

The Future of Displaced Coal Miners in Southwest Virginia



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Table of Contents

Forward-----	4
Client Overview-----	5
Executive Summary-----	6
Problem Statement-----	8
Introduction-----	8
History of Coal in Virginia-----	10
Criteria-----	13
Policy Option 1-----	13
Policy Option 2-----	18
Policy Option 3-----	22
Outcome Matrix-----	25
Recommendation-----	26
Implementation-----	26
Conclusion-----	28
Bibliography	

Foreword

I want to extend a special thanks to Meryem Karad. I had the pleasure of working under a true champion of public service who desires to serve the public's best interests. Despite Meryem's very busy schedule, she gave so very generously of her time and knowledge, for which I will be forever grateful. Her encouraging words and genuine expressions of confidence gave me the resolve to complete this report.



Client Overview – The Virginia Council on Environmental Justice

On January 22, 2019, after nearly two years of operation, former Governor Ralph Northam officially established the Virginia Council on Environmental Justice (VCEJ). The purpose of this advisory council is to make policy recommendations to the governor in the hopes of addressing statewide environmental issues and the communities impacted by environmental degradation. In 2020, then Governor Ralph Northam signed environmental justice legislation into law, giving the VCEJ the legislative authority to pursue meaningful action to benefit disadvantaged communities. As stated in the 2021 Interagency Environmental Justice Working Group Guide:

The Council works for "the fair treatment and meaningful involvement of every person, regardless of race, color, national origin, income, faith, or disability, regarding the development, implementation, or enforcement of any environmental law, regulation, or policy" (Voyles, 2021).

For the VCEJ to complete its work, it utilizes the expertise and assistance of several state agencies, including the Department of Energy (the Department), an executive agency birthed on January 1, 1985. Governor Chuck Robb and a committee of concerned Virginians proposed the creation of the Department in response to the 1983 explosion at the McClure No. 1 coal mine, which compromised the lives of seven Virginian coal miners. Since 1985, the Department's mission has been to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner to support a more productive economy in Virginia (Virginia Energy). With the support of the Department of Energy, the Virginia Council on Environmental Justice is uniquely equipped and qualified to address the predicament of coal miners in southwest Virginia.

Glossary of Frequently Used Terms

Coal Mining - done at the surface level or underground. For the purpose of this report, the term "coal mining" or "mining" refers to both, underground and surface miners.

Displaced Coal Miners - miners who have involuntarily lost their jobs or for reasons beyond their control.

Short Ton - a unit of weight equal to 2,000 pounds.

Executive Summary

In 2008, over a billion short tons of coal were produced in America (EIA, 2022). This was the pinnacle of coal extraction. Miners across the Appalachian region, which includes southwest Virginia, who faced challenging work conditions, reaped the benefits of their hard labor through fair compensation and access to a viable economy. The DNA of southwest Virginia's history is coal. Many of the neighborhoods in the region still feature rows of small single-family homes that resemble the homes built during the rise of coal camps. These communities are almost always monocultural and are characterized by young to middle aged Anglo-Saxon families. Coal miners shop in their hometown stores, share and barter with other coal mining families, and seldom rely on anyone outside their communities for assistance (SWVA, 2021).

After 2008, federal policy began recognizing the adverse effects of coal mining on the anatomy and our atmosphere. For example, President Barack Obama unveiled a national initiative to halt the increase of greenhouse gas emissions in the United States by 2025 and initiate a subsequent decline. This ambitious plan mitigated the release of toxic gases into the atmosphere and contributed to efforts to combat climate change (Vidal, 2008). This, along with society's quest for a cleaner future, disregarded the men and women who have mined coal for generations. Today, tens of thousands of coal miners are out of work or will be soon (Jones, 2020). In Virginia, coal production has served as the catalyst of the southwest region's economy, however, just as federal policy has caused a national downward shift in coal production, new Virginia legislation is forcing struggling communities to transition from fossil fuels to clean energy. The Virginia Clean Economy Act, which is a comprehensive energy policy enacted by the Commonwealth of Virginia in April 2020, set ambitious goals for the state's energy portfolio. The goal of the legislation is to transition Virginia to a cleaner and more sustainable economy. The plan hopes to do this by reducing greenhouse gas emissions with the aim of achieving 100% clean energy by 2045. A key provision in the legislation is a reduction in coal production (United, A. E. U, 2020). The scope of this assignment is to address the adverse effect of clean energy policies on coal communities while also focusing on the economic revitalization and workforce redevelopment of coal miners as they transition out of mining work. I have outlined three policy alternatives in this paper, considering the criteria of "effectiveness", "political feasibility", and "cost". The three proposed policy alternatives are as follows:

- 1.) A federally funded administrative program aimed at employing and training displaced coal miners. This program would be designed to provide job opportunities and skills training to individuals who have been displaced from the coal industry. The effectiveness of this proposal would be measured in terms of its ability to successfully connect displaced coal miners with sustainable employment opportunities, while also considering the political feasibility and cost implications of implementing such a federal program.
- 2.) A mine reclamation program that exclusively employs former coal miners. This proposal would involve creating a program that focuses on reclamation and restoration of coal mine sites, and exclusively employs former coal miners in the process. The effectiveness of this policy alternative would be assessed in terms of its ability to provide employment opportunities for displaced coal miners while addressing environmental concerns associated with abandoned mine sites. Political feasibility and cost considerations would also be taken into account.

3.) Partnering with Per Scholas, a non-profit organization that offers tuition-free technology training and professional development to individuals. This proposal involves collaborating with Per Scholas to provide training and professional development opportunities in the technology field for displaced coal miners. The effectiveness of this policy alternative would be evaluated in terms of its potential to equip displaced coal miners with relevant skills for employment in the technology industry, along with assessing the political feasibility and cost implications of partnering with a non-profit organization.

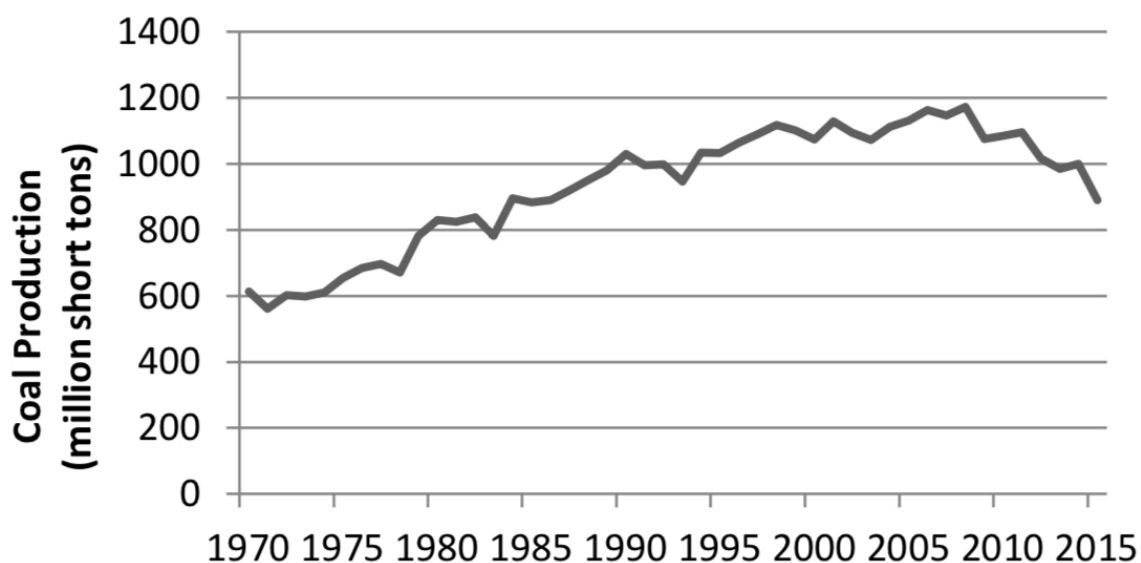
By considering the criteria of effectiveness, political feasibility, and cost, these three policy alternatives offer potential approaches to address the challenges faced by displaced coal miners and opportunities to facilitate their transition to new employment opportunities in a thoughtful and strategic manner.

Problem Statement

Southwest Virginia is the fourth most coal-dependent area in the United States of America (Vogelsong, 2021). And for generations, coal production has been an economic catalyst for this region. Nevertheless, since 2011, nearly 14,000 coal-related jobs have been lost in Appalachian Communities. Virginia coal employment reached about 6,000 miners in 2011. By 2015, that number decreased to 3,000 coal workers. Today, only 1,900 coal miners are employed in Virginia's southwest region, and no clear plan has been constructed to counteract the employment crises displaced coal miners are experiencing or will encounter (Garside, 2021).

Introduction

Coal has been the most significant energy source in the United States for centuries. America's growing demand for innovation and electricity began in the late 1800s and caused a steady and steep incline in coal production. The industry has steadily declined, however, since its boom in production in 2008. In 2022, coal production in the United States was approximately 598 million short tons, 49% below the 1.2 billion short tons total in 2008 (EIA, 2022). This decline was due, in part, to a 2007 Supreme Court case wherein Massachusetts, along with several other states, petitioned the Environmental Protection Agency (EPA) to have the EPA regulate carbon emissions (Herrick, 2021). Advocates for the petitioners argued that, the EPA was required, under the Clean Air Act of 1970, to regulate "any air pollutant" that can "reasonably be anticipated to endanger public health or welfare" (Freeman, 2007). The Court ruled in favor of Massachusetts in a 5-4 vote. The ruling was groundbreaking, as it determined that greenhouse gases produced by coal mining were, in fact, pollutants that should be monitored and policed by the federal government.



1

¹ This graph is from the "Build a Better Future For Coal Workers And Their Communities" case study. <https://www.brookings.edu/wp-content/uploads/2016/07/Build-a-Better-Future-for-Coal-Workers-and-their-Communities-final.pdf>.

Prior to the decision, the adverse effects of coal mining were becoming more evident. For instance, the National Institute for Occupational Safety and Health (NIOSH) reported, with the assistance of laboratory-based toxicology and exposure assessment, that exposure to coal causes various pulmonary diseases such as chronic obstructive pulmonary disease (COPD), pneumoconiosis, asthma, black lung diseases, and neurological problems (CDC, 2014). In addition to all of the health issues caused by coal mining, it also emits two harmful gasses into the atmosphere. Coal extraction creates carbon dioxide (CO₂) emissions, the primary driver of global warming. Coal mining also creates Methane (CH₄). Methane is 34 times stronger than carbon dioxide at trapping heat over a 100-year period and 86 times stronger over 20 years; roughly 10 percent of all US methane emissions come from coal mining (Union of Concerned Scientist, 2008).

During this period, NASA also declared that human activity, such as coal mining, caused the planet's global temperature to increase yearly since the late 19th century, with our most harmful years occurring in the past 40 years. The past seven years have been the hottest to date, with 2016 and 2020 being tied for the warmest years in the planet's history (Brown, 2021). Global warming has caused ice sheets in Greenland and the Antarctic to decrease in mass, glaciers to retreat, snow cover to decrease, and sea levels to rise. NASA also believes that record high temperatures have caused an increase in extreme natural disasters across the world and especially here in America. Because of this, the federal government and many states began drafting new legislation to create a more energy-efficient nation, and the Supreme Court ruling encouraged President Barack Obama to implement change. On his campaign trail, he promised to undermine the coal industry and to make America the gold standard for clean energy production. He famously stated,

"So if somebody wants to build a coal power plant, they can. It's just that it will bankrupt them because they are going to be charged a huge sum for all that greenhouse gas that's being emitted"(Kessler 2014).

Nearly a year after the U.S. Supreme Court decision, President Obama announced a \$150 billion energy plan to accelerate commercial-scale renewable energy development, advance the next generation of biofuels and fuel infrastructure, and begin the transition to a new digital electricity grid. This legislation would simultaneously move production and employment away from coal mines. Mainstream conservative media dubbed President Obama's efforts a "war on coal." Although several culprits are responsible for the current coal recession, many researchers attribute President Obama's policy and forward-thinking as a significant contributor to the decrease in coal production and employment (Herrick, 2021). Overall, it is difficult to provide a definitive answer on the success of President Obama's energy plan. On the positive side, Obama's administration invested heavily in renewable and energy efficiency programs. On the other hand, the effectiveness of these policies were impacted by subsequent administrations (Colvin, 2017).

Recent projections from the Environmental Protection Agency (EPA) suggest coal production will lose more ground due to political influence, social behavior, and policy changes. According to the Bureau of Labor Statistics, in 2019, approximately 68,000 individuals were

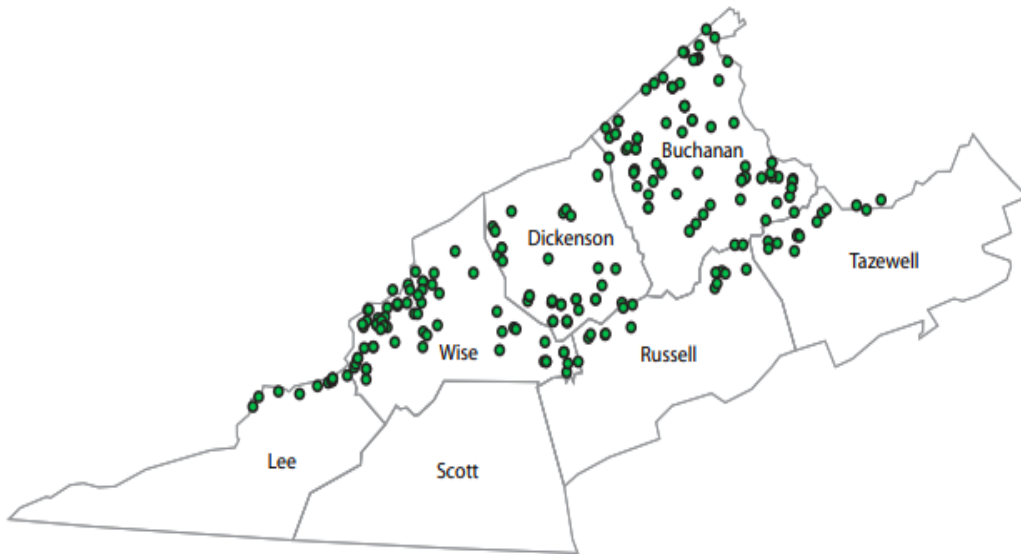
employed in this industry. However, based on information from the American Chemical Society, there has been a notable decline in coal industry employment, with a decrease of 8.64% from 68,000 people in 2019 to 62,000 people in 2020. This trend aligns with the nationwide job growth projection, which is estimated to decrease by 16% over the next ten years (Data USA Coal Mining, 2021).

Moreover, the coal mining employment situation in Virginia has also been impacted, with a decline of 7.3% in employment each year since 2011 (Garside, 2011). These statistics highlight the challenges faced by the coal industry in terms of decreasing job opportunities, both nationally and within Virginia. It is crucial to consider these trends and their implications when formulating policies related to the coal mining industry, including strategies to address declining employment and promote economic stability in affected communities. (Morris, 2016).

[History of Coal in Virginia](#)

Virginia contributed substantially to the coal industry boom of the early 20th century. From 1990 to 2003, Virginia produced, on average, 33 million short tons of coal annually, with a production peak of 47 million (VEPT) short tons in 1990. All the coal mined in Virginia came from southwest Virginia (southwest). The southwest is a mountainous region of Virginia, boasting most of its coal deposits. Virginia coalfields encompass approximately 1,550 square miles of surface area and include all or part of Buchanan, Dickenson, Lee, Russell, Scott, Tazewell, and Wise Counties. The DNA of southwest Virginia's history is coal. Mining jobs dominated the employment landscape since the first significant coal production in 1758 (Virginia Energy Webpage, 2022).

Up until 2011, Virginia consistently employed over 6,000 coal miners (Garside, 2011). By 2015, seven years after the introduction of President Obama's policies, the number of coal miners in Virginia decreased to roughly 2,993. Presently, the southwest region of Virginia is home to approximately 1,942 coal miners who are gainfully employed (Garside, 2011). However, despite this industry presence, the Commonwealth continues to grapple with persistently high unemployment rates, underscoring the need for targeted policy interventions to address this ongoing challenge. Based on a comprehensive economic study conducted by the Federal Reserve Bank of St. Louis, it has been observed that a significant number of coal communities in the southwest region continue to face persistent challenges of higher unemployment rates in comparison to the rest of the state (Federal Reserve Bank of St. Louis, 2022).



2

Another factor contributing to the high unemployment rates in the southwest is the 2020 Virginia Clean Economy Act. Passed as House Bill 1526 and Senate Bill 851, the Act endeavored to establish new renewable energy portfolio standards. The Act also mandates that Dominion Energy, Virginia's main source for residential electricity, be 100 percent carbon-free by 2045 and that Appalachian Power be 100 percent carbon-free by 2050. Lastly, the Act **requires nearly all coal-fired plants to close by the end of 2030 and the remaining to be permanently closed by 2050.**

This legislation proved to be even more detrimental to southwest coal miners who, according to the National Mining Association, find re-employment and alternative occupations with equivalent compensation challenging (Morris, 2016). In 2022, southwest Virginia was the oldest region in Virginia. Nearly one-quarter of the region's residents are 60 or older, a significant barrier to gainful employment. Additionally, educational attainment is lower among adults (ages 25-64), compared to the rest of the state (Weldon Cooper Center Report on Southwest Virginia, 2019). The southwest has a lower percentage of adults with a bachelor's degree, with less than 3% of coal employees holding a bachelor's degree or higher (Morris, 2016). Despite these numbers, the average weekly earnings of coal employees is roughly \$1,492, totaling a yearly salary of nearly \$78,000 (Morris, 2016). For reference, the U.S. Bureau of Labor Statistics estimates the overall U.S. median weekly earnings of workers with a high school diploma and no college is \$678 per week.

² **Specifics on each coal region:** Buchanan, Virginia has a population 22,138, an estimated household income of \$30,806 and a poverty rate of 27.7%; Dickenson County has a population of 14,960 with a 24.3% poverty rate and median household income of \$29,226; Tazewell has a population of 42,080, with a median Household income of \$40,978, and poverty rate of 16.1%; Russell County has a population of 27,408, with a median Household Income of 39,482, and a poverty rate of 20%; Wise County has a population of 39,035, with a median Household Income of 38,345, and a poverty rate of 22%; Scott County has a population of 22,009, a median household income of 39,144, and poverty rate of 19%; Lee County has a population of 24,134, a median household of 37,574, and a poverty rate of 25.1%. <https://www.census.gov/>

The median income for southwest Virginia is \$37,663, also the lowest among the provinces and significantly below the state median income of \$63,636. Twenty percent of the population in the region falls below the poverty line, higher than the statewide rate of 11%. Among the localities, the poverty rates range from 12.4% to 35.2%, and 13.4% of Southwest residents do not have health insurance, compared to the statewide rate of 12.3%. Seventeen percent of the population receives health care benefits from Medicaid, much higher than the state participation rate of 10.5%, and as mentioned earlier, this area has the highest unemployment rates in the state (Weldon Cooper Center Report on Southwest Virginia, 2019).

The human cost of coal unemployment is also apparent. A study conducted by Columbia University revealed a host of alarming findings. For instance, the report found that displaced coal miners in Appalachia, which includes Virginia, suffer high rates of heart disease, obesity, smoking, depression, and diabetes. This, coupled with the adverse health effects of coal mining, leads to some of the lowest life expectancies in the country for Virginia miners. The lack of income is directly linked to obesity in this study, as the researchers argue that displaced coal miners cannot afford healthier foods. The lack of access to healthy food often leads to increased chances of obesity, and obesity can develop into a variety of other health issues, including high blood pressure, diabetes, cancer, stroke, mental illness, and heart disease (Scheuch, 2020).

The Columbia study found that out-of-work coal miners are also more susceptible to drug use, especially opioid abuse (Scheuch, 2020). The link between declining coal employment and drug abuse is a new phenomenon. Bill Raney, the president of the West Virginia Coal Association, has warned other coal communities by highlighting the challenges of displaced coal miners in West Virginia. Raney is quoted as saying:

"Job losses and poverty are the fertile ground in which drug abuse grows . . . many of our people have simply given up looking for jobs. They have lost their homes, their cars, their dreams and their hope" (Scheuch, 2020).

Although the loss of health resources and competitive incomes jeopardize individual coal families, the broader community also takes a hit. In most coal towns, like those found in southwest Virginia, the local government relies on taxes from coal operations to improve and develop roads, maintain schools and provide public resources. When coal miners are out of work, these communities experience extreme declines in revenue.

Of note, there is little information available on coal miners' social and economic conditions upon being relieved from employment. Therefore, the research and policy recommendations put forth in this analysis will address the needs of two distinct groups: unemployed coal miners and currently employed coal miners in Virginia. This approach is essential considering the Virginia Clean Economy Act, which mandates the cessation of coal mining operations by 2045. As a result, the remaining 1,942 coal miners who are currently employed in the industry, will inevitably face job displacement, necessitating proactive measures to address their future needs. (Barnes, 2020).

Criteria

For the purposes of this research, three criteria were considered: 1.) effectiveness, 2.) political feasibility, and 3.) cost.

The Effectiveness criteria will examine how efficiently each policy alternative could create job opportunities for coal miners. We can determine this by analyzing the effect of each policy alternative in other states where the policy was implemented. Then by adjusting the scope of that policy to fit the parameters of Virginia's coal community demographics, we can make an informed assumption of how the program will perform in Virginia.

The Political Feasibility criteria examines the likelihood that vital political figures will support and adopt each policy alternative. This criterion utilizes a High-Medium-Low scale. To further explain the scale, in Virginia, the Virginia General Assembly consists of a 100-member House of Delegates and a 40-member Senate that is currently politically divided with a Republican Majority House and a Democratic controlled Senate. Thus, any policy action requiring approval by the House of Delegates would have a "low" political feasibility. In addition to this, the political environment of energy and coal mining policies has become a deeply partisan and polarizing issue. Democrats are more likely to support the implementation of renewable energy policies, while Republican leadership is not. Contrarily, Republicans are more likely to support policies that positively affect coal miners, while Democrats tend to be indifferent (Cha, 2020). Policies that can be implemented at the state agency level would have a much higher political feasibility rating, such as "Medium" or "High".

Lastly, the Cost criteria measures the direct amount each policy alternative would cost the state of Virginia. Policy alternatives range anywhere from no cost at all to several million dollars.

Policy Alternative 1. The Establishment of an Administrative Program Similar to H.O.M.E

In February 2016, unemployment rates were above 10% in 27 Kentucky counties. The hardest hit community was Magoffin County, Kentucky, where unemployment reached 21.65% – the 2nd highest rate in the United States at the time (Morris, 2016). According to the Kentucky Energy Database, coal mining employment in eastern Kentucky fell from approximately 67,000 workers in 1950 to about 15,000 in 2000. One in every two coal miners lost their job for the next twenty years. Today, nearly 4,000 coal miners in Kentucky are working a coal-related job, a far cry from the 1950s. Economists suggest the state has lost billions of dollars in potential local spending and taxable income (Kentucky Energy and Environment Cabinet, 2017).

Considering this, in 2013, the U.S. Department of Labor awarded the Eastern Kentucky Concentrated Employment Program, Inc. (EKCEP) a \$5 million National Emergency Grant to establish and manage its Hiring Our Miners Everyday Program (H.O.M.E.) (Manley, 2020). The program was created to assist displaced coal miners and their spouses in receiving on-the-job training, classroom training for basic skills, and basic certification and licensing for employment.

Then, H.O.M.E. uses a customizable approach, specifically for coal miners to identify, target, and locate jobs and for displaced miners.

H.O.M.E. is an administrative entity that works as a conduit between several workforce development and training agencies, coal miners, and employers in Kentucky's coal counties. To ensure the success of former miners in eastern Kentucky, the organization utilizes allyship across the state. For example, H.O.M.E. works with the Office of Employment and Training; Office of Adult Education; Office of Vocational Rehabilitation; Local Community College System. The EKCEP and the H.O.M.E. program utilize job clubs as their most essential service. Job clubs operate as weekly group meetings and support group networks for displaced coal miners. The group meetings act as a community where H.O.M.E. career advisors get to know each coal worker more intimately. H.O.M.E. covers tuition³, transportation, and supplies to complete whichever program is selected. The H.O.M.E. program also incentivizes local employers in the region to hire former coal miners by paying a significant portion of on-the-job training wages for qualified workers (EKCEP Action Plan, 2019). Additional services include the following:

Career Services	Training Service
Generic resume assistance	Career advising
Job search	Case management
Job matching and referral	Individualized Plan for Employment (IPE)
Access to labor market information	Individualized Education Program (IEP)
In-depth skills assessment	Targeted resume/cover letter
Basic skills instruction	Interview coaching
Remediation	Job coaching
Job clubs	Job retention skills
Workshops	National career readiness certificate
Veterans assistance	Short-term, long-term, and on-the-job training
	Paid internships and work experience

4

Virginia's H.O.M.E Equivalent Program

To understand the potential effectiveness of a program similar to H.O.M.E., we can examine the program's possible effect on job creation for the entire state of Virginia.

The project manager for the grant should be the Virginia Coalfield Economic Development Authority (VCEDA). The Virginia Coalfield Economic Development Authority has successfully created jobs and private investments in southwest Virginia. Since 2007, VCEDA has reported business announcements involving 209 new projects and 70 expansions creating 9,539 full-time jobs and 1,719 part-time jobs and involving \$749.6 million in private investment. However, it is unclear how many of these job opportunities went to displaced coal miners (VCEDA Annual Report, 2022). The VCEDA also has various partnerships. Originally

⁴ This List was adopted from the "Transitioning Workers from Coal to Other Careers" case study. <https://www.clevelandfed.org/-/media/project/clevelandfedtenant/clevelandfedsite/publications/cd-reports/special-reports/sr-20160815-addressing-employment-needs/sr-20160815-cs5-transitioning-works-from-coal-to-other-careers-home-program-pdf.pdf>.

crafted by the Virginia General Assembly to diversify southwest Virginia's economy, the VCEDA works closely with the Virginia Economic Development Partnership (VEDP), the state's economic development agency, and several local industrial development authorities in the southwest region. The key industry area this authority focuses on is information technology, energy, education, and emerging technologies. Thus, the VCEDA also partners with Mountain Empire and Southwest Virginia community colleges to provide training in these fields. Lastly, the VCEDA connects its workers with workforce training through Virginia's Career Readiness Certificate (CRC) program. This assessment-based credential gives employers and career seekers a uniform measure of essential workplace skills.

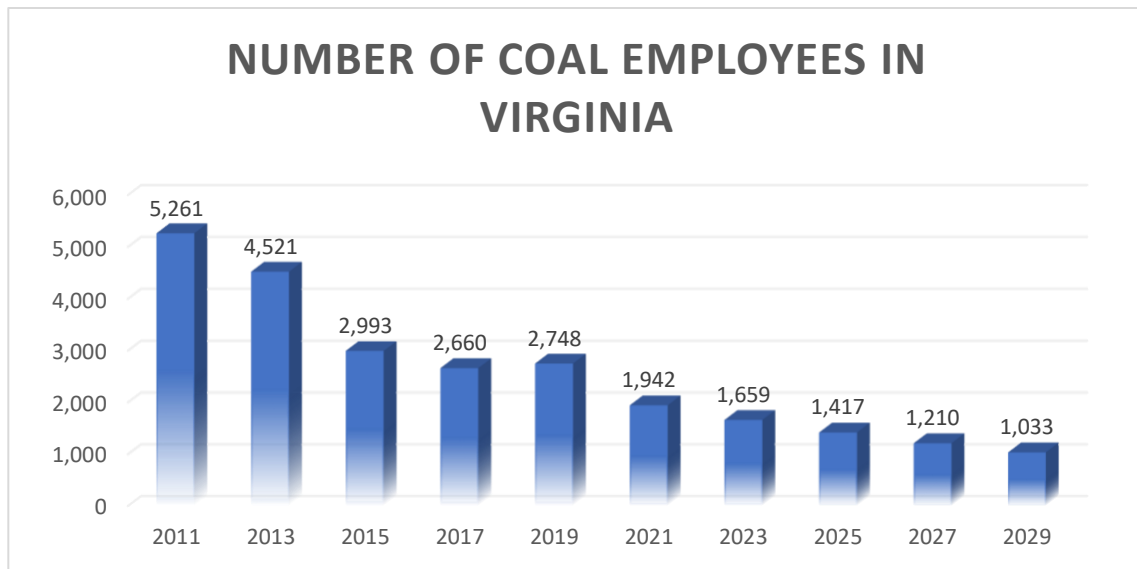
While the VCEDA has been successful, its purview is broad and looks to impact the entire southwest region with no particular focus on displaced coal miners. Last year in Virginia, for example, Virginia's unemployment rate was 2.8%, the lowest since the start of the pandemic in March 2020. However, in communities such as Wise County and Buchanan, where the economy is coal mining, employment levels are still 8.1% and 10% (Virginia Employment Commission, 2023). Thus, establishing a program equivalent to Kentucky's H.O.M.E program, with a comprehensive arrangement of workforce development services, could positively impact job placement for coal miners.

Effectiveness of a Virginia H.O.M.E Program

In 2013, the first year of H.O.M.E's program, Kentucky employed 12,905 miners at various coal mines. That number would decrease by nearly 51% in 2016, which saw Kentucky employ 6,612 persons in their underground mines, surface miners, coal plant, and on-site offices (Dwyer 2017). However, from 2013-2016 the H.O.M.E program was able to assist 3,218 dislocated coal miners with their program. Of those dislocated coal miners, 1,100 secured new jobs, 1,449 received support and training for a new career, and 90 started an internship program (Fee 2015). Although data is unable to conclude whether those who signed up for the H.O.M.E program were, in fact, those who lost their jobs between 2013 and 2016, either way, the program would have been able to enroll more than half (51.13%) of the 6,293 displaced coal miners. The program could have also secured new jobs for 17.4% (1,100) of the displaced workers between 2013 and 2016, and finally, H.O.M.E would have helped 23% (1449) of the displaced workers receive training. Considering H.O.M.E's impact on Kentucky Coal miners, we can estimate the effect of a similar program in Virginia.

If Virginia's coal employment continues to decrease at the rate it has (7.3%), by 2026, roughly 425 jobs will be lost from the 1,942 coal miners that worked in Virginia in 2022. Furthermore, considering the success of H.O.M.E, Virginia should be able to successfully register approximately 217 (51%) coal miners of the 425 who will lose employment over the next three years, create nearly 74 (17.4%) new job opportunities, and provide training for another 98 (23%) displaced coal miners.

5



Political Feasibility

In 2020, under then-Democratic Governor Ralph Northam, Virginia passed significant legislation to reduce carbon emissions and close all coal mines. Since the passage of this legislation, Virginia's General Assembly has been politically divided on environmental issues. Virginia's political environment is also literally divided, with Democrats controlling the Senate and Republicans controlling the House. During Virginia's 2022 General Assembly, legislators worked through energy bills. Governor Youngkin's 35-page Energy Plan argues that Governor Northam's mandates were inflexible, creating a partisan relationship between Virginia legislators concerning energy initiatives. Furthermore, Governor Youngkin has expressed a desire to expand Virginia's workforce development for coal miners, stating, "In order to continue to grow and strengthen Virginia's economy, we need to innovate how we train Virginia's workforce to drive opportunity and stimulate new business opportunities" (Governor of Virginia Press Release, 2023).

However, a state agency's application approval for a new federal grant is an extensive process. Approval must survive a budget review conducted by the General Assembly or an executive review, which the Governor completes. When considering using federal funds for a program, state agencies are expected to assess the cost of meeting federal fund requirements through a cost-benefit analysis. Lastly, the final application usually is developed and submitted by the affected state agency after receiving approval. Considering this, a critical political player would be the Director of the Department of Energy, John Warren, and Marshall Moore, the Director of Virginia's Coal Programs. Even considering the intense nature of the grant process, we can still predict the Virginia Department of Energy and its Director, John Warren, will be receptive to this policy. The Department's strategic plan has several references to pursuing

⁵ The information for this graph comes from Melissa Garside's research on coal employment in Virginia. <https://www.statista.com/statistics/215779/coal-mining-employment-in-virginia/#:~:text=The%20coal%20mining%20industry%20employed,state%20worked%20in%20surface%20mines>

federal funding and grant money to form "collaborations opportunities and attract energy businesses to the Commonwealth"(Virginia Department of Energy Strategic Plan 2021). The strategic plan also mentions seeking federal aid to "identify and reserve resources to meet the objectives of the regulatory divisions in the coalfields." Considering this, we can speculate that the Department will be open to pursuing the necessary funding for a program such as H.O.M.E.

Furthermore, suppose the General Assembly authorizes the grant, and the agency has sufficient resources for the program. In that case, the state agency may continue to apply and accept the grant aid without further approval. Lastly, the program would need approval by the Chair of the VCEDA, Larry Mosley. Fortunately, Mosley has shown to be a proactive and innovative leader by advocating for the use of more focused methods to solve the economic issues in the southwest. Mosely also oversees several special-purpose programs that either issue grants to other programs or utilize grants to operate a program (VCEDA Annual Report, 2022). Thus, Mosley may be favorable towards a grant-funded program such as H.O.M.E. Political feasibility for this alternative has a high scale rating.

Cost

Most of the program's cost would be in salaries. Kentucky H.O.M.E has nearly 35 employees who serve a much larger number of coal miners. By adjusting for the number of coal miners in Virginia, the state would only need eight (8) career coaches. In Virginia, the average wage of a career coach is \$47,985 (Salary.com). To be competitive, the Department of Energy could offer 25% more at \$53,970 with full state benefits. The office would also need two (2) contract coordinators/business liaisons and two (2) administrative assistants. Considering salary and state benefits, the eight (8) career coaches would cost Virginia approximately 81,688.95 per position, totaling \$653,511 in wages for career coaches annually. The employment of two contract coordinators would entail an annual salary of \$52,030 each, resulting in a total cost of \$158,132.32 in wages for the state. Additionally, the hiring of two administrative assistants with an annual salary of \$44,060 each would amount to \$136,582 in total wages for the state. Therefore, the combined salary expenditure for these positions would sum up to \$948,225. It's important to note that these salaries encompass the entire employee compensation package, including benefits such as insurance, paid leave, retirement plans, disability coverage, and other additional perks (Total Compensation Estimator, 2018).

The tuition fees for vocational schooling constitute the second-largest expense of the program. Drawing from Kentucky's H.O.M.E program, which successfully enrolled almost 23% of displaced coal miners between 2013 and 2016, it is reasonable to anticipate a similar enrollment rate of approximately 98 displaced coal miners in Virginia's H.O.M.E program. Accordingly, the projected cost for Virginia's program to provide training for these miners would amount to approximately \$303,800.

The cost of salaries and tuition for the initial year is estimated to be around \$1,252,025.

Options for Funding

Research conducted in 2022 found that several coal communities experience low job growth expectancy displaying Virginia's need for long-term solutions (U.S. Bureau of Labor Statistics, 2022). Furthermore, it is important to note that grant-funded positions are typically limited in term. When an organization posts a grant-funded job, they usually have received a grant for a specific period and must hire a position to fill that role. They work similarly to full-time positions but may be time-bound if the grant funding ends. Virginia's H.O.M.E positions have the potential to be long-term based off Kentucky's program, which celebrated its 10th anniversary this year. We can expect Virginia's program to exist for at least ten years as well.

Kentucky's H.O.M.E's program is celebrating its tenth anniversary and continues to receive funding for its program each year. In 2020, Eastern Kentucky was considered the 2nd most coal-dependent region in America and received \$11 million in federal funding for its H.O.M.E program. Southwest Virginia was deemed the 4th most coal-dependent area. Considering this, the Department should apply for the initial award to Kentucky's H.O.M.E program, which was \$5,192,500. Based on comparisons to Kentucky and due to Virginia's smaller share of coal miners, this amount would cover salaries, tuition for training programs, supplies, and transportation for displaced coal miners each year.

Virginia could apply for the National Dislocated Worker Grant program (DWG), which was established to provide funding assistance services to states and communities by providing funding assistance in response to large, unexpected economic events which cause significant job losses. The program has \$300,000,000 to award, with the award ceiling being \$100,000,000 and the award floor being \$150,000 (Department of Labor – POWER Grants, 2023).

Policy Option 2 – WORC Mine Reclamation Program (Short-Term Solution)

By law, all U.S. surface coal mines must be reacquainted, so the land returns to its pre-mining condition. However, the declining coal industry leaves behind thousands of abandoned acres of mined lands, especially in Virginia. This poses a risk to the southwest community and its environment. Environmental destruction from orphaned mines includes eroding soil that can pollute waterways and unstable tunnels that threaten to collapse or slope. The original plan for mine reclamation consists of the mine's operating company covering the financial cost of the reclamation.

Furthermore, as the coal energy sector declines, more mining companies have filed for bankruptcy and are unwilling to reclaim the mines they once possessed. Thus, the Virginia Department of Energy oversees a bidding process for mine reclamation that allows private companies to complete the work. Private contractors must have a class A license and submit a contractor exemption form showing a minimum of three years of experience in reclamation. Potential bidders must also be members of the Commonwealth of Virginia eMarketplace, or eVA (Department of Energy). Thus, the process usually excludes displaced coal workers from competing for these contracts. As a result, private companies are more likely to successfully bid on these contracts and hire cheap labor to complete the work.

The Western Organization of Resource Councils (WORC) has developed a plan to address employment for coal miners and reacquainting mines. WORC is an extensive, 18,820-member regional network that spans several states. In 2020, WORC studied the potential impact mine reclamation could have across the country. WORC discovered that mine reclamation required a substantial workforce which can also mitigate the impact of layoffs associated with mine closure. The council discovered that mine reclamation could create about 8,896 jobs across Colorado, Montana, Navajo Nation, Hopi Tribe, Arizona, New Mexico, North Dakota, Utah, and Wyoming lands.

In addition to the potential job creation from mine reclamation, the report found that communities will benefit most if mining companies perform reclamation work with local workers. This is because mine workers have several overlapping skills necessary to repurpose old mines. Most mine workers switch between active mining and reclamation tasks depending on the season. Secondly, the local mining workforce also has experience with the specific equipment already at a mining site that would be used for reclamation, like scrapers, dozers, haul trucks, front-end loaders, and water trucks. If coal mine reclamation is timely and well-enforced, it can provide a bridge between employment and other economic and community benefits (Coal Mine Clean Up, 2021).

Virginia should implement a mine reclamation program utilizing WORC's strategy for using displaced coal miners from the mine they previously worked at to do the repurposing work. As noted, coal miners possess the necessary skills for mine reclamation, so training is unnecessary. Considering this, displaced coal miners from their former coal mines should be the primary employee targets for reclamation work at each coal mine. The Department of Energy currently uses a bidding process allowing private contractors to bid on work at abandoned coal mines. Furthermore, Virginia should implement a 'right of first refusal' policy in their bidding process, requiring private contractors to give coal miners preference when procuring reclamation projects and selecting employees to do the work.

Lastly, reclamation work is a short-term solution. Reclaiming mines, on average, takes about two to three years to complete the work. In an extreme situation, reclamation work may take up to five years. Thus, this solution only temporarily works for displaced coal miners. Furthermore, this solution gives those affected an additional three to five years to consider other employment and training options as they earn a competitive salary.

Effectiveness

Due to the large number of coal mines in several different Virginia counties, the unit of analysis for this proposal will be job creation at the county level. According to WORC's study, because of familiarity, states should require operators like the Department of Energy to utilize the current or past employers of a mine to do the reclamation work. Depending on the severity of the mine's condition at the time of reclamation, a mine will usually require anywhere from 30% (low scenario means minimal damage) to 70% (high scenario means extensive damage) of the current mine's workforce to reestablish a coal's facilities successfully (Coal Mine Clean Up, 2021). Considering this, if the Roanoke Cement Mine in Botetourt County, Virginia, which has 119 employees, were to utilize suggestions from the WORC program, they could create 36 jobs

in the low scenario or 83 jobs in the high scenario. The Nestle Purina Petcar mine in King William County, which has 214 employees, could create 64 jobs in the low scenario and 149 in the high scenario. Lastly, the Winchester Plant in Frederick County, which has 71 coal-related positions, could create 21 jobs in the low scenario and 50 jobs in the high scenario (Virginia Department of Energy Webpage - Coal Mine Permits).

I recommend that the Commonwealth of Virginia consider implementing WORC's suggestion at the county level, specifically in Buckingham, Botetourt, and Loudoun County. There are three compelling reasons for selecting these three counties for the implementation of this program. Firstly, each of these counties ranks among the top five in terms of coal employees, hours worked at a coal mine, and coal tonnage produced, indicating their significant reliance on coal-related industries. Secondly, implementing the program in these counties would provide an opportunity to target areas with the highest concentration of coal workers, potentially maximizing the impact of the program on the local economy. Lastly, focusing on these counties would allow for a strategic approach to address the economic challenges associated with coal industry transitions, as they represent a geographically diverse sample of counties in Virginia with distinct characteristics and needs. Loudon County, which has 152 coal miners, could create about 46 positions in the low scenario and about 106 jobs in the high scenario. Buckingham County, which employs about 211 coal employees, could establish about 63 jobs in the low scenario and 147 in the high scenario. In Botetourt County, a community with 154 coal miners could see nearly 46 positions created in the low scenario and 108 jobs in the high scenario (Virginia Department of Energy Webpage - Coal Mine Permits).

Cost

As the WORC case study instructed, the state should ensure that the coal miners working on these abandoned mine sites earned at least \$30 an hour. Considering this, \$30 an hour would allow coal miners to make roughly \$62,400 annually for three to five years. In the case of the Virginia counties mentioned prior, the cost in salaries annually, which would be anywhere from three to five years, would be as follows:

1st Year Totals

- Loudon County: \$2,870,400 (Low Scenario) \$6,614,400 (High Scenario)
- Buckingham County: \$3,931,200 (Low Scenario) \$9,172,800 (High Scenario)
- Botetourt County: 2,870,400 (Low Scenario) \$6,739,200 (High Scenario)

2nd Year Totals

- Loudon County: \$2,985,216 (Low Scenario) \$6,878,976 (High Scenario)
- Buckingham County: \$3,931,200 (Low Scenario) \$9,539,712 (High Scenario)
- Botetourt County: 2,985,216 (Low Scenario) \$7,008,768 (High Scenario)

3rd Year Totals

- Loudon County: \$3,104,624 (Low Scenario) \$7,154,135 (High Scenario)

- Buckingham County: \$4,251,985 (Low Scenario) \$9,921,300 (High Scenario)
- Botetourt County: 3,104,624 (Low Scenario) \$7,289,118 (High Scenario)

4th Year Totals

- Loudon County: \$3,228,809 (Low Scenario) \$7,440,300 (High Scenario)
- Buckingham County: \$4,422,065 (Low Scenario) \$10,318,152 (High Scenario)
- Botetourt County: 3,228,809 (Low Scenario) \$7,580,683 (High Scenario)

5th Year Totals

- Loudon County: \$3,357,962 (Low Scenario) \$7,737,912 (High Scenario)
- Buckingham County: \$4,598,947 (Low Scenario) \$10,730,878 (High Scenario)
- Botetourt County: 3,357,962 (Low Scenario) \$7,883,910 (High Scenario)

After the five-year program, implementing a Virginia WORC program in these three localities would have an estimated cost of \$52,229,419 under the low scenario and \$97,385,284 under the high scenario.

Options for Funding

As of 2021, Virginia has about 3,000 abandoned mine sites. Reclaiming all the abandoned mines in Virginia will cost about \$533,000,000 in the low scenario and \$634,000,000 in the high scenario. Fortunately, in 2023, the Department of Energy is set to receive \$22.8 million in federal money for abandoned mine land reclamation and will receive that funding annually for the next 15 years (Todd, 2022). This large pile of funding is set to help resolve environmental hazards in the southwest and create well-paying jobs. The money comes from the 2021 bipartisan infrastructure bill, which designated \$11.3 billion for coal mine land restoration. This is a substantial increase from the \$4 million Virginia usually receives from the federal government for reclaiming mines (Larson, 2022). The largest coal mine in Virginia is over 4,000 acres, while other coal mines reside on just one acre of land. The 22 million dollars can repurpose 3971.41 acres of land in its first year.

Political Feasibility

The proposed policy entails establishing a right of first refusal for former miners at each individual mine when Virginia administers a new reclamation project. Key stakeholders in this policy proposal would include John Warren, the Director of the Department of Energy, and Marshall Moore, the Director of Virginia's Coal Programs, respectively. It would require their willingness to adopt new policies that deviate from the traditional business practices with private contractors. The political feasibility of this proposal may be challenging, as Virginia already participates in the Virginia's Abandoned Mine Land (AML) program, which addresses mine reclamation. Additionally, with increased funding for the Department of Energy, there may be opportunities to extend the AML program to support displaced miners. However, it is important to note that there is no legal requirement for private companies to hire and recruit local coal

miners. Enforcing local hiring requirements through legislation could pose challenges, but state agencies administering reclamation may have the authority to implement hiring practices through local ordinances or statutes. Nevertheless, there is currently no available data or information that indicates the willingness of counties to adopt such measures.

It is also worth noting that there may be potential challenges in assigning a new task to Director Warren, as he is currently in a semi-retired status, which could pose a hindrance to him taking on additional responsibilities. Therefore, the political feasibility of this proposal may be rated as medium in scale.

Policy Option 3 – Per Scholas (Non-Profit)

Bit Source is an IT company that partners with the earlier-mentioned H.O.M.E program. Bit Source is a for-profit technology company that helps displaced coal workers learn to code. In 2016, when Bit Source debuted its pilot program "from coal to code," initial demand suggested coal workers were ready to transition to technological work. According to H.O.M.E staff, nearly 900 people applied for the ten initial training slots (Coal Mine Clean Up, 2021). Because of this, partnering with a specific technical training program could prove to be beneficial for coal miners. Per Scholas is a 22-year-old non-profit that provides tuition-free technology training and professional development to people who are unemployed or in low-wage jobs. The program features a basic application process where Per Scholas admission officers identify capable applicants who they believe could complete the program. Training begins with repairing and maintaining personal electronic equipment such as computers, printers, and copiers. Training participants also learn job readiness skills. Those admitted can also take 15-week courses in web development, app Development, and cybersecurity (Ventures, 2022). Once an applicant has completed training in their chosen field, Per Scholas can connect the applicant with one of their several partners for employment. Eighty percent of Per Scholas students find work within their first year after graduation.

Per Scholas is a no-cost occupational skills training program that has prepared and matched more than 15,000 graduates for information technology and other tech careers with leading employers nationwide. On average, Per Scholas graduates earn four times their pre-training wage in their first job after Per Scholas (Per Scholas.org). The Per Scholas model has been evaluated by randomized control trials (RCT), and these were the findings:

- 30% increase in average earnings during the second year of the follow-up (\$19,343 vs. \$14,680; significant at the 0.01 level).
- 20% increase in months employed during the second year of the follow-up.
- 30 percent increase in the likelihood of working a job paying at least \$11 per hour in the second year of the follow-up.

In the Second RCT the findings were:

- Per Scholas group average annual earnings were \$4,844, or 14 percent, higher than the control groups earnings.

- In year three, 81 percent of Per Scholas group members were employed versus 75 percent of control group members. (Ventures, 2022)

Effectiveness

For this policy alternative, the unit of analysis will be statewide job creation should Virginia utilize Per Scholas to train and create job opportunities for displaced coal workers. In the Bit Source example mentioned prior, the Kentucky non-profit discovered that about 7% of the 900 Kentucky miners who applied for the program had the aptitude for learning code. They conducted this research through written tests. The test measured if they were logical, technical thinkers and if they could sit in a chair at a desk for eight hours a day. Based on this information and Per Scholas national enrollment averages, if Virginia partners with Per Scholas, the program could enroll roughly 136 (7%) members of the current coal workforce (1,942 miners) into their training and be confident that those individuals will finish the program in good standing. (Ventures 2022). Based on the data provided by Per Scholas, it is projected that approximately 80% of individuals who enroll in the program will secure employment within the first year of completing it (Per Scholas.org). Therefore, it is reasonable to anticipate that around 109 coal miners will find employment upon completing the program in its inaugural year. This statistic underscores the potential effectiveness of the program in facilitating employment opportunities for individuals transitioning from the coal industry and highlights the positive impact it could have on workforce reintegration and economic revitalization efforts in the affected communities.

Cost

Each student is estimated to cost nearly \$7,286.09 in training and services (Per Scholas.org, 2023). If the program can successfully enroll the 7%, we estimated, the program would cost Per Scholas roughly \$990,908.24 to educate the coal miners they enroll in the first year.

Options for Funding

Per Scholas is a non-profit and receives most of its funding through fundraiser campaigns and private donations. For example, in 2022, Per Scholas was able to secure a \$2.8 million grant from WorkRise, \$4 million from its annual fundraiser, and over 500,000 from the NFL to support and create innovative pilot programs that boost workers' economic mobility.

Political Feasibility

Political feasibility could be challenging. As mentioned, Per Scholas utilizes donations and charity to deliver its program. Thus, Virginia would have to seek out a foundation or private investor who was passionate about rectifying the predicaments coal miners face in the southwest region.

Virginia could ask the Just Transition Fund (JTF) to finance a Per Scholas partnership with Virginia. JTF was established in the spring of 2015 by Rockefeller Family Fund and the Appalachia Funders Network with the support of six other foundation partners: blue moon fund,

Chorus Foundation, the Hewlett Foundation, The JPB Foundation, The Mary Reynolds Babcock Foundation, and Mertz Gilmore Foundation. The Just Transition Fund is a philanthropic initiative focused on revitalizing coal communities. The organization works through partnerships and is active in communities where their partnership is strong. The organization utilizes resource hubs to help local leaders learn how to manage their coal communities.

There is plenty of opportunity to develop a relationship between the Just Transition Fund and Virginia. In early 2015, JTF launched its New Economy program in Southwest Virginia counties most affected by coal job losses. They even opened an office in Norton, Va., and began working with community members, businesses, and local leaders to build a healthier future with Virginia.

Non-profits are registered as corporations in the state, where they operate to benefit society through charitable work. Thus, non-profits follow rules and guidelines for their structure, including a board of directors and officers like the president, secretary, and treasurer. Per Scholas is no different. Thus, Per Scholas has all the personnel necessary to govern itself. Furthermore, Governor Youngkin is receptive to non-profit work in Virginia. Each quarter, Governor Youngkin donates his gubernatorial salary to a non-profit organization making great strides in critical areas of Richmond, highlighting his appreciation for non-profit work. Considering the fact this is a non-profit that would separate from governmental functioning and requires private donations, political feasibility is ranked with a medium scale rating.

Outcome Matrix

<u>Policy Alternatives</u>	<u>Virginia H.O.M.E Program</u>	<u>WORC Mine Reclamation Program</u>	<u>Per Scholas</u>
<u>Political Feasibility</u>	High	Medium	Medium
<u>Cost</u>	<ul style="list-style-type: none"> - One-year program -\$948,225 in Salaries -\$303,800 in Tuition training cost -Total estimate is \$1,252,025. 	<ul style="list-style-type: none"> -Five-year program -Total coast after 5 in the low scenario is \$52,229,419 -Total cost after 5 years in the high scenario is \$97,385,284 	<ul style="list-style-type: none"> -One-year program -The program would cost Per Scholas roughly \$990,908.24 to educate the coal miners they enroll in the first year.
<u>Effectiveness</u>	<ul style="list-style-type: none"> -Program could enroll 217 displaced coal miners -Provide training for 98 displaced coal miners -Create 74 new job opportunities 	<ul style="list-style-type: none"> -Program could employ anywhere from 582 miners to 1,359 miners 	<ul style="list-style-type: none"> -This program could create jobs for roughly 109 coal miners

Recommendation - WORC Reclamation Program

The WORC program is politically viable and feasible. Through the cooperation of localities via the ordinance process, state agencies have the authority to establish and operate their own programs for the restoration and redevelopment of sites in a manner that aligns with the Department's priorities (Coal Mine Clean Up, 2021). This means that the Department of Energy has the potential to directly impact the lives of displaced coal miners through the implementation of this program. The program's flexibility and adaptability to local conditions and requirements make it a practical and achievable policy solution that can be effectively implemented by state agencies, leading to tangible benefits for affected communities and coal miners in need of support during times of transition. Additionally, the Virginia Department of Energy is slated to receive \$22 million in federal funding toward redeveloping abandoned mine lands across the Commonwealth, giving the Department added political prowess to create jobs specifically for coal miners, including at the county level. As state officials can be reluctant to implement policy alternatives without a proven track record, they may be more likely to encourage a demonstration or pilot project rather than full-scale adoption of a new policy proposal. This alternative would allow that. Lastly, I would select this Program because being a coal miner is a mindset, an identity. Permitting coal miners to continue working in their own communities while doing a job with which they culturally identify will allow these men and women to retain a sense of pride, as the state looks to build up a viable community around them.

Implementation

Reclamation would be a crucial cornerstone of social and economic recovery in coal-dependent communities. Once surface mining operations have ceased, reclamation is essential to mitigate the destructive effects caused by mining and orphaned mined land. It also ensures the ecosystem is returned to a sustainable state. Virginia is one of nine states chosen by Congress to receive federal funding to develop and repurpose abandoned mine lands, but the State will likely need more funding to adequately address displaced coal miners and the backlog of mines that must be repurposed. Fortunately, for the next 15 years, the Virginia Department of Energy will be receiving over 22 million dollars to address the issue of abandoned mines. Considering this, the Department must lean on its policy director, Michael Skiffington, to establish new policy (to be approved by Director John Warren) to ensure displaced coal miners receive hiring preference in the abandoned mine bidding process.

Policies should provide clear guidelines and expectations to ensure fair and consistent practices and legal compliance. At its core, the new policy should explain the right of first refusal clause. The policy will act as a contractual agreement between each private contractor, the Department, and displaced coal miners. The policy will instruct that coal mines attempt to contract the displaced miners from each abandoned coal mine before entertaining or extending an offer to other individuals, or persons who were not employed at the coal mine when it was operating. Yolande Norman-Moore, chief of the Office of Surface Mining Reclamation and Enforcement Reclamation Support Division, believes states should require private contractors to identify how they plan to prioritize displaced coal miners who worked at the mines they are bidding on before they enter the bidding process (Holzman, 2022). This way, the Department can monitor their action plan and progress. The Department should then collect and monitor data on each successful bidder over time to ensure the funding aligns with the agency policy.

The policy should also ensure that each displaced coal miner is paid \$30 per hour. This is the amount that the WORC researchers have estimated will allow coal miners to continue their current way of life without negatively impacting the average amount awarded to successful bidders.

Robust administrative and managerial support will be needed as the policy division constructs the policy. There should also be consistent legal oversight during the development process to ensure the policy meets the state's standards. As the policy unfolds, the Department should hold informational meetings for members of the office, as well as private contractors, which will provide this audience with the opportunity to ask clarifying questions, in addition to providing a platform for communication of the new policy. Lastly, the Department should consider test implementation in one of the smaller coal counties. This would be a good way to identify any possible challenges to implementing the new procedures.

Reclamation should be done promptly. The State should facilitate bidding to initiate reclamation work immediately after mine closure. This gives less time for outside workers, community members, and unions to exert pressure on the private contractors or the State in an effort to impede the process. Mine permits should be denied to operators with a track record of insufficient reclamation, financial mismanagement, safety violations, or other workforce violations, and the State should be ready to seize a permit at any moment, if the Department's policies are not being followed, for award to another contractor with little disruption to the workforce.

We can predict that private contractors will be the biggest barrier to this new policy. Private industry may be hesitant or even combative toward this new program because of its economic implications. The Department must remain steadfast in its approach, however, if it plans to enrich these coal communities. Another significant barrier to this alternative could be the coal miners themselves. As J. Mijin Cha discovered in her extensive research of coal miners in Colorado, coal communities place attachment and an emotional connection on coal and their communities (Cha, 2020). Thus, many coal miners refuse to be interviewed, despite assurances of anonymity. Many coal industry employees also decline to be interviewed on the record for fear of reprisal. Accordingly, it may be challenging to rely on coal miners as stakeholders, if they are non-communicative. This may also create a challenge to contacting coal miners about the new policy, as most mining communities have adverse feelings about government systems (Cha, 2020).

As such, the Department should also create good working relationships with coal community members and other local decision-makers so they too can contribute to the process. Eventually, with the community's help, this policy should positively influence layoffs associated with mine closure.

Conclusion

The effects of global warming are felt across the planet. Heat waves and wildfires have ravaged lands. Extreme storms have destroyed communities, and large-scale droughts have expanded our deserts. As we currently understand it, this is mostly due to human activity such as coal mining. Consequently, policy makers must promote and advocate for ways to implement more efficient energy policy standards. In doing so, however, we must not forget those who have scarified their health and their families' well-being to provide coal for our electrical grids. Policy makers must also consider the future of coal miners, as we transition to a cleaner energy profile, or we risk undermining, hardworking Virginians.

Thank You

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