

Maybe Coal Shouldn't Keep the Lights On: An Analysis of Climate Change in Kentucky and Potential Legislation that Could Mitigate its Effects

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INTRODUCTION

The conversation surrounding climate change took a front seat in the United States in 2020.¹ While climate change has typically been a sideline issue in the United States, record-breaking seasons for wildfires in the west and hurricanes in the southeast have caused residents to question whether global warming is contributing to these devastating severe weather events.² However, as the issue of climate change remains politicized, legislative solutions are also coming down along party lines within both the federal and state governments.³ Kentucky, a state firmly in the hands of a Republican legislature, has no climate control measures currently in place, even though it is the ninth most threatened state—an even higher rank than wildfire-ridden California.⁴

Climate change is “a long-term change in the average weather patterns that have come to define Earth’s local, regional, and global climates.”⁵ These changes in the average weather

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¹ Anthony Zurcher, *US 2020 election: Climate change takes centre stage amid wildfires*, BBC NEWS (Sept. 15, 2020), <https://www.bbc.com/news/election-us-2020-54156598> [<https://perma.cc/U2FJ-4AMX>].

² *Id.*; Melissa Alonso, *California’s record-breaking wildfires consume nearly 1 million acres in a month*, CNN (Oct. 17, 2020, 2:04 PM), <https://www.google.com/amp/s/amp.cnn.com/cnn/2020/10/17/us/california-wildfires-saturday/index.html> [<https://perma.cc/NQ79-CPJ5>]; Chris Dolce, *All the records the 2020 Hurricane Season has Broken So Far*, THE WEATHER CHANNEL (Oct. 6, 2020), <https://weather.com/storms/hurricane/news/2020-09-21-atlantic-hurricane-season-2020-records> [<https://perma.cc/M5D6-DLM2>].

³ *See* Zurcher, *supra* note 1.

⁴ Andrew McCormick, *Kentucky’s Climate is changing. Will its politics?*, GRIST (Sept. 25, 2020), <https://grist.org/politics/kentuckys-climate-is-changing-will-its-politics/> [<https://perma.cc/PC75-A78Q>].

⁵ *Overview: Weather, Global Warming and Climate Change*, NASA, <https://climate.nasa.gov/resources/global-warming-vs-climate-change/> (last viewed Oct. 18, 2020) [<https://perma.cc/T7WL-574M>].

patterns are primarily driven by human activities.⁶ Specifically, these activities are generally ones that increase greenhouse gas levels in the atmosphere, such as burning fossil fuels like coal.⁷ Over time, increased greenhouse gas levels warm the Earth, causing temperature increases, rising sea levels, and ice loss at the poles.⁸ Global warming is “the long-term heating of the Earth’s climate.”⁹ Climate change and global warming can increase the frequency and severity of weather events—such as hurricanes and wildfires—as demonstrated in recent years.¹⁰

The birth of climate change activism occurred in 1965 when a group of scientists first became concerned about a “greenhouse effect.”¹¹ These scientists hypothesized that the temperature of the Earth was increasing because of an increase in carbon dioxide emissions.¹² It is now known that the greenhouse effect occurs when greenhouse gases, such as carbon dioxide, trap heat from the sun close to the Earth’s surface.¹³ By the late 1980s the media, concerned with record-breaking droughts and heatwaves across the nation, began to report on global warming and this greenhouse effect.¹⁴ In 1988, the United Nations launched the Intergovernmental Panel on Climate Change (“IPCC”) to monitor developments concerning climate change and to provide this information to governments around the world.¹⁵ Four years later, the United Nations held the Rio Earth Summit to establish goals and principles for countries to not only protect the global environment, but to also improve it.¹⁶ Nine years later, in 1997,

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*; Melissa Alonso, *California’s record-breaking wildfires consume nearly 1 million acres in a month*, CNN (Oct. 17, 2020, 2:04 PM), <https://www.google.com/amp/s/amp.cnn.com/cnn/2020/10/17/us/california-wildfires-saturday/index.html> [<https://perma.cc/NQ79-CPJ5>]; Chris Dolce, *All the records the 2020 Hurricane Season has Broken So Far*, THE WEATHER CHANNEL (Oct. 6, 2020), <https://weather.com/storms/hurricane/news/2020-09-21-atlantic-hurricane-season-2020-records> [<https://perma.cc/M5D6-DLM2>].

¹¹ Olivia Keston, Helen Lock, & Pia Gralki, *12 Important Moments in the History of Climate Action: In Photos*, GLOBAL CITIZEN (June 5, 2020), <https://www.globalcitizen.org/en/content/important-moments-climate-history-in-photos/> [<https://perma.cc/SG3N-FVUF>].

¹² *Id.*

¹³ *What is the greenhouse effect?*, NASA, <https://climate.nasa.gov/faq/19/what-is-the-greenhouse-effect/> (last viewed Oct. 18, 2020) [<https://perma.cc/F6BH-RJ6M>].

¹⁴ Keston, Lock, & Gralki, *supra* note 11.

¹⁵ *Id.*

¹⁶ *Id.*

developed nations gathered in Japan to put together an international climate plan that mandated the reduction of greenhouse gases.¹⁷ Pursuant to this plan, each country pledged to reduce their greenhouse gas emissions by 5 percent by 2012.¹⁸

Beginning in the early 2000s, citizens across the globe began protesting to force governments and businesses to take action on fossil fuel consumption and climate change.¹⁹ As these calls to action occurred around the world, the period of 2000–2009 became the warmest decade on record, breaking the previous record set in the 1990s.²⁰ This trend has continued, as the period of 2010–2019 is now the warmest decade on record.²¹ Greenhouse gases are still the main drivers of increasing temperatures, and the research continues to confirm that environmental conditions will further deteriorate unless action is taken.²²

A colossal 2018 federal report concluded that climate change is not only affecting the natural environment, but also agriculture, energy production, land and water resources, and human health and welfare throughout the United States.²³ Climate change is affecting human health and safety, causing losses to American infrastructure and impeding economic growth.²⁴ There are multiple concerns with the effect climate change is having on agriculture in the United States.²⁵ Climate change's effects on air and water temperatures has resulted in stress on the nation's water supply through increased droughts, heavy downpours, and a decline in surface water quality.²⁶ Additionally, the increase in temperatures across the United

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ ASSOCIATED PRESS, *U.S.: 2000s warmest decade on record*, NBC NEWS (Jan. 19, 2010, 6:24:08 PM) http://www.nbcnews.com/id/34944026/ns/us_news-environment/t/us-s-warmest-decade-record/#.X4ywh2dKjA [<https://perma.cc/68LM-G74H>].

²¹ Alejandra Borunda, *Past decade was the hottest on record*, NAT'L GEOGRAPHIC, (Jan. 15, 2020), <https://www.nationalgeographic.com/science/2019/12/the-decade-we-finally-woke-up-to-climate-change/#close> [<https://perma.cc/7WCA-HT4L>].

²² *Id.*

²³ *New federal climate assessment for U.S. released*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Nov. 23, 2018), <https://www.noaa.gov/news/new-federal-climate-assessment-for-us-released> [<https://perma.cc/GM9K-9X3A>].

²⁴ U.S. GLOB. CHANGE RSCH. PROGRAM, *FOURTH NATIONAL CLIMATE ASSESSMENT VOLUME II IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES REPORT-IN-BRIEF 12* (2018), https://nca2018.globalchange.gov/downloads/NCA4_Report-in-Brief.pdf [<https://perma.cc/K97J-Q7SC>].

²⁵ *Id.* at 14–17.

²⁶ *Id.* at 14.

States presents challenges for American farmers cultivating both crops and livestock.²⁷

These effects of climate change are particularly concerning for Kentucky, as the Kentucky economy is driven in part by agriculture and Kentucky has been a leader in the country for coal mining.²⁸ The unpredictability of the water supply and increased temperatures will likely reduce total crop yield in the state.²⁹ Additionally, as more severe droughts and hotter days occur, crop yield for agricultural products like corn will likely decrease in Kentucky over time.³⁰ Planting times and growing regions may change as a result of increased temperature and a stressed water supply.³¹ Global warming will also likely have a negative effect on livestock in the state as higher average temperatures reduce livestock productivity.³² This would likely be seen in farm animals such as cows, where increased temperatures interfere with the animal's eating patterns, impeding growth and milk production.³³ With increased dangerous heat days, a longer mosquito season, and an increased threat of wildfires over the next thirty years, climate change will present serious challenges to Kentucky industries.³⁴

This Note discusses the legislative and policy implications of climate change in Kentucky, specifically the effect that climate change will have on Kentucky industries. Part I discusses climate change on a federal level, with a focus on current congressional proposals to combat climate change throughout the United States. Part II sets out the current legislative climate in Kentucky, specifically why the Kentucky legislature has not been able to establish a strategy for climate control within the state. Part III proposes solutions to Kentucky's climate control crisis.

²⁷ *Id.* at 16–17.

²⁸ *Kentucky Economy*, NETSTATE, https://www.netstate.com/economy/ky_economy.htm (last viewed Oct. 18, 2020) [<https://perma.cc/BX5A-REXY>].

²⁹ *What Climate Change Means for Kentucky*, ENV'T PROT. AGENCY (Aug. 2016), <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ky.pdf> [<https://perma.cc/X4HD-2DSP>].

³⁰ *Id.*

³¹ PAUL VINCELLI ET AL., CLIMATE CHANGE: A BRIEF SUMMARY FOR KENTUCKY EXTENSION AGENTS, UNIV. OF KY. COLL. OF AGRIC. 1, <http://www2.ca.uky.edu/agcomm/pubs/id/id191/id191.pdf> (last viewed Oct. 18, 2020) [<https://perma.cc/W9T7-WJ6A>].

³² *Id.* at 2.

³³ *Id.*

³⁴ *Id.*

I. CLIMATE CHANGE ACTION ON THE FEDERAL LEVEL: CURRENT LEGISLATION AND CONGRESSIONAL/EXECUTIVE PROPOSALS

The national conversation on climate change shows that 57 percent of Americans believe global warming is a threat to humans.³⁵ This number has increased since 2013, when only 40 percent of Americans saw climate change and global warming as a threat.³⁶ However, this issue seems to fall along political party lines, as only 19 percent of conservative Americans view climate change as a threat.³⁷

The United States has seen a variety of increasingly severe effects of climate change in all regions of the nation.³⁸ California and the western United States have seen unprecedented destruction at the hands of record-breaking wildfires.³⁹ The southeast has been battered by increasingly worse hurricane seasons that produce lasting damage from extreme winds and residual flooding.⁴⁰ As the Earth's temperature continues to rise, these environmental effects will become more frequent and severe, and will be varied, but widespread, among the regions of the United States.⁴¹

For nearly thirty years, Congress has debated proposals to address climate change; in that time, it has approved funding and legislation to reduce emissions and create incentives to transition to clean energy.⁴² However, a holistic, comprehensive approach to addressing the effects of climate change has not been implemented

³⁵ SafeHome.org Team, *Best and Worst States for Climate Change*, SAFEHOME (June 30, 2021), <https://www.safehome.org/climate-change-statistics/> [<https://perma.cc/B87K-CHZ8>].

³⁶ *Id.*

³⁷ *Id.*

³⁸ See Melissa Alonso & Ray Sanchez, *California's record-breaking wildfires consume nearly 1 million acres in a month*, CNN (Oct. 17, 2020, 2:04 PM), <https://www.google.com/amp/s/amp.cnn.com/cnn/2020/10/17/us/california-wildfires-saturday/index.html> [<https://perma.cc/NQ79-CPJ5>]; Chris Dolce, *All the records the 2020 Hurricane Season has Broken So Far*, THE WEATHER CHANNEL (Oct. 6, 2020), <https://weather.com/storms/hurricane/news/2020-09-21-atlantic-hurricane-season-2020-records> [<https://perma.cc/M5D6-DLM2>].

³⁹ Alonso, *supra* note 38.

⁴⁰ See Dolce, *supra* note 38.

⁴¹ SafeHome.org Team, *supra* note 35.

⁴² *Congress Climate History*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <https://www.c2es.org/content/congress-climate-history/> (last viewed Oct. 18, 2020) [<https://perma.cc/W8SK-HWWQ>].

at the federal level.⁴³ Beginning in 1992, with the signing of the United Nations Framework Convention on Climate Change (“UNFCCC”) by President George H.W. Bush, the federal government committed to taking action to protect the global environment.⁴⁴ Nine years later, Congress introduced The Climate Stewardship Act of 2003, which created a cap-and-trade program intended to reduce emissions from various sectors of the economy including electricity, manufacturing, and transportation.⁴⁵ In 2007, Congress mandated emissions reporting from large sources through the Environmental Protection Agency (“EPA”), and one year later cap-and-trade legislation passed the House of Representatives.⁴⁶ However, this legislation, which would have established an economy-wide greenhouse gas cap-and-trade system and other complementary measures, lacked bipartisan support in the Senate.⁴⁷

A flurry of proposals followed, from 2008 to 2010, which contemplated more comprehensive approaches to climate legislation.⁴⁸ For example, The American Clean Energy Leadership Act of 2009, if enacted, would have established a renewable energy standard.⁴⁹ The American Power Act of 2010 would have created a fee for transportation fuels and established a cap-and-trade system for utilities.⁵⁰ Next, the Carbon Limits and Energy for America’s Renewal Act intended to cap carbon dioxide emissions and return the program’s revenue directly to the public.⁵¹ The Practical Energy and Climate Plan aimed to reduce oil imports, improve efficiency standards, and establish a clean energy standard for the United States.⁵² However, these Acts failed to pass, and recently Congress has focused on financial incentives such as tax credits to make renewable energies more attractive in the absence of federal legislation.⁵³

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Congress Climate History*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <https://www.c2es.org/content/congress-climate-history/> (last viewed Oct. 18, 2020) [<https://perma.cc/W8SK-HWWQ>].

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

Since 2019 there has been a renewed interest in climate change legislation.⁵⁴ That year, the Green New Deal was introduced in the House of Representatives and the Senate.⁵⁵ This nonbinding congressional resolution introduced a plan and framework for battling climate change.⁵⁶ The fundamental goals of the Green New Deal are to transition the United States away from fossil fuels like coal and natural gas, drastically reduce greenhouse gas emissions, and provide jobs in new clean energy industries.⁵⁷

The resolution seeks to achieve these goals through a ten-year “national mobilization.”⁵⁸ This mobilization would require the federal government to provide funding and invest in community-defined projects and strategies, repair and upgrade the infrastructure of the United States, and meet 100 percent of the country’s power demands with renewable energy sources.⁵⁹ Additionally, the resolution provides that the federal government would need to remove greenhouse gas emissions from manufacturing and industry, work collaboratively with agriculture industry members, and overhaul transportation systems.⁶⁰ Thus, the Green New Deal provided an aggressive, national strategy to combat the effects of climate change.⁶¹ However, as the resolution was nonbinding, even if the Senate had approved it, none of the resolutions would have become federal law.⁶²

Although the Green New Deal was not approved and did not become federal law, the goals and mechanisms to achieve those goals are still being discussed by the United States Congress, President Joe Biden, and various state governments.⁶³ An example

⁵⁴ *Congress Climate History*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <https://www.c2es.org/content/congress-climate-history/> (last viewed Oct. 18, 2020) [<https://perma.cc/W8SK-HWWQ>].

⁵⁵ *Id.*

⁵⁶ Lisa Friedman, *What Is the Green New Deal? A Climate Proposal, Explained*, N.Y. TIMES (Feb. 21, 2019), <https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html> [<https://perma.cc/JQ3N-TYYK>].

⁵⁷ H.R. 109, 116th Cong. (2019).

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² Friedman, *supra* note 56.

⁶³ *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>]; Sam Ricketts et al., *States Are Laying a Road Map for Climate Leadership*, CTR. AM. PROGRESS (Apr. 30, 2020, 8:00 AM), americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/ [<https://perma.cc/49T2-QZYN>].

of this ongoing discussion is President Biden's comprehensive climate plan.⁶⁴ This plan, dubbed The Clean Energy Revolution, purports to make a federal investment of \$1.7 trillion over the next ten years to achieve similar goals to those laid out in the Green New Deal.⁶⁵ In addition, with this significant financial investment, the plan sets a framework for implementing these mechanisms through both executive action and congressional legislation.⁶⁶

There are five main mechanisms to achieve the goals of The Clean Energy Revolution.⁶⁷ First, the goal of this plan is to achieve a 100 percent clean energy economy and reach net-zero emissions by 2050.⁶⁸ This is extremely similar to the goal set out in the Green New Deal.⁶⁹ The plan states that President Biden's administration will make investments in the infrastructure of the United States to prevent and reduce the effects of climate change.⁷⁰ Investments like these have the ability to revitalize the United States energy sector by creating jobs in various sustainable, clean energy industries.⁷¹ The second mechanism includes partnering with other countries around the world to make further commitments to fighting climate change.⁷² Next, the plan states that the administration would take action against fossil fuel companies and include communities that have relied on these fuel companies in developing sustainable solutions.⁷³ These communities would include those in Eastern Kentucky.⁷⁴

This plan would leverage investments from private companies, as well as state and local governments, to accomplish these and other climate goals.⁷⁵ An additional source of funding would come from reversing tax cuts and subsidies, specifically

⁶⁴ *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>].

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ 116th Congress, *supra* note 57.

⁷⁰ *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>].

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Id.*

those benefitting fossil fuel companies.⁷⁶ This mechanism comes from the philosophy that these companies are major polluters and therefore should pay the full economic cost of their carbon emissions.⁷⁷

The foregoing establishes that comprehensive congressional action on climate change has not materialized in the United States.⁷⁸ However, the issue of climate change is becoming more of a frontline issue among current and prospective lawmakers.⁷⁹ As the Green New Deal and other subsequent plans and legislation arise, we may soon see comprehensive climate reform on a national level.⁸⁰

II. CLIMATE CHANGE LEGISLATION ON A STATE LEVEL: WHERE DOES KENTUCKY STAND IN COMPARISON TO OTHER STATES SUCH AS CALIFORNIA AND VIRGINIA?

A. *Effects of Climate Change on Kentucky People and Industry*

The Commonwealth of Kentucky has seen major effects of climate change in recent years and is more at-risk than many other states.⁸¹ Based on research collected by Climate Central, Kentucky is ranked as the ninth state most at risk of experiencing severe effects of climate change.⁸² This risk index considered five major categories of effects caused by climate change: extreme heat, drought, wildfires, coastal flooding, and inland flooding.⁸³ Most of the states in the top ten are located in the south and on the coasts.⁸⁴ Kentucky is only one of two landlocked states present in the top ten of this list.⁸⁵

⁷⁶ *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>].

⁷⁷ *Id.*

⁷⁸ CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 54.

⁷⁹ H.R. 109, 116th Cong. (2019); *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>].

⁸⁰ BIDEN HARRIS, *supra* note 70.

⁸¹ SafeHome.org Team, *Best and Worst States for Climate Change*, SAFEHOME (JUNE 31, 2021) <https://www.safehome.org/climate-change-statistics/> [<https://perma.cc/B87K-CHZ8>].

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.*

Based on this risk index, Kentucky can expect to see an increase in extreme heat, drought, wildfires, and flooding as climate change continues to worsen.⁸⁶ Extreme heat is the most common effect of climate change; Kentucky is expected to see a major increase of seventy-two dangerous heat days by 2050.⁸⁷ Moreover, 3.37 percent of the Kentucky population will be vulnerable to this increase in extreme heat and dangerous heat days.⁸⁸ Furthermore, the people of Kentucky will likely be subject to a 95 percent increase in widespread summer drought, an increase in mosquito season days to twenty-two, and 33.7 percent of the population will be at an elevated risk for wildfires by 2050.⁸⁹

These major changes will not only affect Kentucky's individuals, but will also have implications for Kentucky industries, such as the agriculture industry.⁹⁰ While we have seen an increase in annual precipitation in recent years, average temperatures have also increased.⁹¹ The combination of these two trends has resulted in increased evaporation of rainwater, causing droughts to be more severe in Kentucky.⁹² An increase in the severity of droughts here in Kentucky will likely have major negative consequences for the state's agricultural industry.⁹³ More severe droughts and an increase in the number of hot days are likely to reduce crop yield, especially in the western half of Kentucky, where it is likely there will be fifteen to thirty more days with temperatures exceeding ninety-five degrees Fahrenheit in the coming years.⁹⁴

When analyzing the potential effect of climate change on Kentucky agriculture, it is expected that corn yields will decrease due to higher temperatures reducing pollination.⁹⁵ Additionally, the yields of fall and winter crops, or "cool-season" crops, may be affected by an increase in global warming.⁹⁶ Because of an increase in global temperatures, there will likely be an increase in year-to-

⁸⁶ *Id.*

⁸⁷ SafeHome.org Team, *Best and Worst States for Climate Change*, SAFEHOME (JUNE 31, 2021), <https://www.safehome.org/climate-change-statistics/> [<https://perma.cc/B87K-CHZ8>].

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ EPA, *supra* note 29.

⁹¹ *Id.*

⁹² *Id.*

⁹³ PAUL VINCELLI ET AL., *supra* note 31, at 2.

⁹⁴ EPA, *supra* note 29.

⁹⁵ PAUL VINCELLI ET AL., *supra* note 31, at 2.

⁹⁶ *Id.*

year variability in crop performance and yields due to extreme weather patterns caused by increased temperatures.⁹⁷ These extreme weather patterns include an increase in dangerous heat days, intense storms and precipitation, droughts, and colder winters.⁹⁸ An increase in Kentucky's average temperature due to global warming will likely force Kentucky farmers to adjust planting times and regions in order to avoid excessive temperatures.⁹⁹

The productivity of livestock in Kentucky will likewise be affected by the increase in global temperatures.¹⁰⁰ For example, when there are increased average temperatures, cows will eat less, their rate of growth will slow, they will produce less milk, and their overall health could be threatened.¹⁰¹ Additionally, as winters are expected to become more mild due to global warming, it is likely that disease-causing organisms and insect pests will survive through the winter and become active earlier in the spring.¹⁰² Also, an increase in carbon dioxide will likely encourage the growth of weeds as compared to the growth of most crops.¹⁰³ Due to the various negative effects of climate change, such as increasing temperatures, Kentucky's agriculture industry will be severely affected by global warming and will have to majorly shift planting times, locations, and other farming techniques in order to maintain crop and livestock production over the next twenty to thirty years.¹⁰⁴

B. Climate Change Action in Other States: Analyzing the Climate Change Mitigation Strategies Used by California and Virginia

i. California's Climate Change Action Plan

While Kentucky is expected to experience substantial negative effects of climate change over the coming decades, other

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ EPA, *supra* note 29.

¹⁰¹ *Id.*

¹⁰² PAUL VINCELLI ET AL., *supra* note 31, at 2.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

states are expected to experience effects as well.¹⁰⁵ California is ranked as the tenth state most likely to experience significant and severe effects of climate change in the upcoming years.¹⁰⁶ However, California is also paving the way for climate change action in the United States on a state level.

California set the standard for state climate legislation in 2006 when it passed AB 32, or the Global Warming Solutions Act.¹⁰⁷ The Act set an absolute limit on greenhouse gas emissions and confirmed the state's commitment to sustainable energy through 2020.¹⁰⁸ In order to attain their lofty goals, the legislation provided for a variety of mechanisms to reduce pollution and mitigate the effects of climate change.¹⁰⁹

Through the use of these mechanisms, such as their anchor cap-and-trade program, a program that limits carbon emissions and puts a price on them, the California economy has grown while the state's carbon emissions decline after the passage of AB 32.¹¹⁰ This is a unique scenario, as economic growth has historically been accompanied by an increase in pollution.¹¹¹ This economic growth is due to California's innovative policies and mechanisms, and the State added over 900 thousand jobs within the first two and one half years of AB 32 being enacted.¹¹²

In 2016, ten years after the enactment of AB 32, California passed SB 32, which extended and further restricted greenhouse gas emissions to 2030.¹¹³ The 2016 Act requires the State of California to further reduce pollution to 40 percent of 1990 levels by 2030.¹¹⁴ The cap-and-trade program, the main policy

¹⁰⁵ See SafeHome.org Team, *Best and Worst States for Climate Change*, SAFEHOME, <https://www.safehome.org/climate-change-statistics/> (June 31, 2021) [<https://perma.cc/B87K-CHZ8>].

¹⁰⁶ *Id.*

¹⁰⁷ Erica Morehouse, *California's ambitious new climate commitments follow 10 years of success*, ENV'T DEF. FUND (Sept. 1, 2016), <http://blogs.edf.org/climatetalks/2016/09/01/californias-ambitious-new-climate-commitments-follow-10-years-of-success/> [<https://perma.cc/49N2-LJ53>].

¹⁰⁸ *California leads fight to curb climate change*, ENV'T DEF. FUND, <https://www.edf.org/climate/california-leads-fight-curb-climate-change#:~:text=California's%20landmark%20policies&text=Ten%20years%20after%20the%20passage,below%201990%20levels%20by%202030> (last viewed Jan. 17, 2021) [<https://perma.cc/NYG4-YBKF>].

¹⁰⁹ Morehouse, *supra* note 107.

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

mechanism of the 2006 Act, was also extended until 2030.¹¹⁵ California's climate goals in passing the 2016 Act are as ambitious as those found in European nations' climate change plans.¹¹⁶ Additionally, along with the legislation extending and strengthening California's climate action plan, the legislature also passed a spending plan to direct \$900 million in cap-and-trade proceeds to further reduce pollution and benefit communities in the State.¹¹⁷ These proceeds will specifically target the most disadvantaged communities in California.¹¹⁸ Along with the cap-and-trade program, California's legislation has provided cost-effective options for businesses operating in the state to meet their pollution reduction obligations.¹¹⁹ These options promote renewable energies and incentivize California businesses to automate and modernize a variety of energy options, allowing for a more seamless transition to clean energy.¹²⁰

Along with the flagship cap-and-trade program, California has enacted other programs designed to reduce carbon emissions to benefit public health.¹²¹ California has implemented a Renewables Portfolio Standard, which requires electricity providers to acquire 33 percent of their total electricity from renewable sources by 2020.¹²² This program will require 60 percent of all electricity to be acquired from clean, renewable sources by 2030.¹²³ The State also has a Low Carbon Fuel Standard, which requires transportation fuel producers to reduce their carbon emissions from beginning to end of their production cycle.¹²⁴ California has also set a Green Building Standard, requiring the reduction of energy use in all California buildings.¹²⁵ This includes strict efficiency standards for all new construction and requires overhauls of older buildings to comply with current energy efficiency standards.¹²⁶ Additionally, the State has implemented a

¹¹⁵ Morehouse, *supra* note 108.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ ENV'T DEF. FUND, *supra* note 109.

¹²¹ *California Climate Policy Dashboard*, BERKELEY L., <https://www.law.berkeley.edu/research/clee/research/climate/climate-policy-dashboard/>, (last viewed Jan. 18, 2021) [<https://perma.cc/3YBE-FN36>].

¹²² *Id.*

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

Clean Cars Program, the goal of which is to reduce greenhouse gas emissions from all California cars.¹²⁷ Through this program, California plans to introduce zero-emission vehicles by 2025.¹²⁸

Not only has the California legislature enacted legislation and implemented multiple programs as part of their climate action plan, but the California state government has also used its experience with its programs to partner with other cities, states, and countries.¹²⁹ For example, in 2015 while at the Paris negotiations, California's governor brought together multiple states, provinces, and regions in a "Memorandum of Understanding."¹³⁰ This Memorandum showed a commitment by the states and regions to reducing carbon emissions to at least 80 percent below 1990 levels by the year 2050.¹³¹ The agreement was signed by states and provinces that make up 25 percent of the current global economy.¹³² Additionally, California has partnered with multiple Canadian provinces to implement joint cap-and-trade programs, while also agreeing to share information from their experiences with countries like Mexico and China to assist with carbon pricing.¹³³ As California continued to cement its place as a leader in climate change reform, in 2018 the state organized the Global Climate Action Summit, where various world leaders in government, business, and indigenous groups attended and confirmed their commitments to climate action.¹³⁴

California was successful in meeting their emission reduction goal for 2020.¹³⁵ Additionally, from 2017 to 2018, the state's economy grew 4.3 percent while consistently reducing carbon emissions.¹³⁶ If the State can maximize its existing policies while supplementing the policies with complementary programs

¹²⁷ *California Climate Policy Dashboard*, BERKELEY L., <https://www.law.berkeley.edu/research/cee/research/climate/climate-policy-dashboard/> (last viewed Jan. 18, 2021) [<https://perma.cc/3YBE-FN36>].

¹²⁸ *Id.*

¹²⁹ Morehouse, *supra* note 108; ENV'T DEF. FUND, *supra* note 109.

¹³⁰ Morehouse, *supra* note 107.

¹³¹ *Id.*

¹³² *Id.*

¹³³ *Id.*

¹³⁴ ENV'T DEF. FUND, *supra* note 109.

¹³⁵ Katelyn Toedner Sutter, *Emissions are down and cap-and-trade revenue is up, but California's Scoping Plan must accelerate climate ambition*, ENV'T DEF. FUND (Nov. 24, 2020), <http://blogs.edf.org/climate411/2020/11/24/emissions-are-down-and-cap-and-trade-revenue-is-up-but-californias-scoping-plan-must-accelerate-climate-ambition/> [<https://perma.cc/ZSU5-B253>].

¹³⁶ *Id.*

and incentives, California should reach its goal of net-zero emissions by the mid-21st century.¹³⁷

Overall, California has been a leading example of the type of progress states can make to mitigate the effects of climate change with their innovative advancements in clean energy and efficiency.¹³⁸

ii. Virginia's Climate Change Action Plan

While California is making huge, historical strides in climate change legislation, fifteen other states have enacted climate action legislation of their own.¹³⁹ A state more similarly situated to Kentucky in both region and climate is Virginia, a state that has enacted climate action through 100 percent clean energy legislation.¹⁴⁰ In April 2020, Virginia became the first state in the South to enact legislation for 100 percent clean energy.¹⁴¹ The Virginia Clean Economy Act ("VCEA") commits the state to reducing greenhouse gas emissions in its power sector, setting ambitious targets for energy storage and offshore wind energy deployment, and codifying the governor's 2019 executive order for 100 percent clean energy electricity.¹⁴²

Like California's legislation, the VCEA uses multiple tools to achieve Virginia's goal of reducing the use of fossil fuels and increasing clean energy use.¹⁴³ The Act instructs state agencies to develop Virginia's own cap-and-trade program and to enter the Regional Greenhouse Gas Initiative ("RGGI"), which is a nine-state carbon trading network.¹⁴⁴ Statistically, entering the RGGI has been beneficial for the economies of the states involved.¹⁴⁵

¹³⁷ *Id.*

¹³⁸ See ENV'T DEF. FUND, *supra* note 108. See also BERKELEY L., *supra* note 121; Morehouse, *supra* note 107.

¹³⁹ Sam Ricketts et al., *States Are Laying a Road Map for Climate Leadership*, CTR. AM. PROGRESS (Apr. 30, 2020, 8:00 AM), <https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/> [<https://perma.cc/4EES-V6TM>].

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ David Roberts, *Virginia becomes the first state in the South to target 100% clean power*, VOX (Apr. 13, 2020, 2:56 PM), <https://www.vox.com/energy-and-environment/2020/3/12/21172836/virginia-renewable-energy-100-percent-clean> [<https://perma.cc/7YP4-YCFV>].

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

The most significant tool in the Virginia Clean Economy Act is a Renewable Portfolio Standard.¹⁴⁶ Like the California standard, this Act requires Virginia's two investor-owned utility companies to acquire a set percentage of their electricity from renewable, or carbon-free, sources.¹⁴⁷ With this piece of legislation, Virginia now has one of the strictest Renewable Portfolio Standards in the United States.¹⁴⁸ The two utility companies targeted are Dominion Energy and Appalachian Power Company.¹⁴⁹ The Act requires both companies to achieve 100 percent carbon-free electricity, Dominion by 2045 and Appalachian Power Company by 2050.¹⁵⁰

The Act requires the Virginia state government to conduct a study of how to best achieve their climate goals by 2045.¹⁵¹ The Act also prevents the State Corporation Commission—the organization that oversees Virginia's utilities—from issuing permits for power plants that use fossil fuels until the study is completed.¹⁵² Virginia reserves the right to implement longer-term bans on fossil fuel permits, and requires utility companies, such as Dominion and Appalachian Power, to incorporate the social cost of carbon emissions when looking to new fossil fuel investments as opposed to clean energy investments.¹⁵³

The VCEA will also close almost all of Dominion's coal plants by 2030, and the rest of Virginia's fossil fuel plants fifteen years later, by 2045.¹⁵⁴ In addition to this, the Act requires that Virginia utility companies, such as Dominion, reduce the overall energy demand from their customers.¹⁵⁵ The utility companies will accomplish this through Virginia's energy efficiency resource standard.¹⁵⁶ Dominion must reduce its consumption by 5 percent by 2025, while Appalachian Power must reduce its consumption by 2 percent in the same timeframe.¹⁵⁷ The Act provides that the State Corporate Commission will then adjust these energy efficiency targets every three years, and the utility company must prove that

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ Roberts, *supra* note 144.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ Roberts, *supra* note 144.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

they are meeting these targets before they are allowed to construct new fossil fuel plants in Virginia.¹⁵⁸

Moreover, like the California legislation, the VCEA includes provisions to protect low-income consumers of the utility companies through a percentage of income payment program.¹⁵⁹ This program caps the amount that each customer pays for electricity based on a set percentage of their income.¹⁶⁰ Virginia is focusing on low-income and vulnerable communities for renewable energy projects with this program—which is similar to the program in California where cap-and-trade revenues are used to benefit vulnerable populations by funding various community programs.¹⁶¹

The Virginia Act also set specific targets for energy storage capacity by Dominion and Appalachian Power.¹⁶² By 2035, the utility companies must construct or obtain 2,700 and 400 megawatts of energy storage capacity, respectively.¹⁶³ Overall, this Act represents one of the most aggressive storage targets in the United States.¹⁶⁴ During this construction of storage capacity, Dominion must construct at least 5.2 gigawatts of offshore wind capacity by the end of 2034 and they must prefer local Virginia workers for the construction.¹⁶⁵ Dominion is encouraged to use not only Virginia workers, but specifically workers from vulnerable Virginia communities, and to look for projects that have the most potential to further develop Virginia's economy.¹⁶⁶

Lastly, the Virginia Act sets aside 1 percent of the Renewable Portfolio Standard for solar power, a renewable energy source.¹⁶⁷ The Act provides that the utility companies must inform their low-income customers of the financial benefits of switching to clean energy and using solar panels instead of fossil fuels in their homes.¹⁶⁸ Also, according to the Act, Virginia will acquire its large-scale clean energies through auctions in order to keep financial costs low.¹⁶⁹ The state also plans to introduce competition into their

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

¹⁶¹ Roberts, *supra* note 144.

¹⁶² *Id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ Roberts, *supra* note 144.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

historically monopolized utilities system.¹⁷⁰ Virginia plans to do this through lifting the cap on power purchase agreements, which are long-term contracts between utilities and power providers, and by requiring that one-third of Virginia's renewable energy be independently owned.¹⁷¹

Overall, the Virginia Clean Economy Act is a broad and aggressive piece of legislation that has put the state at the forefront of climate action in the United States.¹⁷² Moreover, as it is the first state in the South to enact this kind of climate action plan, Virginia is laying the groundwork for other southern states to enact similar legislation to mitigate the effects of climate change in the region expected to be most threatened by global warming.¹⁷³

C. Current Climate Change Legislation in Kentucky: Does Kentucky have a Climate Action Plan?

Currently, Kentucky has no comprehensive climate action plan on a state level.¹⁷⁴ Moreover, there is no talk of any sort of climate action plan in the state legislature, as Kentucky's representatives have mostly avoided the issue.¹⁷⁵ While Kentucky is one of the most threatened states when it comes to the long-term effects of climate change, the attitudes and beliefs surrounding climate change and global warming have the Republican-controlled legislature at a standstill.¹⁷⁶ This standstill likely derives from the majority of adults in Kentucky who remain unconvinced about global warming and the effect humans have on the environment, and from the hold that legacy energy sources—such as the coal industry—have on Kentucky and its representatives.¹⁷⁷

The denial of climate change and the effect humans have on the environment is so prevalent that even the Chair of the House

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² Sam Ricketts et al., *supra* note 139.

¹⁷³ Roberts, *supra* note 143.

¹⁷⁴ Sam Ricketts et al., *supra* note 139; GEORGETOWN CLIMATE CTR., *Preparing for Climate Change in Kentucky*, GEORGETOWN L., <https://www.georgetownclimate.org/adaptation/state-information/kentucky/overview.html> (last viewed Feb. 23, 2021) [<https://perma.cc/N4DH-FCDG>].

¹⁷⁵ Andrew McCormick, *Kentucky's climate is changing. Will its politics?*, GRIST (Sept. 25, 2020), <https://grist.org/politics/kentuckys-climate-is-changing-will-its-politics/> [<https://perma.cc/PC75-A78Q>].

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

Natural Resources and Energy Committee denies climate change's existence.¹⁷⁸ This committee is responsible for legislation concerning climate change through renewable energy.¹⁷⁹ Scholars of environmental science throughout Kentucky have expressed concern about having legislators who deny climate change in such important leadership roles.¹⁸⁰ Without proponents of climate action driving climate legislation through the Kentucky Senate and House of Representatives, experts are concerned that Kentucky will continue to fall behind when it comes to adapting and mitigating the effects of climate change in the state.¹⁸¹ However, the denial of climate change in Kentucky is not merely contained to the legislature.¹⁸² According to a study done by Yale University and George Mason University, as of September of 2020, Kentucky is one of only four states where the majority of adults do not believe climate change is caused by humans.¹⁸³ While some Kentuckians don't believe the science behind climate change, others are simply too concerned with and attached to the coal industry. Those in Eastern Kentucky feel the attachment most acutely, where the coal industry used to be a major employer.¹⁸⁴

It is likely that some of the denial of climate change is due to the state's reliance on legacy energy, particularly coal.¹⁸⁵ Coal supplies the United States with half of its electricity, and Kentucky has historically relied on this industry as a major employer.¹⁸⁶ This reliance and support of the coal industry can be seen throughout Kentucky, among both residents and representatives.¹⁸⁷ For example, Senator Mitch McConnell has framed the efforts to reign in the coal industry as the federal

¹⁷⁸ Ryan Van Velzer, *A Decade Of Climate Science Denial From Ky. House Energy Chairman*, 89.3 WFPL (Jan. 8, 2020), <https://wfpl.org/a-decade-of-climate-science-denial-from-ky-house-energy-chairman/> [<https://perma.cc/R36H-D265>].

¹⁷⁹ *Id.*

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² McCormick, *supra* note 175.

¹⁸³ *Id.*; Jennifer Marlon et al., *Yale Climate Opinion Maps 2020*, YALE PROGRAM ON CLIMATE CHANGE COMM'N (Sept. 2, 2020), <https://climatecommunication.yale.edu/visualizations-data/ycom-us/> [<https://perma.cc/4UNE-WYEY>].

¹⁸⁴ McCormick, *supra* note 175.

¹⁸⁵ *Id.*

¹⁸⁶ Tim Appenzeller, *High Cost of Cheap Coal: The Coal Paradox*, NAT'L GEOGRAPHIC, <https://www.nationalgeographic.com/environment/article/high-cost-coal> (last viewed Feb. 23, 2021) [<https://perma.cc/57MC-NGUV>]; McCormick, *supra* note 175.

¹⁸⁷ McCormick, *supra* note 175; Jennifer Marlon et al., *supra* note 183.

government attempting to disturb the Kentucky way of life.¹⁸⁸ While attempting to convince Kentuckians that the federal government is out of touch when it comes to coal and renewable energies, McConnell has accepted more than \$3 million from the coal industry throughout his career.¹⁸⁹ He has also given handouts to the coal industry through tax breaks and regulatory cuts to that keep it alive in Kentucky despite its declining relevance.¹⁹⁰

However, Senator McConnell is not alone in opposing climate change and climate action for Kentuckians.¹⁹¹ Kentucky state representatives, such as Representative Jim Gooch, have also demonstrated a commitment to the coal industry through the acceptance of campaign funds from coal companies and people affiliated with the industry.¹⁹² This commitment has continued even though the number of Kentuckians employed by the coal industry has fallen from 38 thousand to 4 thousand since 1985.¹⁹³ This decline is due to market changes, such as the increase in the use of renewable energy and automation in the coal industry.¹⁹⁴ Additionally, Kentucky representatives continue to commit to coal even though deregulation of the industry has led to a public health emergency in Kentucky; coal has led to the worst black lung epidemic ever recorded. It has also caused water in eastern Kentucky to become either undrinkable or unaffordable.¹⁹⁵

Moreover, this reliance on coal and other legacy energies such as oil or gas has made Kentucky unattractive to companies looking to move or expand, as companies are increasingly making environmental commitments to their customers.¹⁹⁶ New, innovative companies are looking to include sustainability in their missions but because Kentucky continues to hang on to the coal industry, these companies are not interested in setting up shop here.¹⁹⁷

¹⁸⁸ McCormick, *supra* note 175.

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ Van Velzer, *supra* note 178.

¹⁹² *Id.*

¹⁹³ McCormick, *supra* note 175.

¹⁹⁴ Michael Saino, *Laid off and owed pay: the Kentucky miners blocking coal trains*, THE GUARDIAN (Sept. 18, 2019, 2:00 PM), <https://www.theguardian.com/us-news/2019/sep/17/harlan-county-coalmine-train-protest> [<https://perma.cc/47YP-622D>].

¹⁹⁵ McCormick, *supra* note 175.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

Nevertheless, the commitment to coal may be coming to an end in Kentucky.¹⁹⁸ Democratic candidate Charles Booker fought for climate action and environmental justice in his 2020 campaign for Mitch McConnell's Senate seat.¹⁹⁹ Booker gained national attention for promising a smooth economic transition for coal miners who are concerned that they will be forgotten in the transition from legacy energy to clean energy; Booker signaled that Kentuckians may be ready to get more serious when it comes to climate action.²⁰⁰ Young people in Kentucky, including young conservatives, have also stepped up in recent years as they become more educated on the science behind climate change and how they will be affected in the future.²⁰¹ For example, in 2018, young people from across the country traveled to Washington D.C. to lobby for the Green New Deal.²⁰² All fifty states had young activists present, but Kentucky, with seventy-five young people, had the largest delegation.²⁰³ There are also hubs for The Sunrise Movement, a youth movement to stop climate change and create jobs in the process, throughout Kentucky.²⁰⁴ As these young people continue to grow and begin to vote on key issues, it is likely that climate action, specifically renewable energies, will become more of a priority to Kentucky's elected representatives.

Overall, Kentucky is currently playing catch-up when it comes to enacting climate legislation on a state level.²⁰⁵ Despite this, however, there is potential for Kentucky to enact similar, aggressive legislation to that enacted in Virginia or California, especially with the youth of Kentucky now beginning to act.²⁰⁶

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ Andrew McCormick, *Kentucky's climate is changing. Will its politics?*, GRIST (Sept. 25, 2020), <https://grist.org/politics/kentuckys-climate-is-changing-will-its-politics/> [<https://perma.cc/PC75-A78Q>].

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *About The Sunrise Movement*, SUNRISE MOVEMENT, <https://www.sunrisemovement.org/about/?ms=AboutTheSunriseMovement> (last viewed Feb. 23, 2021) [<https://perma.cc/A9HP-YWVG>].

²⁰⁵ McCormick, *supra* note 175.

²⁰⁶ *Id.*

III. SOLUTION: HOW KENTUCKY CAN CATCH UP AND ENACT AGGRESSIVE CLIMATE CHANGE POLICIES

Climate action is necessary for the state of Kentucky, not only because it is a state that is threatened by the long-term effects of global warming, but also because Kentucky's economy is falling behind other, more climate-conscious states.²⁰⁷ While Kentucky is behind on the issue of climate change, there are various steps the state can take to improve their stance.²⁰⁸

One important step the state of Kentucky can take is with transparency and continued education on the effects of climate change within the state. Educating the citizens of Kentucky will be crucial to understanding and mitigating the long-term effects of global warming. For legislators and individual Kentuckians, education on these issues is necessary for the state to understand the gravity of climate change and its effects on all Kentuckians and Kentucky industries. This education can be accomplished by teaching students in Kentucky schools, which most Kentucky adults believe is important.²⁰⁹ This education should include topics such as: the effects of global warming on Kentucky, the effects of legacy energy such as the coal industry, and the benefits of sustainable energy such as wind or solar energy on the environment and for Kentucky's economy and public health as a whole.²¹⁰

There are a variety of ways to accomplish climate reform in Kentucky. Executive action could be implemented by Kentucky's current Governor, Andy Beshear, legislation could be passed through the Kentucky Senate and House of Representatives, or Kentucky could wait for a comprehensive climate action plan to be implemented on a federal level. However, waiting for comprehensive federal climate legislation is unwise, as Kentucky is already feeling the effects of climate change, and if the state chooses instead to implement its own plan, it has the opportunity to put itself ahead of the curve.²¹¹ Kentucky, through its own plan,

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ Jennifer Marlon et al., *supra* note 183.

²¹⁰ *Solar Power in Kentucky: All You Need to Know*, SOLAR NATION, <https://www.solar-nation.org/kentucky> (last viewed Nov. 8, 2021) [<https://perma.cc/U45C-BUCY>].

²¹¹ *See, e.g.*, Roberts, *supra* note 143.

could create jobs and boost the state economy through the creation of sustainable energy infrastructure.²¹²

One possible method to combat climate change is through executive action.²¹³ While many discourage the use of executive action by presidents and governors, especially when concerned with a highly contested political issue such as climate change, it can still be a useful tool.²¹⁴ Given this, the use of executive action in order to commit to a climate action plan could be exactly what Kentucky needs in order to get the ball rolling, and to enact legislation. This could be accomplished in Kentucky through Governor Andy Beshear's commitment to transitioning to clean energy, by joining California in signing on to their "Memorandum of Understanding" or by joining Virginia in the Regional Greenhouse Gas Initiative ("RGGI").²¹⁵ Moreover, partnering with other states will provide Kentucky with important research and development opportunities as well as beneficial networks of states to partner with on climate action in the future.

While other options could be viable, the best option for Kentucky to develop a climate action plan is through the state legislature. The legislature is preferable due to its ultimate control over legislation and funding.²¹⁶ However, a major issue with the Kentucky House of Representatives and the Kentucky Senate is the reliance that representatives have on the coal industry, and their overall commitment to the dying industry.²¹⁷ Also, many of these representatives doubt the science behind climate change, and because the issue of the climate is a major political issue, it may be difficult for the Republican-controlled legislature to move past these issues to accept the science and develop a

²¹² See generally Richard Threlfall et al., *The sustainable infrastructure opportunity*, KPMG, <https://home.kpmg/xx/en/home/insights/2020/06/covid-19-recovery.html> (last viewed Nov. 8, 2021) [<https://perma.cc/72A9-D4S6>].

²¹³ Emma Newburger, *Biden's climate change agenda will face big obstacles with an evenly divided Senate*, CNBC (Jan. 30, 2021, 9:30 AM), <https://www.cnbc.com/2021/01/30/bidens-climate-change-agenda-to-face-obstacles-with-senate.html> [<https://perma.cc/F4J7-BYDC>].

²¹⁴ *Id.*

²¹⁵ Morehouse, *supra* note 107; Roberts, *supra* note 143.

²¹⁶ *Legislative Branch*, KY.GOV, <https://transparency.ky.gov/accountability/gengov/Pages/legislative.aspx#:~:text=The%20General%20Assembly%2C%20as%20specified,elected%20for%20two%2Dyear%20terms> (last viewed Nov. 8, 2021) [<https://perma.cc/FF8V-E8MY>].

²¹⁷ McCormick, *supra* note 175.

comprehensive climate action plan that will benefit all Kentuckians.²¹⁸

Although there are many challenges to using the state legislature to produce climate action in Kentucky, it appears that some Republican Kentucky legislators are willing to compromise.²¹⁹ These legislators recognize that Kentucky is falling behind when it comes to climate action, and are willing to work to change fellow Republican lawmakers' minds on the importance of addressing climate change.²²⁰ An example of a potential starting point for these compromises would be to encourage the use of electric cars through tax credits.²²¹ Another way to begin Kentucky's climate action plan could be to implement legislation to protect our electrical grid and ensure its reliability.²²² This could be accomplished through the use of sustainable energy sources, such as installing more rooftop solar panels.²²³ If these two initial steps are taken by the Kentucky legislature, and both the environmental and economic benefits are similar as in California and Virginia, these strategies could lead to a more comprehensive climate plan.²²⁴

As part of the comprehensive plan, the Kentucky legislature should look to establish its own cap-and-trade program. This program would discourage carbon emissions throughout the state and decrease Kentucky's reliance on legacy industries such as the coal industry. Along with cap-and-trade, Kentucky should look to provide incentives for sustainable companies to come to Kentucky, such as the companies mentioned in President Biden's climate action plan.²²⁵ An example of a sustainable agricultural company that has recently come to Kentucky is AppHarvest.²²⁶ This company has already invested \$1 billion in Appalachia and has created hundreds of sustainable jobs for Kentuckians.²²⁷

²¹⁸ *Id.*

²¹⁹ *Id.*

²²⁰ *Id.*

²²¹ Van Velzer, *supra* note 178.

²²² *Id.*

²²³ *Id.*

²²⁴ Morehouse, *supra* note 107; Roberts, *supra* note 143.

²²⁵ *The Biden Plan For A Clean Energy Revolution And Environmental Justice*, BIDEN HARRIS, <https://joebiden.com/climate-plan/#> (last viewed Oct. 19, 2020) [<https://perma.cc/6JTB-C6MU>].

²²⁶ *Impacting Today & Tomorrow*, APPHARVEST, <https://www.appharvest.com/impact> (last viewed Feb. 23, 2021) [<https://perma.cc/4W27-6JNV>].

²²⁷ *Id.*

Additionally, the starting pay for these jobs is 41 percent higher than other comparable jobs in the state, and the company strives to provide other benefits for their employees as well.²²⁸ If Kentucky can provide enough incentives for more companies like AppHarvest to come to the state and provide funding to build sustainable infrastructure, the legislature would be sure to create many jobs which will in turn boost Kentucky's economy. Additionally, these salaries and benefits are likely to make a vast difference in the lives of current Kentucky coal miners who have not been protected by the coal industry.²²⁹

Along with building sustainable infrastructure, the legislature could use the proceeds from the cap-and-trade program to develop community-driven programs to educate and train former coal miners, and to benefit vulnerable communities in the state. For example, like the Virginia plan, funding should be used to assist vulnerable communities in Eastern Kentucky, where the transition from legacy energy to renewable energy will be the most daunting.²³⁰ The legislature has the opportunity to allocate state funds in a way that will benefit Kentucky environmentally and ensure a smooth transition for those Kentuckians who have relied on legacy energies such as coal. The legislature should also look to states like Virginia to assist in developing studies to determine how best to accomplish the environmental and economic goals of the climate action plan. By doing this, Kentucky will be able to develop strategies that will work best for the State and its citizens.

Overall, passing legislation to mitigate and prevent climate change will not only help with the effects of climate change but will also place Kentucky on a level economic playing field with other states who are already competing for green jobs.

CONCLUSION

Kentucky is in desperate need of a solution to climate change, not only for the natural environment, but for the health, safety, and economic well-being of Kentuckians. Legislation that mirrors the Green New Deal, or Virginia's comprehensive climate plan, would allow the state to mitigate and prevent the effects of climate change by incentivizing companies to implement

²²⁸ *Id.*

²²⁹ McCormick, *supra* note 175.

²³⁰ *Id.*

sustainable, renewable energy sources within Kentucky while also boosting Kentucky's economy and infrastructure.