renewable energy industry in West Virginia. In West Virginia's AREPA, the legislature expressly and correctly recognizes that "West Virginia has considerable natural resources that could support the development of alternative and renewable energy resource facilities."¹⁶⁴ The state's abundant supply of renewable energy resources, such as wind and sustainable biomass, can fulfill the energy needs of thousands of West Virginia's residents.¹⁶⁵ Instead of undermining the very meaning of an alternative and renewable energy portfolio standard, the state should amend its AREPA to require that at least twenty percent of its portfolio come from renewable energy resources and actually take advantage of all the clean, low-carbon, and renewable energy resources that West Virginia has to offer.¹⁶⁶

¹⁶¹ PUBLIC SUPPORT FOR CLIMATE AND ENERGY POLICIES IN MAY 2011 AT 8, YALE UNIV. AND GEORGE MASON UNIV. (2011), available at <http://environment.yale.edu/climate/news/PolicySupportMay2011/>.

¹⁶² *Id.*

¹⁶³ *Id.* at 12, 26.

¹⁶⁴ W. VA. CODE § 24-2F-2(5) (2009).

¹⁶⁵ MCILMOIL & HANSEN, *supra* note 7, at 33.

¹⁶⁶ *Id.* at 4.

1. WIND

Wind farming is one of West Virginia's most promising renewable energy options.¹⁶⁷ Wind turbines not only help preserve the natural environment, but their long-term economic results significantly outweigh those of mountaintop removal.¹⁶⁸ The wind industry in the United States is growing at an unprecedented rate,¹⁶⁹ and according to a recent energy plan from the West Virginia Division of Energy, wind is currently West Virginia's "most significant renewable energy opportunity."¹⁷⁰ Although western states tend to have the largest areas of high wind potential, parts of West Virginia show excellent wind resource potential.¹⁷¹ According to the West Virginia Development Office, private lands in West Virginia can potentially support 3830 megawatts ("MW") of wind power in many regions of the state.¹⁷²

As a Downstream Strategies study suggests, many of the sites with the greatest wind potential are located atop the very mountain peaks that will be impacted the most by mountaintop removal.¹⁷³ The study assessed many specific sites in West Virginia, including Coal River Mountain, and compared potential economic and energy benefits derived from future mountaintop removal to the proposed placement of a 164-turbine, 328-megawatt wind farm.¹⁷⁴ Although the energy potential of the mountain's coal and the money that would accrue to the companies that own the land greatly weigh in coal's favor, the long run portrays a very different

¹⁶⁷ See W. VA. ENERGY OPPORTUNITIES, A BLUEPRINT FOR THE FUTURE: RESOURCES FOR ECONOMIC GROWTH AND ENERGY SECURITY 4 (2007), available at http://www.wvcommerce.org/App_Media/Assets/publications/energy/EOD.pdf.

¹⁶⁸ HANSEN ET AL., *supra* note 33, at vi.

¹⁶⁹ *Id.* at 6.

¹⁷⁰ W. VA. ENERGY OPPORTUNITIES, *supra* note 167.

¹⁷¹ HANSEN ET AL., *supra* note 33, at 33.

¹⁷² See *id.* at 7.

¹⁷³ *Id.* at 8.

¹⁷⁴ *Id.* at 13–15.

story.¹⁷⁵ The researchers concluded that a wind farm of the size proposed for Coal River Mountain would generate \$1.74 million in annual tax revenue for Raleigh County, while the county would gain only \$36,000 per year with an additional mountaintop removal mining site.¹⁷⁶ The \$1.74 million in annual tax revenue represents almost the same amount that Raleigh County collected in coal severance taxes in the 2007-2008 fiscal year.¹⁷⁷ Most importantly, while the benefits associated with mountaintop removal would end after the seventeen-year projected mine life, the negative externalities associated with the mountaintop removal mine would continue to rise due to pollution and public health issues.¹⁷⁸ Benefits derived from wind farms and a local wind turbine manufacturing industry, however, would continue indefinitely.¹⁷⁹

For mountaintop removal, the cumulative external costs from coal production, without even considering the illnesses and environmental damage caused by the process, exceed cumulative earnings in every year.¹⁸⁰ Wind scenarios, however, show cumulative earnings that exceed cumulative externalities and provide for a preferable alternative to traditional mining methods.¹⁸¹ Additionally, wind farms and a local wind turbine manufacturing industry would provide more cumulative jobs than mountaintop removal mining after 2033.¹⁸² West Virginia's significant wind potential, and the greater economic, environmental, and public health benefits that a wind industry would have over coal mining, suggest that a twenty percent renewable energy requirement is not only possible, but sensible.

¹⁷⁵ *Id.* at 45.

¹⁷⁶ *Id.* at 21, 23.

¹⁷⁷ *Id.* at 20.

¹⁷⁸ *Id.* at 26.

¹⁷⁹ *Id.* at 24.

¹⁸⁰ *Id.* at 39.

¹⁸¹ *Id.*

¹⁸² *Id.* at 35–36.

2. SUSTAINABLE BIOMASS

Located in "one of the most forested regions in the nation," West Virginia can also "develop a strong and environmentally sustainable biomass industry" to meet a twenty percent renewable energy resource goal.¹⁸³ Biomass, a renewable energy resource, "is biological material derived from living or recently living organisms."¹⁸⁴ Biomass's chemical composition consists of carbon and organic molecules containing hydrogen and sometimes oxygen, nitrogen, and other small quantities of alkali, alkaline earth, and heavy metals.¹⁸⁵ "The carbon used to construct biomass is absorbed from the atmosphere as CO₂ by plant life, using energy from the sun."¹⁸⁶

"West Virginia is the third most heavily forested state in the [United States]," with twelve million acres of forestland.¹⁸⁷ In addition, the state "produces 2.41 million dry tons of wood residue annually," including "1.34 million dry tons of logging residue [and] 941,868 dry tons of mill residues."¹⁸⁸ These large amounts of wood residue from logging operations and mill waste are currently underutilized in West Virginia and are potentially available for bio-energy production.¹⁸⁹ One report even suggests that West Virginia has the potential to produce at least 5.4 billion kWh of electricity from biomass, which would be enough to supply power to 543,000 average homes, or sixty-one percent of the state's residential

¹⁸³ MCILMOIL & HANSEN, *supra* note 7, at 33.

¹⁸⁴ *What is Biomass?*, BIOMASS ENERGY CENTRE, http://www.biomassenergycentre.org.uk/portal/page?_pageid=76,15049&_dad=portal&_schema=PORTAL (last visited July 7, 2011).

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ JOSEPH MCNEEL ET AL., WOODY BIOMASS SUSTAINABILITY FOR BIOENERGY PRODUCTION IN WEST VIRGINIA 1, W. VA. UNIV., *available at* <http://www.ncfap.org/documents/BEADII/WVUBiomassGChallengeBEADII.pdf>.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* at 1–2.

needs.¹⁹⁰ Despite this enormous potential, biomass currently accounts for only about one-half of one percent of energy produced in the entire state.¹⁹¹ Therefore, the utilization of wood-based biomass presents another example of a viable renewable energy opportunity that can help West Virginia achieve a twenty percent renewable energy goal.

B. REDEFINE "ALTERNATIVE ENERGY RESOURCES"

Although "alternative energy" commonly refers to those energy sources that are not carbon-based, many of West Virginia's eligible "alternative energy sources" not only contribute more GHGs than conventional coal-fired plants, but they emit toxic pollutants as well.¹⁹² For example, coal bed methane development has the potential to seriously deplete groundwater supplies and contaminate surface water.¹⁹³ Energy produced by coal gasification or liquefaction, waste coal, tires, and natural gas all emit GHGs into the atmosphere.¹⁹⁴ In fact, West Virginia is the only state that includes natural gas as a source of "alternative" energy in its energy portfolio standards.¹⁹⁵ At the very least, West Virginia should redefine "alternative energy sources" to exclude tire burning and waste coal, both of which are extremely harmful to the environment and public health.

1. EXCLUDE TIRE BURNING AS AN ALTERNATIVE ENERGY RESOURCE

First, West Virginia should redefine "alternative energy" to exclude tire burning. West Virginia is currently one of only three states that

¹⁹⁰ *Id.* at 8.

¹⁹¹ *Id.*

¹⁹² Sturgis, *supra* note 158.

¹⁹³ Samantha Bohrman, *Groundwater Conservation and Coalbed Methane Development in the Powder River Basin*, 24 LAW & INEQ. 181, 187–88 (2006).

¹⁹⁴ Sturgis, *supra* note 158.

¹⁹⁵ *Comparison of Qualifying Resources*, *supra* note 113.

include tire burning in its alternative energy portfolio.¹⁹⁶ Although over 300 million tires are discarded in the United States every year,¹⁹⁷ the burning process emits a significant amount of GHGs and other pollutants.¹⁹⁸ The fumes emitted from tire incineration are packed with many toxic chemicals, including volatile organic compounds ("VOC"s), metals, and synthetic rubber components.¹⁹⁹ In addition, the chlorine content in tires leads to the creation of dioxins and furans, which are extremely toxic and can cause serious health problems, including infertility, learning disabilities, and birth defects.²⁰⁰ Other methods that do not involve burning tires, like simply removing them from the environment, do not produce as much pollution and even establish possible employment opportunities.²⁰¹ Consequently, while using tires as fuel may help confront the problem of disposing of the millions of tires that are discarded every year, burning tires releases a substantial amount of pollution into the atmosphere and should be excluded from the state's standard.

2. EXCLUDE WASTE COAL AS AN ALTERNATIVE ENERGY RESOURCE

Second, West Virginia should remove waste coal from eligible alternative energy resources. West Virginia's standard makes it one of only two states (the other one being the mining state of Pennsylvania) to

¹⁹⁶ *Id.*

¹⁹⁷ *Scrap Tires*, U.S. ENVTL. PROTECTION AGENCY, <http://www.epa.gov/osw/conserved/materials/tires/basic.htm> (last visited July 8, 2011).

¹⁹⁸ Guy Gugliotta, *Better Planet: A New Source of Green Energy: Burning Tires?*, DISCOVER MAG., Feb. 2008, available at http://discovermagazine.com/2008/feb/new-source-of-green-energy-burning-tires/article_view?b_start:int=1&-C=.

¹⁹⁹ *What is "Tire Derived Fuel" and Why is it Dangerous?*, ENERGY JUST. NETWORK, <http://www.energyjustice.net/tires#top> (last visited July 7, 2011).

²⁰⁰ *Id.*

²⁰¹ See Gugliotta, *supra* note 198 (Scrap tire businesses collect used tires and sell them to rubber reclaimers or process them into crumb rubber).

include waste coal in its energy standard.²⁰² Waste coal, also known as "gob" or "culm," is the low-grade, residual coal left behind after coal mining operations.²⁰³ Piles of waste coal are prevalent in mining states and often pollute nearby streams.²⁰⁴ This refuse, which was originally thrown away during processing because of its low quality, can now be burned due to the development of fluidized bed combustion technology ("FBC").²⁰⁵

Although this provision helps dispel the state of a significant waste problem, burning waste coal has harmful consequences on the environment and public health.²⁰⁶ Recent reports link numerous waste coal burning plants in Pennsylvania to unusually high rates of the rare blood cancer polycythemia vera.²⁰⁷ The limestone injections, lower temperatures, and oxygen levels that are required for FBC technology operations have all been found to contribute to increased emissions of polycyclic aromatic hydrocarbons ("PAH"s), which are known to cause genetic mutations and cancer.²⁰⁸ In addition, FBC plants emit radioactive pollution, which is also linked to an excess risk of polycythemia vera.²⁰⁹

Burning this resource produces little actual energy and emits up to 3.5 times the mercury as normal coal.²¹⁰ Other methods of dealing with waste coal, such cleaning it up or "re-shaping the piles and planting

²⁰² See *Comparison of Qualifying Resources*, *supra* note 113.

²⁰³ Randy Francisco, *Waste Coal Plants a Bad Deal for Pennsylvania*, SIERRA CLUB (June 21, 2009), <http://www.sierraclub.org/coal/pa/pr/pr2009-10-21.aspx>.

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ Sturgis, *supra* note 158.

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.*

²¹⁰ *Id.*

vegetation,"²¹¹ may present better alternatives than burning it for fuel.²¹² Because the negative environmental impacts of burning tires and waste coal are likely to outweigh any positive effects generated from cleaning up the piles, West Virginia should redefine its "alternative energy" section to exclude these two damaging sources.

V. CONCLUSION

Coal production in West Virginia has shaped the state economically, socially, and politically, and will continue to do so for years to come. The industry is not only intertwined with West Virginia's economy and culture, but also the nation's energy infrastructure. Increasing energy demands will all but ensure the coal industry's survival for many decades. However, coal is not vital to the state's future.²¹³ If anything, further reliance on coal-derived energy will only hinder West Virginia's growth. The state will eventually be forced to develop clean and renewable energy sources due to its decreasing supply of coal and an even smaller amount of patience from local residents and the federal government. It is therefore critical that West Virginia adopt a more appropriate and effective energy portfolio program before all of the coal, biodiversity, and mountains are gone, and West Virginia is no longer America's "Mountain State."

²¹¹ Ernie Niemi et al., *Economic Analysis of Alternative Programs for Managing Waste Coal in Central Appalachia*, ECONORTHWEST 1, 1 (2009), available at <http://alleghenysc.org/wp-content/uploads/2009/03/waste-coal-economic-analysis-0109.pdf>.

²¹² Francisco, *supra* note 203.

²¹³ *Contra* Mission Statement, FRIENDS OF COAL Aug. 16, 2007, <http://www.friends ofcoal.org/2007081612/latest-news/about.html>.