THE FUTURE OF ENERGY PRODUCTION IN CAMBRIA COUNTY. A LEGAL PERSPECTIVE INCORPORATING THE PENNSYLVANIA'S LONG HISTORY WITH COAL

Climate Change Law, Research & Writing (Spring 2023): Final Paper

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I. Introduction

Coal and natural gas are essential to industry and life sustenance and are found across Cambria County. Both fuel types have been prominently displayed in

the long history of Cambria County. However, their future is in question as the world looks to turn away from fossil fuels production. This paper will present various legal solutions for addressing the impact of continuing their use as well as migrating to renewable sources.

Coal has had many legal and political battles in retaining its stay in Cambria County and its usefulness to the country and the world.[1] Over the recent course of history, coal's risks and rewards have been questioned multiple times, and it is becoming more apparent that its harvest should be slowed or outright stopped. An easy solution to this problem has been the discovery and technological advancements in collecting natural gas. Natural gas has been a recent replacement[2], but as fracking[3] and other environmentally dangerous processes have shown[4], it may not be a substitute for the coal mines that Cambria County had hoped for. However, technology is not enough. It needs a strong legal structure to encourage the next chapter in Cambria County's energy production.

Traditionally, federal and state laws, regulations and policy decisions have impliedly or expressly favor coal as the primary energy source,[5] and has incentivized created coal-powered power plants since the end of World War 2.[6] Because of these government subsidies has remained extremely cheap.[7] Coal is affordable for the industry and the consumer because these policies allow for cost-cutting for power, making it profitable to charge consumers a lower amount for the energy.[8] Consumers are not willing to pay more for the same amount of energy, with no added apparent benefit to themselves, and producers are struggling or unwilling to switch energy production to another source. However, this sentiment has been changing rapidly as more information about the harmful effects of coal has come to the public light.

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1. *Coal companies ask scotus to limit EPA's power, Coal companies ask SCOTUS to limit EPA's power*, JONES DAY, https://www.jonesday.com/en/practices/experience/2022/02/coal-companies-prevail-in-supreme-court-battle-over-epas-power (last visited Apr 15, 2023).
2. *NATURAL GAS,* EDUCATION, https://education.nationalgeographic.org/resource/natural-gas/ (last visited Apr 15, 2023).
3. Melissa Denchak, *Fracking 101 Be a Force for the Future* (2019), https://www.nrdc.org/stories/fracking-101 (last visited Apr 15, 2023).
4. *Id.*
5. *Treasury, Energy Release Guidance on Inflation Reduction Act programs to incentivize investments in underserved communities, hard-hit coal communities*, U.S. DEPARTMENT OF THE TREASURY (2023), https://home.treasury.gov/news/press-releases/jy1269 (last visited Apr 15, 2023).
6. *Id.*
7. Jeff Johnson, *Long History Of U.S. Energy Subsidies Cen.acs.org*, https://cen.acs.org/articles/89/i51/Long-History-US-Energy-Subsidies.html (last visited Apr 17, 2023).
8. *Id.*

Alongside being the largest electricity supplier for the United States, Coal is also the most significant contributor to greenhouse gas emissions.[9] The United States Congress has recently started its work on regulating gas emissions that the country has been producing, though not at the preferred pace.[10] This process is so slow-moving because of the partisan split between the two parties on the harmful effects of climate change. However, it is widely believed that these greenhouse gases are damaging the world in some capacity, and the need to regulate the emissions is shared.[11] So far, it is widely unknown when or what these bipartisan regulations may look like, but the previous regulations seem to be moving the needle in favor of reducing emissions.[12] It is known that coal is on its way out, and the country needs to move on from its polluting energy and find a new energy source, and it cannot do that without a legal framework supporting it.[13]

II. Cambria County's Energy History – Fact and Law

Coal exploitation has faced many legal and political challenges over the years. This paper will take a deep dive into coal's past, and the issues that it has faced in order to provide insight into the next steps for the production of natural gas in Cambria County, as well as the production of renewable energy. Like the fall of Rome, the age of coal in the United States has declined for years.[14] This is not the result of a single event or the work of one president who decided their time was over. Its demise has been slow and volatile, with peaks and valleys giving its supporters the hope that it will return.

Coal's usefulness has been overshadowed by the damage that it causes. Coal's time is ending for several reasons, but it means a new exciting frontier for the United States industry. The United States is searching for the best ways to make new energy alternatives the primary energy source. Despite the optimistic IRA,[15] we witness, perhaps for the first time in the industrial history of the United States, energy

9. *Id.*
10. *Coal and climate change*, 11 WIREs CLIMATE CHANGE (2019).
11. Id.
12. *Id.*
13. Harry Stevens, *America needs clean electricity. these states show how to do it*. THE WASHINGTON POST (2023), https://www.washingtonpost.com/climate-environment/interactive/2023/clean-energy-electricity-sources/ (last visited Apr 17, 2023).
14. *The history of the decline and fall of the Roman Empire quotes*, THE 20 BEST HISTORY OF THE DECLINE AND FALL OF THE ROMAN EMPIRE QUOTES, https://bookroo.com/quotes/the-history-of-the-decline-and-fall-of-the-roman-empire (last visited Apr 15, 2023).
15. *The Inflation Reduction Act*, H.R. 5376, 117th Cong. (2022)

uncertainty: how to satisfy our energy needs and promote a cleaner, safer environment for generations to come.

If the history of Man[16] were written as a children's storybook, coal would be one of the main characters that children would fall in love with as the driving force of the Innovation of Man. Coal is a resource that has powered the world through centuries of change and development.[17] It propelled empires to rise and then watched them fall, kings turn into queens, and was the main reason for every country's industrial revolution, no matter the time it took place.[18] Coal has taken Man from a primitive state to a space of exploration by providing electricity to a vast majority of homes across the globe.

Nor has coal's influence and effects been seen more intimately than in Cambria County. Cambria County has been at the forefront of coal production since the colonial United States. This small county of 132,167 people growing smaller by the year, has significantly influenced the Pennsylvania energy market.[19] Coal has created wealth in Cambria County and has drawn energy manufacturers worldwide to tap into its fossil fuel wealth underneath the ground its citizens walk on. Cambria County's coal was a driving force in the industrial revolution forces of Carnegie and Frick out of Pittsburgh, helping push the United States toward the future.[20] Coal has been ingrained in Cambria County, so neither would have existed without the other.

i. Coal and Cambria County

Coal to Cambria County is like wine to Italy, oil to Saudi Arabia, lobsters to Maine, or retirements home to Florida. Cambria County has only existed with the idea of coal mining ingrained deep into its existence in Pennsylvania.

The history of Coal in Cambria County extends into the colonial period and founds its place as the energy powerhouse during the post-Civil War era. As early as the 1760s, white settlers dug coal and used it for forges, blacksmithing, and other colonial

16. *Author links open overlay panelJeanette Silveira et al., Generic masculine words and thinking Women's Studies International Quarterly* (2004), https://www.sciencedirect.com/science/article/abs/pii/S0148068580921132 (last visited Apr 15, 2023).

17. *Fossil Energy Study Guide: 300 Million Years Ago*, , https://www.energy.gov/sites/prod/files/Elem_Coal_Studyguide.pdf (last visited Apr 15, 2023).

18. *Id.*

19. *Cambria County, Pennsylvania: QuickFacts*, UNITED STATES CENSUS, https://www.census.gov/quickfacts/Cact/table/cambriacountypennsylvania/PST045221 (last visited Apr 15, 2023).

20. Jolley, C., & Rickards, L. (2020). *Contesting coal and climate change using scale: emergent topologies in the Adani mine controversy.* GEOGRAPHICAL RESEARCH, 58(1), 6–23. https://doi-org.authenticate.library.duq.edu/10.1111/1745-5871.12376

activities.[21] However, over the 1800s, it increased from 25% of the primary fuel source for iron production in the 1840s to below 75% at the end of the Civil War.[22] This switch would lead to a new form of mass iron and steel production, especially related to wartime materials.[23] This upside is that this new form of production, powered by coal, was the first step towards the industrial revolution.

The Industrial Revolution would take the nation by hold, and Cambria County would be at the forefront of the sweeping change. Iron and Steel industries began booming in Johnstown, which is inside Cambria County, and Pittsburgh.[24] By 1901 there were 130 coal mines in the county, and in the 1910s and 20s, producing 16 million tons of coal annually.[25] The steel industry that was booming in Pittsburgh, and the coal coke industry that was taking off in Johnstown, all needed power, and coal was the resource that would power it. Cambria County became one of the wealthiest counties in Pennsylvania during the time of this coal boom and thus was experiencing extreme economic growth.

The Great Depression would be the first time since the boom of Coal that Coal would waiver as the lead energy source in the United States.[26] However, it remained an essential role in the country's economy and persevered through peaks and valleys, many caused by the energy crises and politics surrounding coal.[27]

These would continue until the 1970s when the first mainstream realization of Climate Change created a push to end the consumption of fossil fuels like coal.[28] This realization would develop policies and laws intending to lower the use of coal, causing a new fight for Coal and presumedly a new low on its need for this country.[29] Currently, coal mining is on a resurgence due to rising energy prices and political

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21. *History of coal in Cambria County,* JOHNSTOWN AREA HERITAGE ASSOCIATION (2016), https://www.jaha.org/attractions/heritage-discovery-center/johnstown-history/history-coal-cambria-county/ (last visited Apr 15, 2023).
22. *Id.*
23. *Id.*
24. *Id.*
25. *Id.*
26. *Id.*
27. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. of Pennsylvania Journal of Business Law (2012).
28. Thomas C. Peterson, William M. Connolley & John Fleck, *The myth of the 1970s Global Cooling Scientific Consensus*, 89 Bulletin of the American Meteorological Society 1325–1338 (2008).
29. *Id.*

persuasion by President Trump. [30]Many Coal mines were reopened during this resurgence, leading to a newfound economic bump for Cambria County.[31]

a. Pennsylvania Current Ordinances on Coal

Through chapter 87 of the Pennsylvania code, the state has begun heavily regulating coal mining and fuel production.[32] Act 12 from 2004 also continues to regulate for the environment, creating even more regulations for the coal industry, and change from the previous coal favored statutes.[33]

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30. Eric Lipton, *'the coal industry is back,' trump proclaimed. it wasn't.* THE NEW YORK TIMES (2020), https://www.nytimes.com/2020/10/05/us/politics/trump-coal-industry.html (last visited Apr 15, 2023).

31. *History of coal in Cambria County*, JOHNSTOWN AREA HERITAGE ASSOCIATION (2016), https://www.jaha.org/attractions/heritage-discovery-center/johnstown-history/history-coal-cambria-county/ (last visited Apr 15, 2023).

32. 25 Pa. Code § 87.41 (Responsibilities:

Each permit application shall describe the existing premining resources within the proposed permit and adjacent area that may be impacted or affected by the proposed surface mining activities. The description shall include all the information required in this subchapter)

25 Pa. Code § 87.48 (Climatology information:

When requested by the Department, the application shall contain a statement of the climatological factors representing the proposed permit and adjacent area. The statement shall contain the information the Department deems relevant to ensure compliance with the requirements of this chapter.

25 Pa. Code § 87.66 (Air pollution control plan.

The description shall include an air pollution control plan which includes the following:

(1) A plan for fugitive dust control practices, as required under § 87.137 (relating to air resources protection), and if applicable, how the requirements of Chapters 123 and 127 (relating to standards for contaminants; and construction, modification, reactivation and operation of sources) will be met.

(2) If required by the Department, an air quality control monitoring program to provide sufficient data to evaluate the effectiveness of the air pollution control plan.)

25 Pa. Code § 87.137 (Air resources protection.

Air pollution control measures shall be planned and employed as an integral part of the surface mining activities and shall meet the following requirements:

(1) If processing facilities are to be used at the mining site, the facilities shall meet the requirements of Chapters 123 and 127 (relating to standards for contaminants; and construction, modification, reactivation and operation of sources).

(2) Fugitive dust control measures shall demonstrate compliance with Chapters 121, 123, 127, and 129.

33. 12 Pa. Code § 2004 Act 12 (Hazardous substance." Any element, compound, or material which is any of the following:

(1) Regulated as a hazardous air pollutant under section 6.6 of the act of January 8, 1960 (1959 P.L.2119, No.787), known as the Air Pollution Control Act.

(2) Defined as a hazardous waste under section 103 of the act of July 7, 1980 (P.L.380, No.97), known as the Solid Waste Management Act.

(3) Regulated under the act of December 7, 1990 (P.L.639, No.165), known as the Hazardous Material Emergency Planning and Response Act.

Coal has been highly regulated recently[34], as seen above, but this phenomenon is relatively new. Coal was the dominant resource for a long time, and because of that, it gained much political power to bargain against regulations that were put against it.[35] For a long time, Pennsylvania allowed for statutes and laws to be passed favoring coal, but this would change following the crackdown on emissions.[36]

The two statutes above show the transition from a coal-minded Pennsylvania to an emission-concerned state. As seen later in this paper, Pennsylvania is one of the state's top producers of greenhouse gas emissions, and a lot of that is coal.[37] Statutes and acts, like the ones shown above, are being passed now regarding the emissions and harmful effects of coal. Coal burning, mining, and collection are now heavily regulated.

The goal of current coal and energy statutes in Pennsylvania is to reduce emissions for the state. Coal is an extremely dirty power source, and such has become to be disfavored by the Pennsylvania government as a staple energy source.[38] Though small on paper, these regulations have massive implications for all coal-related practices. Coal burning is limited, and emissions are now limited due to Chapter 87.[39] Mining has also been limited to stopping the dust and other harmful emissions from coal mining.[40]

These statutes help introduce the current state of Coal in Pennsylvania and an idea as to what to expect from Pennsylvania's energy sector. Coal being heavily regulated means money must be spent to abide by the regulations and less to profit from the coal. Pennsylvania is regulating coal heavier than ever, and the common trend is that these regulations are here to stay and only grow.

Pollution prevention." The reduction or elimination of pollution at its source. The term does not include any of the following:

(1) A substitution of one hazardous or toxic substance for another, which will cause an increased risk to the environment or to human health.

(2) A cross-media transfer.

(3) A delisting of a hazardous waste or toxic chemical.

35. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).

36. *Id.*

37. Sarah Ladislaw & Lisa Hyland, *Pennsylvania's Energy Future* CSIS, https://www.csis.org/analysis/pennsylvanias-energy-future (last visited Apr 15, 2023).

38. 25 Pa. Code § 87

39. *Id.*

40. *Id.*

Like every modern country, the United States needs the energy to function, and for an extremely long time, Coal has been its primary energy source. "Coal is the dominant source of electric power in the United States, providing nearly 50 percent of all electricity in the country."[41] Comparing this to other power sources, natural gas supplies about 20%, Nuclear supplies about 20%, and renewable supplies the last 10%.[42] On the flip side of coal, these sources have been slowly rising, especially with Natural gas poised to overtake coal eventually in our lifetimes. However, progress is slow in the energy sector, and it seems the government is not open to these expensive shifts in energy production.[43]

Cambria County's history is deeply ingrained in the Coal market, and Coal has been a sole defining characteristic of the county. However, coal is no longer a wonderful resource that provides electricity, jobs, and wealth to a small county in the middle of Pennsylvania. Recent historical findings that coal produces harmful greenhouse gases polluting the world have changed the opinion on the little black rock that brought prosperity to Cambria County. Due to the polluting nature of coal, the nation has begun looking for new ways to shift a coal-based electricity system to one that has yet to be seen.

III. The Environmental Impact of Fossil Fuels in Cambria County

From the first paragraph, a novice reader may believe that coal is one of the best things humans have found and used. However, coal has detriments that have been damaging the world as much as it has been improving it.[44] Coal is a fossil fuel and is majorly made of carbon.[45]

That carbon dioxide was defined as a pollutant and included in the list of greenhouse gases by statute 22 USC § 7901 definitions[46] [47]

41. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).
42. *Id.*
43. *Id.*
44. 22 USC § 7901
45. *What is coal?,* U.S. GEOLOGICAL SURVEY, https://www.usgs.gov/faqs/what-coal#:~:text=Coal%20is%20a%20sedimentary%20deposit,by%20volume%20of%20carbonaceous%20material. (last visited Apr 15, 2023).
46. "They are defined as "(2) Greenhouse gas: The term "greenhouse gas" means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride"
47. 22 USC § 7901

"Coal combustion releases the greenhouse gases carbon dioxide (CO2) and nitrous oxide (N2O) during combustion."[48]

These greenhouse gases released into the air by coal are trapping heat in the earth's ozone layer and causing massive amounts of global climate change, much of which was not realized until very recently in human evolution.[49] Coal-based power plants are the number one producer of greenhouse gasses compared to any other electricity source.[50] This newfound damaging effect of coal has caused irreparable damage to the world. It has caused it to significantly heat up at an exponential rate, which for obvious reasons, is extremely bad for the future.

This damaging effect on the Earth might make that novice reader think that the world has quickly moved away from these harmful fossil fuels. However, it has been a "slow burn." Sources may vary; however, one source has landed that coal provides nearly 50% of all electricity in the United States.[51] Another list is at only around 33% of the energy used and has fallen to about 27%, which is hopeful and promising.[52] Coal mining still releases harmful amounts of methane into the air, an 87% more potent greenhouse gas than those released by burning coal.[53] The world is aware of the damaging effects of coal, but the current plans are not enough, or rather, the world's need for coal outweighs the fear of destroying the planet at the current rate. Coal has slowly been implemented out of energy production in the United States, with many laws and statutes clearing the way for coal to be implemented.

i. Cambria County's Current Energy Plan

At the front of Cambria County's energy plan are coal, natural gas, and wind.[54] Coal and Natural gas have reached a point where they are equally crucial to Cambria County, while wind has slowly risen due to increased infrastructure.

Currently, there are three energy generation plants inside Cambria County.[55] Northern Star Generation, Clover Power Plant, and Ebensburg power company

48. *Why clean coal is a myth, Green America,* https://www.greenamerica.org/fight-dirty-energy/amazon-build-cleaner-cloud/coal-why-it-dirty (last visited Apr 15, 2023).
49. *Id.*
50. *Id.*
51. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).
52. *Why clean coal is a myth, Green America*, https://www.greenamerica.org/fight-dirty-energy/amazon-build-cleaner-cloud/coal-why-it-dirty (last visited Apr 15, 2023).
53. *Id.*
54. *Energy, Cambria County, PA* (2021), https://www.cambriacountypa.gov/resources/energy/ (last visited Apr 15, 2023).
55. *Id.*

cooperate.[56] They are tasked with burning boney piles and creating low-pressure steam from burning coal.[57] This is done to eliminate the effects of acid mine drainage in the rivers and streams across Cambria County.

Natural gas is covered through the Marcellus Shale Energy Coalition inside Cambria County.[58] The Marcellus Shale is in much of Pennsylvania and is currently in high demand federally and internationally.[59] Now, Cambria County invests in hydraulic fracturing to obtain and harvest natural gas from shale.[60]

The wind is the final part of the Cambria Counties' energy plan. Cambria County has been putting up wind turbines across the sprawling hills through the Highland Wind Project, created by EverPower Wind Holding, Inc.[61] Currently, wind energy is the fasted growing in the world and Cambria County due to the general ease of installation.[62]

IV. Cambria County's Legal Plan Fits the United States Modern-Day Legal Energy Framework

Like every modern country, the United States needs the energy to function, and coal has long been its primary energy source for a long time. "Coal is the dominant source of electric power in the United States, providing nearly 50 percent of all electricity in the country."[63] Legislation like the "The Mineral Leasing Act of February 25, 1920"[64], The Mineral Leasing Act for Acquired Lands of August 7, 1947"[65], The Surface Mining Control and Reclamation Act of 1977[66], The Department of Energy Organization Act of August 4, 1977[67], and The Federal Coal Leasing Amendments Act of 1976,[68] allowed for coal to stay dominant and thriving for as long as it did. [69]

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56. *Id*
57. *Energy, Cambria County, PA* (2021), https://www.cambriacountypa.gov/resources/energy/ (last visited Apr 15, 2023).
58. *Id.*
59. *Id.*
60. *Id.*
61. *Id.*
62. *Id.*
63. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).
64. 30 U.S.C. § 181
65. 30 U.S.C. Chapter 7
66. 30 U.S.C. § 1201
67. 42 U.S.C. § 7101
68. 90 Stat. 1083-1092
69. 43 U.S.C. § 3400

However, the quest for energy has been successful both legally and industrially: the energy grid of the United States has diversified to include coal, gas, and nuclear sources.[70] For example, since the 1900s, coal has diminished its energy role[71]. Comparing this to other power sources, natural gas supplies about 20%, Nuclear supplies about 20%, and renewable supplies the last 10%.[72] On the flip side of coal, these sources have been slowly rising, especially with Natural gas poised to overtake coal eventually in our lifetimes. However, progress is slow in the energy sector, and the government is not open to these expensive shifts in energy production.[73]

i. The Clean Air Acts Attack on Coal Nationally

The 1970s would be the turning point in coal's lifespan and see the start and most considerable pushback against the coal industry. Employment in the coal mines was consistently falling starting in the 1950s due to technological improvement and other power sources entering the United States, like oil.[74]

The primary environmental law affecting the National coal combustion for electricity generation is the Clean Air Act (CAA) of 1970, signed into law by Richard Nixon.[75] The law imposed significant restrictions on sulfur emissions from new coal-fired power plants.[76] However, the electricity demand grew following this, requiring more coal-fired power plants.[77] This need for the expansion of coal, while obeying the Clean Air Act, called for the use of low-sulfur coal, mainly found in the West, damaging the Eastern coal producers and their higher sulfur coal.[78] The Eastern coal producers' lobbying pushed Congress to create an Amendment to the CAA in 1977.[79] It required all power plants to remove sulfur from the smokestack after combustion, bringing interest to the coal mines back east.[80]

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70. U.*S. Energy Information Administration - EIA - independent statistics and analysis, U.S. energy facts explained - consumption and production,* U.S. ENERGY INFORMATION ADMINISTRATION (EIA), https://www.eia.gov/energyexplained/us-energy-facts/ (last visited Apr 15, 2023).
71. *Id.*
72. *Id.*
73. *Id.*
74. Thomas R. Pegram, *Strikes, prohibition, and the politics of policing in Pennsylvania coal country during the 1920s*, 145 THE PENNSYLVANIA MAGAZINE OF HISTORY AND BIOGRAPHY 153–184 (2021).
75. *Id.*
76. *Id.*
77. *Id.*
78. *Id.*
79. H.R. 6161, 95TH CONG. (1977-1978)
80. *Id.*

This appeasement to the Eastern power plants would then create a problem that would last for generations, overriding the entire purpose of the CAA. Grandfathering was done to older plants to pass the bill, with the expectation that they would retire at the end of their 40-to-50-year life so they did not have to abide by the sulfur removal on the stacks.[81] [82] This would backfire against the policymakers, however. This grandfathering provided an incentive to keep those older and higher-polluting plants open. This is because those plants were cheaper to operate, and they did not have to deal with the restrictions imposed on the new plants.

The EPA would slowly yet aggressively impose more restrictions to make up for this lapse in judgment regarding grandfathering. Over the subsequent three administrations, these older plants began shutting down nearly 50 years after the 1970s implementation of the CAA.[83]

ii. Obama-era Policies Changing Coal for the Modern Era

The lowest point for coal employment has been around 2015-2016, falling below the point before the industrial revolution.[84] Obama-Era policies were some of the first that set all fossil fuels in its sights and looked to take down all power sources that heavily pollute the climate. President Obama believed that the United States was the best-equipped nation to lead the charge against it.[85]

The policy that was the heaviest attack on coal was arguably the strongest of the entire bunch. "The Clean Power Plan gives states flexible, cost-effective tools to cut carbon pollution from these plants by 32% from 2005 levels by 2030."[86] The Clean Power Plan (CPP) provided a national standard for all coal-based power plants, which stripped all incentives for coal-fired plants mentioned above.[87] Coal was no longer the most accessible and cheapest resource to create power.

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81. *00/02189 grandfathering and coal plant emissions: The cost of cleaning up the Clean Air Act*, 41 FUEL AND ENERGY ABSTRACTS 241 (2000).

82. Bruce Biewald, David White & Tim Woolf, *Grandfathering and Envrionmental Comparability: An Economic Analysis of Air Emission Regulations and Electricity Market Distortions*, (1998).

83. *Id.*

84. *Id.*

85. *A historic commitment to protecting the environment and addressing the impacts of climate change*, NATIONAL ARCHIVES AND RECORDS ADMINISTRATION, https://obamawhitehouse.archives.gov/the-record/climate (last visited Apr 15, 2023).

86. *Id.*

87. *Id.*

The policies implemented by President Obama did work, and the blame placed on him for the downfall of coal is justified, no matter which side of the aisle they are on coal. During Obama's presidency, Carbon dioxide emissions fell by 9.4%. [88] The use of other power sources began to increase exponentially and began to sway away from fossil fuels.[89]

The Trump Administration would eventually attack the CPP, and the vessel of the attack, The Affordable Clean Energy (ACE) rule, was part of a Supreme Court challenge. In West Virginia v. EPA[90], the court found that the EPA was heavily limited under the "Major questions doctrine."[91] The court found that the EPA needed "clear congressional authorization" for authority to apply the CPP.[92] The EPA lacks the authority to implement the CPP under the CAA without direct instructions coming from Congress.

iii. Is the Age of Coal Over?

After the roar back to life during the Trump Administration and the explosion after the recession of Covid, coal has continued its decline. 80% of existing coal plants across the country cost more to continue running than replacing them with new local wind or solar generation.[93] Forbes reports that this closure has brought that 50% of electricity generation coal was responsible in the United States, which have dropped to less than 20% by 2021.[94] All signs are pointing to Coal's story to be coming to an end soon. Coal has lost the edge that it held for a century in that it was the cheapest available power source, giving rise to the other sources behind it for so long.

National and international climate change legislation has been somewhat uncertain and volatile in the previous years. This uncertainty has caused an unwillingness to create new plants or renovate old plants.[95] These risks come with paying the carbon costs, possibly rising rates at any time new legislation is passed,

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88. *Id.*
89. *Id.*
90. *West Virginia v. Environmental Protection Agency*, Oyez, https://www.oyez.org/cases/2021/20-1530 (last visited Apr 15, 2023).
91. *Id.*
92. *Id.*
93. *Energy Innovation: Policy and Technology, So much for coal's rebound - plant closures come roaring back. it's time to unlock a just transition.* FORBES (2022), https://www.forbes.com/sites/energyinnovation/2022/03/15/so-much-for-coals-rebound-plant-closures-come-roaring-back-smart-policy-must-unlock-a-just-transition/?sh=5b55b2d374e9 (last visited Apr 15, 2023).
94. *Id.*
95. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).

or the possibility of taxes being raised on all coal-fired plants.[96] To dodge these risks, those interested in funding and running a plant do not. They approach the risks with extreme caution to ensure they do not end up paying for canceled or highly regulated plants that are not monetarily beneficial for those running them.[97] This cautionary reaction towards possible climate change regulation has led to these investors looking towards other cleaner options.

a. Coal's usage is at an all-time low – impact of legislation and industry changes

It is reported that about 51 gigawatts of coal power will be closed between 2022 to 2027.[98] 2028 brings a new federal rule to keep coal ash from drinking water. [99] Many producers need to invest money into compliance upgrades for their plants that are already losing money operating.[100] This may look bad on paper for the future, but alternative sources will likely be operating and replacing the coal power that is being lost. Duke Energy has announced that it will close its 11 coal-fired plants by 2035 and replace the generation with renewables.[101] Georgia Power has promised a similar plan with its 14 coal-fired plants and doubling its renewable output around the same time.[102] The leading energy producers in the United States have begun committing to alternatives other than coal, further pushing coal usage and utility lower. The future of coal may be grim, but the future of energy production is bright.

b. Alternative energies

For the first time in the history of the United States, alternative energy sources are being developed to be cheaper for both the consumer and producer than Coal. The likely substitutes to be the next powerhouse of the energy sectors are Natural Gas, Nuclear energy, and Renewable resources.[103] These new sources come with benefits and detriments, as it seems all energy sources have, but what is currently important is abiding by new regulations appearing from National and International

96. *Id.*
97. *Id.*
98. *Energy Innovation: Policy and Technology, So much for coal's rebound - plant closures come roaring back. it's time to unlock a just transition*. FORBES (2022), https://www.forbes.com/sites/energyinnovation/2022/03/15/so-much-for-coals-rebound-plant-closures-come-roaring-back-smart-policy-must-unlock-a-just-transition/?sh=5b55b2d374e9 (last visited Apr 15, 2023).
99. *Id.*
100. *Id.*
101. *Id.*
102. *Id.*
103. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).

governmental bodies and being profitable. These two guidelines sit as a factor test that anyone can use when considering what will occur. Energy companies will not use something unprofitable, but unlike decades ago, profits are no longer their only consideration.

V. The Future of Natural Gas in Cambria County

Natural gas is the leading favorite to serve as the replacement fuel for the electricity sector, following the time immediately after dropping coal.[104] This is good news for Pennsylvanians, as relatively recently, the Marcellus Shale was discovered in the scale of American history.

i. The Marcellus Shale, Natural Gas, and Pennsylvania

The Marcellus Shale covers approximately 65 million acres of land.[105] This is about 2/3 of Pennsylvania, and recently because of the upcoming switch to Natural gas, it has been the highest-demand resource to come out of the Northeast.[106] Following an increase in technology regarding drilling and collection, the first drilling in Pennsylvania took place in 2004.[107] Currently, Pennsylvania contains about 48 active underground gas storages, six static fields, and 40 decommissioned across 26 counties.[108] This has begun a new economic boom across PA, especially in Cambria County, bringing in international companies to get in on the mass amounts of wealth underneath the ground.[109]

The innovations in harvesting ability and containment of the natural gas allowed for natural gas to become a new "gold mine" for the people of Pennsylvania. As energy companies set up shops in Pennsylvania, "boomtowns" began to spring up.[110] Many residents suspected they were sitting on some of the "cheapest gas" in

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104. *Id.*
105. *Energy, Cambria County, PA* (2021), https://www.cambriacountypa.gov/resources/energy/ (last visited Apr 15, 2023).
106. *Id.*
107. *Id.*
108. DEP HOMEPAGE, https://www.dep.state.pa.us/ (last visited Apr 15, 2023).
109. Sarah Ladislaw & Lisa Hyland, *Pennsylvania's Energy Future*, CSIS, https://www.csis.org/analysis/pennsylvanias-energy-future (last visited Apr 15, 2023).
110. Candy Woodall | cwoodall@pennlive.com, *The rise and fall -- and rise? -- of PA.'s oil and gas industry pennlive* (2016), https://www.pennlive.com/news/2016/03/the_rise_and_fall_and_rise_of.html#:~:text=When%20Range%20Resources%20drilled%20the,the%20states%20exporting%20fuel%20overseas (last visited Apr 15, 2023).

the world, and they were right.[111] There was enough fuel in the Appalachian Basin alone to fulfill the entire Country's energy needs for two decades.[112]

Natural gas production in PA is currently on par with some of the largest producing countries in the world and is on pace to be one of the largest natural gas producers in the world.[113] "Pennsylvania has become the second largest producer of natural gas in the United States, exceeding 5.5 trillion cubic feet in 2016, second only to Texas."[114] With the current rate of production increase as well, Pennsylvania is projected to provide over 40% of the United States' entire gas production yearly.[115]

However, a struggle that Pennsylvania will face is regarding infrastructure. As talked about extensively above, Pennsylvania's infrastructure is based around coal. To maximize the output of natural gas, it will need to invest money and resources into reworking its infrastructure to facilitate higher output of natural gas.[116] Pennsylvania is currently struggling from a lack of a plan for its future and a vast abundance of resources.

Due to the massive size of the Marcellus Shale, Natural gas has overtaken coal for the first time in the industrial age as the cheapest resource to produce energy.[117] Nowhere is this clearer than it is in Cambria County?

Natural gas will likely not serve as the nation's premier energy supplier for as long as coal did, but instead will be a bridge for the United States between coal and whatever comes next.[118]

The United States is looking for a long-term replacement for coal, and it will unlikely want to settle on another fossil fuel. Like Oil and coal, natural gas still burns and releases greenhouse gases. When burned, Natural gas emits about ½ the

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111. *Id.*
112. *Id.*
113. Sarah Ladislaw & Lisa Hyland, *Pennsylvania's Energy Future,* CSIS, https://www.csis.org/analysis/pennsylvanias-energy-future (last visited Apr 15, 2023).
114. *Id.*
115. *Id.*
116. *Id.*
117. Candy Woodall | cwoodall@pennlive.com, *The rise and fall -- and rise? -- of PA.'s oil and gas industry pennlive* (2016), https://www.pennlive.com/news/2016/03/the_rise_and_fall_and_rise_of.html#:~:text=When%20Range%20Resources%20drilled%20the,the%20states%20exporting%20fuel%20overseas (last visited Apr 15, 2023).
118. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).

emission of carbon dioxide.[119] Though this is better than coal emissions, it is still not the ideal solution to the greenhouse gas problem.

Natural gas may seem like an easy and cheap solution, but it comes with its own problems. Currently, Natural gas prices are highly volatile.[120] This volatility is expected to grow as more countries switch to using natural gas.[121] This leads to the need for commitment and infrastructure to use natural gas as coals replacement. However, this is rather unlikely.

Natural gas should only be used as a bridge. If it is used and relied on more, history will likely repeat itself. Humanity cannot move away from its dependency on fossil fuels and will not invest in other cleaner energy sources. Right now, the world is at a turning point that has allowed making a switch from a fossil fuel that was burning the ozone to one that could be cleaning it for the next generation. Replacing one fossil fuel with a slightly cleaner fossil fuel is silly. Natural gas will provide a bridge that provides humanity with the time it needs to find long-term coal replacement, wherever that may be found.

VI. The Future of Energy for Cambria County and Its Impact on Climate Change

i. Cambria County Environmental Sustainability Plan

"Environmental sustainability focuses on the natural resource base of the County, dealing with planning issues as varied as maintaining an agricultural base, encouraging nature-tourism, and interrelating natural limitations and sensitive areas with sound land use planning and development."[122]

Cambria County has put out a sustainability plan regarding the environment, and much of it centers around pollution.[123] Due to the mass amounts of coal mines across the county, Cambria County suffers heavily from acid mine drainage.[124] Because of this acid mine drainage, it is the number one priority for Cambria County to get a handle of. Supporting these remediation efforts, Cambria County has

119. *Id.*
120. *Id.*
121. *Id.*
122. *Environmental sustainability*, CAMBRIA COUNTY, PA, https://www.cambriacountypa.gov/wpfd_file/environmental-sustainability/ (last visited Apr 15, 2023).
123. *Id.*
124. *Id.*

committed to addressing it through whatever means necessary while doing so in an environmentally friendly way.[125]

Natural Resources and Land-use is also on the front side of Cambria Counties' goals for the future.[126] Eliminating illegal dumping sites near watersheds, reclaiming land that is abandoned strip-mines and developing them further, and employing agriculture in these areas as well.[127] Furthermore, they hope to introduce nature-oriented resources, such as trails and parks, into the development of the land.[128] Finally, they plan to continue prioritizing infrastructure projects, like the increase in renewable energy in the state, and repurpose coal facilities to natural gas and renewable energy.[129]

ii. Cambria County Next Step

Like much of the rest of the United States, Cambria County is currently on the Natural gas wave. However, Cambria County will likely want to harvest the natural gas as they have been doing and look towards the future of energy.

Pennsylvania is an energy exporter, meaning it creates more energy than it consumes.[130] As seen throughout this paper, energy production, be it the mining and burning of coal or the collection and burning of natural gas, is one of Pennsylvania's top industries. This has been the case for as long as Pennsylvania has been in the energy market. With the discovery of natural gas below most of Pennsylvania, this industry will continue to rise. Pennsylvania's role as an energy exporter also means that it is the third largest energy-related CO2 emission in the United States.[131] However, since 2005 it has also experienced the third-largest drop in emissions in the United States.[132] This follows the progressive switch away from coal and the closure of old and outdated plants mentioned above. 11 of these power plants have been shut down since 2010, and three were switched to natural gas.[133] This downward path of emissions coming from Pennsylvania is good, but it should be the aim of policymakers to hit new lows each year.

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125. *Id.*
126. *Id.*
127. *Id.*
128. *Id.*
129. *Id.*
130. Sarah Ladislaw & Lisa Hyland, *Pennsylvania's Energy Future* CSIS, https://www.csis.org/analysis/pennsylvanias-energy-future (last visited Apr 15, 2023).
131. *Id.*
132. *Id.*
133. *Id.*

Nuclear energy has not been talked about yet, but with Pennsylvania's history in the power source, it could be the long-term solution Pennsylvania is looking for regarding coal. Pennsylvania is the second largest nuclear electricity generator in the United States, housing nine reactors within five power plants.[134] However, due to the natural gas explosion, Pennsylvania has canceled multiple planned nuclear power plants and investments.[135] Nuclear plants hold a stigma as dangerous due to meltdowns that occurred in Chornobyl or even in Pennsylvania at a three-mile island. This stigma has stunted the growth of nuclear power, but nuclear power should give another chance. It is relatively clean power and with little to no pollutants in the air.[136] It is a viable option for Pennsylvania and, in the future, could be expanded upon alongside other renewable energies.

Switching to renewable energy sources is a sure way of reaching new emissions lows. It is estimated that PA has a highly significant untapped clean energy market, which is estimated to be somewhere between 16–20-billion-dollar opportunity.[137] This is a highly profitable market. This market has remained relatively untapped because of the high upfront cost to either create or retrofit old coal power plants to facilitate clean energy.[138] Estimates vary to extremes, and like the hesitance from energy companies to stick with coal, they are likely not tempted to jump into the renewables until more certain economic numbers are found.[139] However, the opportunity for jobs is high with investment in renewables. Currently, statewide policies are pushing for Pennsylvania to make the switch to renewable energy. In June 2018, Governor Wolfe signed the PACE program to incentivize financial arrangements to encourage energy efficiency for commercial and residential places.[140] In July 2018, "the Pennsylvania Energy Programs Office released a draft plan as part of the Finding Pennsylvania's Solar Energy Future project, which is a statewide planning program to increase the use of solar in Pennsylvania by 2030."[141] These policies are a step in the right direction; however, there needs to be more commitment at the State level to ensure renewables are appropriately handled.

In Cambria County, renewable energy has been tapped into already, and it looks like it will be a mainstay of energy production in the county. The region of

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134. *Id.*
135. *Id.*
136. Melissa Powers, *The Cost of Coal: Climate Change and the End of Coal as a Source of "Cheap" Electricity* , 12 U. OF PENNSYLVANIA JOURNAL OF BUSINESS LAW (2012).
137. *Id.*
138. *Id.*
139. *Id.*
140. *Id.*
141. *Id.*

Cambria, Somerset, and Bedford County is being touted as a "hot spot" for wind power development in the coming decades.[142] The area is exceptionally hilly and mountainous, with peaks causing mass amounts of wind. This entices many out-of-state corporations to take an interest in Cambria County and its availability to create a wind empire.

Another huge benefit is that the town of Ebensburg, the capital of Cambria County, a Spanish manufacturer of fiber wind blades, is creating a plant.[143] This Spanish Manufacturer, Gamesa Corp., is the world's second-largest manufacturer of wind turbines.[144] This points towards a fast production rate to harness the wind in Cambria County and surrounding areas. Around 40 turbines are slated to go up in Portage, Washinton, and Cresson townships across Cambria County, which I call home.[145] This is a massive first step to becoming sufficient on renewable energy, which is being put on in Cambria County.

The wind has become so crucial to Cambria County that the township of Cambria has passed 37 different regulations regarding the construction, maintenance, and permissions to building wind turbines.[146] Defining a wind turbine generator as "Prohibited or regulated by this Part shall mean real and personal property, which are composed of generators; blades; towers; base; components of those as mentioned earlier; and appurtenances of those as mentioned earlier ("wind turbine generator," with the term referring to both the singular and the plural of such structure)."[147] The regulations further require permits[148], penalties[149], inspections[150], and more. The wind is being pushed hard in Cambria County, and it seems that the townships where wind turbines will be located are in good hands to be safe and secure for the public.

VII. Conclusion

Cambria County has been at the forefront of nearly every energy resource production over the last few centuries. Cambria County has been there, from

142. Kathy Mellott, *Cambria Wind-Energy Growth Seen*, THE TRIBUNE-DEMOCRAT (2006), https://www.tribdem.com/news/local_news/cambria-wind-energy-growth-seen/article_62e3088a-ace6-5818-92e4-91be9f80ec7c.html (last visited Apr 15, 2023).
143. *Id.*
144. *Id.*
145. *Id.*
146. Cambria, *PENN*. Municipal Code Ch. 5 § 13-500
147. Cambria, *PENN*. Municipal Code Ch. 5 § 13-503
148. Cambria, *PENN*. Municipal Code Ch. 5 § 13-504
149. Cambria, *PENN*. Municipal Code Ch. 5 § 13-514
150. Cambria, *PENN*. Municipal Code Ch. 5 § 13-530

supplying coal and coal coke to Pittsburgh's steel and iron factories to powering its citizens and neighboring states following the industrial revolution. With the realization that Coal has been slowly killing the world, pushback against the resource that kept the lights on for so long inevitably caused its downfall. With the downfall of coal occurring, it was once again Cambria County's location of natural gas, which is currently facilitating the switch from coal. Natural gas is abundant and prosperous across the entire state of Pennsylvania, but it is a fossil fuel that creates greenhouse gas, harmful to the environment. Natural gas is not the end of the search to replace coal, but rather a cleaner alternative for the time being.

Cambria County is once again where energy manufacturers are looking for the final alternative to coal. Wind, Solar, and Hydroelectric are the solutions to replace coal and power the world. Wind specifically will be Cambria County's contribution to the new age of energy production. Once again, the small county in Pennsylvania provides even more energy solutions to the entire United States. Cambria County has been powering the United States from the beginning of the country's life. As the nation is entering a period of uncertainty regarding its energy production, Cambria County is again there to provide light to a nation searching for Coals replacement.