

THE BEACONS ACT: A COMPREHENSIVE ALTERNATIVE TO THE GREEN  
NEW DEAL FOR REDUCING CARBON EMISSIONS IN THE UNITED STATES

by  
Max A. Green

A capstone project submitted to Johns Hopkins University in conformity with the  
requirements for the degree of Master of Arts in Public Management

Baltimore, Maryland  
May, 2019

© 2019 Max A. Green  
All Rights Reserved

## **Abstract**

The United States facing an uncertain economic and environmental future due to the impacts of climate change caused by greenhouse gas emissions, both domestic and foreign. Congressional action on the issue of climate change has been rare, due in part to the lobbying efforts and special interests of the agriculture, transportation, and energy industries. Despite this political reality, there is an opportunity for Congress, even divided, to take critical action on the issue of climate change. Recent efforts, such as the proposed Green New Deal, introduced in the House of Representatives by Rep. Alexandria Ocasio-Cortez (D-NY-14) and in the Senate by Sen. Edward Markey (D-MA), have become partisan flashpoints, garnering little to no support from Republicans and uncertain support from Democrats. A core issue in this political fight is the connection between climate and the economy, especially in the context of the Green New Deal legislation, which seeks to address wealth inequality.

The BEACONS Act, discussed in this capstone, is a proposed legislative alternative to the Green New Deal that cuts, enhances, and reimagines portions of the Green New Deal to create a legislative package that stands a greater chance of gaining bipartisan support. The BEACONS Act focuses solely on the issue of climate change and its impact on major economic sectors, proposing government assistance and new programs to encourage industry to cut greenhouse gas emissions through adopting new technology and best practices. This legislative proposal examines the unique challenges and benefits associated with cutting greenhouse gas emissions in the energy, transportation, agricultural, and commercial sectors of the U.S. economy.

Advisor: Dr. Paul Weinstein

**Table of Contents**

**I. Action Forcing Event**..... 1

**II. Statement of the Problem**..... 1

    Figure 1: How Global Warming Affects RFCs..... 5

**III. History & Background** ..... 6

**IV. Policy Proposal**..... 16

**V. Policy Analysis** ..... 21

    i. Greenhouse Gas Emission Reductions and Moving to Renewable Energy by 2035  
    in the BEACONS Act ..... 21

        Figure 2. U.S. Greenhouse Gas Emissions by Economic Sector, 1990-2017 ..... 22

        Figure 3. Historical LCOE Comparison Reveals Dramatic Declines for Wind and  
        Solar ..... 24

    ii. Building Resiliency Against Climate Change-Related Disasters with BEACONS  
    26

        Figure 4. Billion-Dollar Disaster Event Types by Year (CPI-Adjusted) ..... 28

    iii. Energy Efficient Commercial Buildings Through the BEACONS Act..... 29

        Figure 5. Proposed Tax Savings Under New EPACT Standards..... 30

    iv. Addressing Agricultural Greenhouse Gas Emissions with the BEACONS Act.... 32

    v. Transportation Policy Considerations Under the BEACONS Act ..... 35

**VI. Political Analysis**..... 40

**VII. Recommendation:** ..... 50

## **MEMORANDUM**

To: Senate Minority Leader Chuck Schumer (D-NY)

From: Max Green

Date: 14 May 2019

RE: Democratic Support of a Reworked Green New Deal – The BEACONS Act

### **I. Action Forcing Event**

On February 7<sup>th</sup>, Rep. Alexandria Ocasio-Cortez (D-NY-14) and Sen. Edward Markey (D-MA) introduced legislation in both chambers of Congress to push for the creation of a Green New Deal by the Federal Government.<sup>1</sup> The bill calls for the U.S. government to achieve net-zero greenhouse gas emissions; establish millions of high-wage jobs and ensure economic security for all; and invest in infrastructure and industry, among other proposals.<sup>2</sup>

### **II. Statement of the Problem**

The Intergovernmental Panel on Climate Change (IPCC) and the November 2018 Fourth National Climate Assessment report provide incredible detail on the scope of our national and global climate issues. The IPCC's October 2018 report entitled "Special Report on Global Warming of 1.5 °C" found that human activity, specifically emissions from burning fossil fuels and deforestation, is the dominant cause of observed climate change over the past century and estimated to have caused approximately 1.0°C of global

---

<sup>1</sup> Markey, Senator Edward J. "S.Res.59 - A resolution recognizing the duty of the Federal Government to create a Green New Deal." 07 February 2019. Accessed 07 February 2019. *Congress.gov*.

<https://www.congress.gov/bill/116th-congress/senate-resolution/59?q=%7B%22search%22%3A%22green+new+deal%22%7D&s=1&r=1>.

<sup>2</sup> Rep. Ocasio-Cortez, Alexandria. "H.Res.109 – Recognizing the duty of the Federal Government to create a Green New Deal." 07 February 2019. Accessed 07 February 2019. *Congress.gov*.

<https://www.congress.gov/bill/116th-congress/house-resolution/109?q=%7B%22search%22%3A%22green+new+deal%22%7D&s=1&r=2>.

warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Additionally, the IPCC estimates with high confidence that global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.<sup>3</sup>

The IPCC has also concluded with medium confidence that the warming caused by anthropogenic emissions (including greenhouse gases, aerosols, and their precursors) from the pre-industrial period to the present will persist for millennia. The IPCC is highly confident that these pre-existing emissions will cause further long-term changes in the climate, but find it unlikely that these emissions will cause global warming of 1.5° C. <sup>4</sup>

Climate changes caused by recent (20<sup>th</sup> century) and current emissions have already had impacts on natural and human systems, including water, transportation, energy, wildlife, agriculture, ecosystems, and human health. According to the U.S. Global Change and Research Program's "Climate Change Impacts in the United States" report, the most extreme and directly observable effects of global warming are weather-related. The length of frost-free season and corresponding growing season has been increasing nationally since the 1980s, with the largest increases occurring in the western United States., affecting ecosystem and agriculture. Average U.S. precipitation has increased since 1990, but there have also been localized increases that exceed the national average and some areas have seen decreases. Generally, more precipitation has occurred in the northern U.S. and less has occurred in the southern U.S. over the past 30 years.

---

<sup>3</sup> Intergovernmental Panel on Climate Change. "Global Warming of 1.5° C - Summary for Policymakers." 15 January 2019. Accessed 07 February 2019. *IPCC*.

[https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15\\_SPM\\_version\\_stand\\_alone\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf).

<sup>4</sup> *ibid.*

Heavy downpours are increasing nationally, especially over the last three to five decades, with the largest increases in the Midwest and Northeast.<sup>5</sup>

According to the U.S. Global Change Research Program, extreme weather events over the last several decades have also changed, with heat waves becoming more frequent and intense, cold waves becoming less frequent and intense, droughts have become more extreme in areas in the West, and flooding has become more extreme on the coasts. The intensity, frequency, and duration of North Atlantic hurricanes, as well as the frequency of the strongest (Category 4 and 5) hurricanes, have all increased since the early 1980s. Winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward over the United States. Other trends in severe storms, including the intensity and frequency of tornadoes, hail, and damaging thunderstorm winds, are uncertain and are being studied intensively.<sup>6</sup>

Global sea levels and ice volume are also impacted by the current global warming emissions. Global sea level has risen by more than 8 inches since reliable record keeping began in 1880 and are projected to rise another 1 to 4 feet by 2100. Rising temperatures are reducing ice volume and surface extent on land, lakes, and sea. This pattern will only continue as the Arctic Ocean is expected to become essentially ice free in summer before 2050. The oceans are currently absorbing about a quarter of the carbon dioxide emitted to

---

<sup>5</sup> Walsh, J., et al. "Climate Change Impacts in the United States." October 2014. Accessed 8 February 2019. *U.S. Global Change Research Program*. [http://s3.amazonaws.com/nca2014/low/NCA3\\_Full\\_Report\\_02\\_Our\\_Changing\\_Climate\\_LowRes.pdf?download](http://s3.amazonaws.com/nca2014/low/NCA3_Full_Report_02_Our_Changing_Climate_LowRes.pdf?download).

<sup>6</sup> *ibid.*

the atmosphere annually and are becoming more acidic as a result, leading to concerns about intensifying impacts on marine ecosystems.<sup>7</sup>

Climate-related risks for natural and human systems are only going to become more extreme and difficult to mitigate the longer that industrialized nations, especially the United States, do not take meaningful action to curb climate change. Absent stopping emissions, mitigating emissions will also help long term. In example, a slower rate of sea level rise enables greater opportunities for adaptation in the human and ecological systems of small islands, low-lying coastal areas and deltas. Similarly, on land, impacts on biodiversity and ecosystems, including species loss and extinction, are projected to be lower at 1.5° C of global warming compared to 2° C. Limiting global warming to 1.5° C compared to 2° C is projected to lower the impacts on terrestrial, freshwater and coastal ecosystems and to retain more of their services to humans. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.<sup>8</sup>

According to the IPCC report and the November 2018 Fourth National Climate Assessment report, there a number of other predictions regarding the impacts of global warming at or above 2°C beyond pre-industrial levels, many of which are directly related to the aforementioned impact. These include: mass migration from the regions most affected by climate change; more than \$500,000,000,000 in lost annual economic output

---

<sup>7</sup> Walsh, J., et al. "Climate Change Impacts in the United States." October 2014. Accessed 07 February 2019. *U.S. Global Change Research Program*. [http://s3.amazonaws.com/nca2014/low/NCA3\\_Full\\_Report\\_02\\_Our\\_Changing\\_Climate\\_LowRes.pdf?download](http://s3.amazonaws.com/nca2014/low/NCA3_Full_Report_02_Our_Changing_Climate_LowRes.pdf?download).

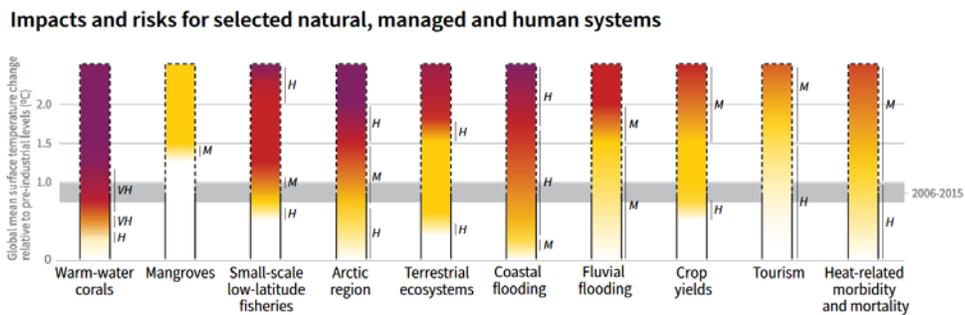
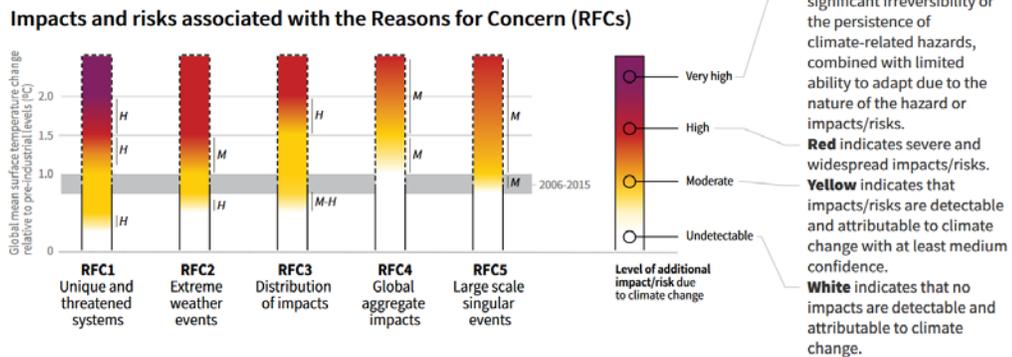
<sup>8</sup> Intergovernmental Panel on Climate Change. "Global Warming of 1.5° C - Summary for Policymakers." 15 January 2019. Accessed 07 February 2019. *IPCC*. [https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15\\_SPM\\_version\\_stand\\_alone\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf).

in the United States by the year 2100; wildfires that, by 2050, will annually burn at least twice as much forest area in the western United States than was typically burned by wildfires in the years preceding 2019; a loss of more than 99 percent of all coral reefs on Earth; more than 350,000,000 more people to be exposed globally to deadly heat stress by 2050; and a risk of damage to \$1 trillion of public infrastructure and coastal real estate in the United States.<sup>9</sup>

Figure 1: How Global Warming Affects RFCs<sup>10</sup>

**How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems**

Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.



<sup>9</sup> Rep. Ocasio-Cortez, Alexandria. "H.Res.109 – Recognizing the duty of the Federal Government to create a Green New Deal." 07 February 2019. Accessed 06 March 2019. <https://www.congress.gov/bill/116th-congress/house-resolution/109?q=%7B%22search%22%3A%22green+new+deal%22%7D&s=1&r=2>.

<sup>10</sup> Intergovernmental Panel on Climate Change. "Global Warming of 1.5° C - Summary for Policymakers." 15 January 2019. Accessed 07 February 2019. [https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15\\_SPM\\_version\\_stand\\_alone\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf).

### **III. History & Background**

In the 1950s, a number of geopolitical, scientific, and technological developments began to lay the groundwork for climate issues and the role that humans played in climate. Basic atmospheric science advances post-World War II shed light on the mechanisms of large-scale circulation of the atmosphere, including the measurement and role of carbon dioxide in the atmosphere, as a result of the 1957 International Geophysical Year.<sup>11</sup> Additionally, climatologists and scientists began to consider how new, Earth-orbiting satellites and the advent of digital computers could be utilized, along with new partnership through organizations like the United Nations, to address important global issues.

In 1961, the United Nations General Assembly called on the World Meteorological Organization (WMO) and the International Council for Science to develop new ways to monitor, predict, and eventually control the weather and climate. Through this resolution, the Global Atmospheric Research Program (GARP) and the WMO World Weather Watch were developed to help provide basic global infrastructure for supporting weather forecasting and describing and monitoring the climate.<sup>12</sup>

Under the Nixon administration, the U.S. saw some movement toward studying meteorology and climate, though none of it was focused on modern climate change. In fact, President Nixon was the first president since Teddy Roosevelt to take broad action to protect the environment. In 1969, President Nixon signed into law the National

---

<sup>11</sup> The National Academies of Science. "The International Geophysical Year." 20 January 2005. Accessed 06 March 2019. *NAS.edu*. <http://www.nas.edu/history/igy/>

<sup>12</sup> Davies, Sir Arthur. "1990: Forty Years of Progress and Achievement. A Historical Review of WMO." 15 July 1990. Accessed 06 March 2019. *WMO.int*. [https://library.wmo.int/pmb\\_ged/wmo\\_721\\_en.pdf](https://library.wmo.int/pmb_ged/wmo_721_en.pdf)

Environmental Protection Act (NEPA), which required federal agencies to incorporate environmental considerations into all government decision-making, resulting in the widespread use of Environmental Assessments (EAs) and Environmental Impact Statements (EISs). NEPA also established the President's Council on Environmental Quality. While NEPA does not explicitly state that anthropomorphic climate change is occurring, it does acknowledge that humans have an impact on the natural world, including pollution and the destruction of species and the environment.<sup>13</sup>

In 1970, President Nixon established both the Environmental Protection Agency (EPA), which was a result of heightened public concerns about deteriorating city air, natural areas littered with debris, and urban water supplies contaminated with dangerous impurities. The aforementioned President's Council on Environmental Quality was also critical in the inception of the EPA, arguing that the agency should seek to centralize and consolidate the various environmental activities of the federal government and have wide-ranging powers to set air and water quality standards.<sup>14</sup> That same year, Nixon also established the National Oceanic and Atmospheric Administration (NOAA) in order to better protect life and property from natural disasters; help better understand the environment; and to explore and develop intelligent uses of marine resources.<sup>15</sup> President Nixon also signed into law the Clean Air Act (1970), Clean Water Act (1971), and Endangered Species Act (1972), all of which are critical to understanding the historical context of government protection for protecting the environment and, by extension,

---

<sup>13</sup> Schemp, Adam. "National Environmental Policy Act (NEPA)." 01 January 2019. Accessed 06 March 2019. *Environmental Law Institute*. <https://www.eli.org/land-biodiversity/national-environmental-policy-act-nepa>.

<sup>14</sup> Environmental Protection Agency. "The Origins of the EPA." 06 March 2019. Accessed 06 March 2019. *EPA.gov*. <https://www.epa.gov/history/origins-epa>.

<sup>15</sup> National Oceanic and Atmospheric Administration. "Our History." 06 March 2019. Accessed 06 March 2019. *NOAA.gov*. <https://www.noaa.gov/our-history>.

fighting climate change. Each of these environmental policies received widespread bipartisan support.<sup>16</sup>

The first formal, governmental acknowledgement of manmade climate change was at the World Climate Conference in Geneva in 1979. This acknowledgement was contained within the United Nations World Meteorological Organization's report *Declaration of the World Climate Conference*. The report appealed for all nations to "foresee and to prevent potential man-made changes in climate that might be adverse to the well-being of humanity." Furthermore, the report recognized that all countries are vulnerable to climatic variations, especially extreme events such as droughts and floods, which impact key aspects of human life – food, water, energy, shelter, and health. It further recognized that global climate is interdependent on the actions of each individual nation and that in order to address climate, there must be a shared, global strategy. This was also the first international report to state, with some confidence, that the burning of fossil fuels, deforestation, and changes in land use had increased the amount of carbon dioxide in the atmosphere by approximately 15% over the last century. The report linked carbon dioxide to climate, stating that it "plays a fundamental role in determining the temperature of the earth's atmosphere... [and] can contribute to a gradual warming of the lower atmosphere."<sup>17</sup>

While the UN's 1979 report called for additional research into the mechanisms of climate, encourage the acquisition and availability of climatic data, and increased study

---

<sup>16</sup> Augustyn, Adam. "Richard Nixon." 06 March 2019. Accessed 06 March 2019. *Encyclopedia Britannica*. <https://www.britannica.com/biography/Richard-Nixon>.

<sup>17</sup> UN World Meteorological Organization. "Declaration of the World Climate Conference." 23 February 1979. Accessed 06 March 2019. *Deutsche Gesellschaft für die Vereinten Nationen e. V.* [https://dgvn.de/fileadmin/user\\_upload/DOKUMENTE/WCC-3/Declaration\\_WCC1.pdf](https://dgvn.de/fileadmin/user_upload/DOKUMENTE/WCC-3/Declaration_WCC1.pdf).

into the impacts of climatic variability and change on human activities, scientific endeavors were largely unsupported in the United States. JASON, an independent scientific advisory group that provides consulting services to the U.S. government on matters of defense science and technology, was formed in 1960, was one of the few government entities to study climate change. Their “Long Term Impact of Atmospheric Carbon Dioxide on Climate: Preliminary Report” (1979), JSR-78-07, and (1980) JSR-79-04, reasserted to policy makers that global warming might have serious consequences.<sup>18</sup> Subsequently, Rafe Pomerance, a lobbyist for the environmentalist group Friends of the Earth, worked with a chief author of the JASON report, Gordon MacDonald, to host a series of briefings in Washington, DC on the issue of climate change and work directly with the President’s Science Advisor, geophysicist Frank Press. They soon enlisted the help of Roger Revelle, a leading government scientist who, since working on the Manhattan Project, had advised each president on issues of science policy. Revelle had even presented his early findings on carbon dioxide and man’s effect on climate change to President Lyndon Johnson, who included them in a special message to Congress just two weeks after his inauguration.<sup>19</sup> In the wake of this renewed push, and the Saudi Oil crisis, the U.S. saw some movement on climate. In 1979, President Jimmy Carter installed the first solar panels on the White House, but by 1981, President Reagan had ordered them removed – a sign of the politicization of climate science.<sup>20</sup>

---

<sup>18</sup> MacDonald, G. et al. “Long term impact of atmospheric carbon dioxide on climate. Technical report JSR-78-07.” 04 April 1979. Accessed 12 March 2019. *Department of Defense – JASON*. <https://fas.org/irp/agency/dod/jason/co2.pdf>.

<sup>19</sup> Rich, Nathaniel. “Losing Earth: The Decade We Almost Sopped Climate Change.” 01 August 2018. Accessed 12 March 2019. *New York Times Magazine*. <https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html>.

<sup>20</sup> Murse, Tom. “A Brief History of White House Solar Panels.” 21 January 2019. Accessed 12 March 2019. *ThoughtCo*. <https://www.thoughtco.com/history-of-white-house-solar-panels-3322255>.

Under President Reagan, the fledgling field of climate science, and manmade climate change, specifically, saw dramatic upheaval. Soon after the election, Reagan considered closing the Energy Department, increase coal production on federal land, and regulate surface mining. More broadly, Reagan saw the EPA, Department of Energy, and other agencies focused on climate and the dangers of carbon emissions as creating unnecessary red tape that stifled America's energy independence and put undue burden on domestic oil, natural gas, and coal operations. Reagan appointed James Watt, a legal advocate for opening public lands to mining and drilling, as Secretary of the Interior Department. Similarly, Reagan selected Anne Gorsuch, an anti-regulation advocate, to head the EPA. The once-influence President's Council on Environmental Quality urged the administration that fossil fuels could "permanently and disastrously" alter Earth's atmosphere, leading to "a warming of the Earth, possibly with very serious effects." In response, Reagan considered eliminating the council. Reagan was determined to reverse the environmental achievements of Jimmy Carter, Richard Nixon, Lyndon Johnson, John F. Kennedy and Theodore Roosevelt.<sup>21</sup>

In many instances, Congress fought against Reagan's efforts, with Republicans and Democrats heavily critiquing the administration's policies. In example, during the confirmation hearings of Mrs. Gorsuch to the EPA, Senator Robert T. Stafford, a Republican from Vermont, took to the dais to reiterate the importance and responsibility of Mrs. Gorsuch to ensure the protection of the nation's air and water.<sup>22</sup> Political pressure

---

<sup>21</sup> Rich, Nathaniel. "Losing Earth: The Decade We Almost Sopped Climate Change." 01 August 2018. Accessed 12 March 2019. *New York Times Magazine*.

<https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html>.

<sup>22</sup> Staff. "Confirmation Seems Likely for Administrator of E.P.A." 02 May 1981. Accessed 12 March 2019. *New York Times*. <https://www.nytimes.com/1981/05/02/us/confirmation-seems-likely-for-administrator-of-epa.html>.

on the administration stayed consistent, thanks in part to media coverage of climate issues. An August 22, 1981 article in *The New York Times* brought specific attention to the “greenhouse effect.” The article described that seven NASA scientists had predicted global warming of "almost unprecedented magnitude" in the next century. They warned that it may be sufficient to melt and dislodge the ice cover of West Antarctica, eventually leading to a worldwide rise of 15 to 20 feet in the sea level. In that case, they said, it would "flood 25 percent of Louisiana and Florida, 10 percent of New Jersey and many other lowlands throughout the world" within a century or less. The scientists also predicted that carbon dioxide emissions could lead to temperature increases of 5 to 9 degrees if sustained over the next century.<sup>23</sup>

In light of these and other articles, some legislators continued to stay focused on the issue of climate change. In July 1981, Representatives James Scheur (D-NY) and a 33-year-old Albert Gore, Jr. (D-TN), held congressional hearings on the greenhouse effect. Gore was a student of Revelle at Harvard and believed strongly in the issue of climate change, lobbying to create an oversight subcommittee within the House’s Committee on Science and Technology, which he ended up chairing, in order to keep public and congressional attention on the issue. From this position, Rep. Gore held weekly hearings on climate issues. While some colleagues disagreed with Gore, others, such as William Carney, a Republican from New York, bemoaned the burning of fossil fuels and argued passionately that science should serve as the basis for legislative

---

<sup>23</sup> Sullivan, Walter. "Study Finds Warming Trend That Could Raise Sea Levels." 02 August 1981. Accessed 12 March 2019. *The New York Times*. <https://www.nytimes.com/1981/08/22/us/study-finds-warming-trend-that-could-raise-sea-levels.html>.

policy.<sup>24</sup> This tension between these groups continued in Congress, reaching another boiling point in 1987, when the hole in the ozone layer captured public opinion. While a 1977 ban on “spray can” chemicals had held the public at bay for some years, new research by the National Climate Program Office showed that the hole was growing at an alarming rate as a result of industrial emissions. This prompted the U.S. and other international governments to sign an international treaty, the Montreal Protocol, which further restricted the production of ozone destroying chemicals. When then-Senator Gore ran for president in 1987-88, he drew more attention to the ozone issue during a televised debate with other Democratic candidates.<sup>25</sup>

Following the success of the Montreal Protocol, the U.S. Department of State and EPA became committed to international environmental cooperation and pushed for the creation of the Intergovernmental Panel on Climate Change in 1988. The IPCC began releasing a series of reports on greenhouse gases and climate change, acting as the official climate advisor to the U.S. government. President George H.W. Bush supported the IPCC through funding, but did not push any policy, often pointing to scientific uncertainty about global warming.<sup>26</sup> In 1992, world leaders prepared for the world’s first “Earth Summit” in Rio de Janeiro. Officially, the UN Conference on Environment and Development, sought to curb global carbon emissions. While Bush gave a speech that committed the U.S. to work on the issue of greenhouse gases, the U.S. did not make any

---

<sup>24</sup> Rich, Nathaniel. “Losing Earth: The Decade We Almost Sopped Climate Change.” 01 August 2018. Accessed 12 March 2019. *New York Times Magazine*.

<https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html>.

<sup>25</sup> Roan, Sharon. “Ozone Crisis: The 15-Year Evolution of a Sudden Global Emergency.” 1989. Accessed 12 March 2019. *New York: Wiley*. <https://www.worldcat.org/title/ozone-crisis-the-15-year-evolution-of-a-sudden-global-emergency/oclc/18981490>.

<sup>26</sup> Union of Concerned Scientists. “The IPCC: Who Are They and Why Do Their Climate Reports Matter?” 11 October 2018. Accessed 12 March 2019. *Union of Concerned Scientists*. <https://www.ucsusa.org/global-warming/science-and-impacts/science/ipcc-backgrounder.html>.

major policy changes to support the effort and, in fact, greenhouse emissions continued to climb in the U.S.<sup>27</sup>

Under the Clinton administration in the mid-90s, Vice President Al Gore was one of the few forces in U.S. politics pushing for climate action. In 1993, he persuaded the President to endorse a “Climate Change Action Plan,” which formally committed the U.S. to the goals set during the Earth Summit in Rio. Despite this effort, few in Congress supported climate change, resulting in almost no bills related to climate change being introduced during the mid-90s.<sup>28</sup> In 1997, international pressure around climate change rose again, leading to the Kyoto Conference. In preparation for the meeting, some U.S. corporation and right-wing think tanks launched concentrated publicity efforts focused on the idea of taxes on emissions, which, they argued, would lead to high gasoline prices. These groups also argued that any agreement to the outcomes of the Kyoto Conference would put the U.S. at an economic disadvantage, unless all countries agreed to the same emissions reductions. The U.S. Senate preemptively held a vote and agreed to reject any treaty that did not set limits for developing countries (95-0).<sup>29</sup>

It was not until the 108<sup>th</sup> Congress (2003-2004) that bipartisan efforts in Congress to reduce U.S. greenhouse gas emissions gained traction. The McCain-Lieberman Climate Stewardship Act, which failed in the Senate (43-55), was the first major congressional attempt to address global warming. The bill sought to cap CO<sub>2</sub> emissions in

---

<sup>27</sup> Wines, Michael. “The Earth Summit; Bush Leaves Rio with Shots at Foreign and U.S. Critics.” 14 June 1992. Accessed 12 March 2019. *The New York Times*. <https://www.nytimes.com/1992/06/14/world/the-earth-summit-bush-leaves-rio-with-shots-at-foreign-and-us-critics.html>.

<sup>28</sup> Stevens, William K. “The Change in the Weather. People, Weather and the Science of Climate.” 1999. Accessed 12 March 2019. *New York: Delacorte Press*. <https://trove.nla.gov.au/work/32711345?selectedversion=NBD20292983>.

<sup>29</sup> Dewar, Helen; Sullivan, Kevin. “Senate Republicans Call Kyoto Pact Dead.” 11 December 1997. Accessed 12 March 2019. *The Washington Post*. <https://www.washingtonpost.com/wp-srv/inatl/longterm/climate/stories/clim121197b.htm?noredirect=on>.

2010 at the 2000 levels. Additionally, it would have instituted a cap-and-trade program to reduce emissions from various sectors of the economy, representing nearly 85 percent of U.S. emissions in total.<sup>30</sup> Other failed iterations of the bill were subsequently introduced in 2005 and 2007. In 2007, the EPA was ordered to publish a rule requiring public reporting of greenhouse gas emissions from major sources – the Greenhouse Gas Reporting Program. These annual datasets present data by sector, state, and geographic region.<sup>31</sup> The Supreme Court weighed in on the EPA’s role in regulating “pollution,” as stated in The Clean Air Act of 1970, during 2007. The case, *Massachusetts v. Environmental Protection Agency*, asked whether the EPA could decline to issue emission standards for moto vehicles and whether the Clean Air Act gave the EPA authority to regulate carbon dioxide and other greenhouse gases. In a 5-4 decision, the Supreme Court ruled that the Act’s definition of air pollutant was written with "sweeping," "capacious" language so that it would not become obsolete, meaning that the EPA did have authority to regulate greenhouse gases if they posed a danger to the public.<sup>32</sup>

Movement on the issue of climate change was rapid and broad under President Barack Obama, who made climate and energy a top campaign issue during his election. In 2009, the House of Representatives passed the American Clean Energy and Security Act of 2009, which would have established a greenhouse gas cap-and-trade system for the entire U.S., although it failed in the Senate. The American Clean Energy Leadership Act

---

<sup>30</sup> Little, Amanda. “The climate bill lout out, but the environment may yet prove the winner.” 05 November 2003. Accessed 12 March 2019. *Grist.org*. <https://grist.org/article/thrill/>.

<sup>31</sup> U.S. Environmental Protection Agency. “Greenhouse Gas Reporting Program (GHGRP).” 25 March 2019. Accessed 25 March 2019. *EPA.gov*. <https://www.epa.gov/ghgreporting/key-facts-and-figures>.

<sup>32</sup> Oyez. “Massachusetts v. Environmental Protection Agency.” *Oyez.org*. 02 March 2019. Accessed 02 March 2019. [www.oyez.org/cases/2006/05-1120](http://www.oyez.org/cases/2006/05-1120).

of 2009, which also failed to pass, would have established a renewable energy standard. Bipartisan efforts also saw some momentum during this time. In May 2010, John Kerry (D-MA), Joseph Lieberman (I-CT), and Lindsey Graham (R-SC) drafted the American Power Act, which would have established a cap-and-trade system for utilities and industry, and a fee for transportation fuels. Similarly, Maria Cantwell (D-WA) and Susan Collins (R-ME) introduced legislation, the Carbon Limits and Energy for America's Renewal Act, which would have capped CO<sub>2</sub> emissions while allowing very limited emissions trading, and rebating the revenue from this system directly back to the public on a per capita basis. Lisa Murkowski (R-AK) and Richard Lugar (R-IN) introduced the Practical Energy and Climate Plan, intended to reduce oil imports, improve and create new efficiency standards, and establish a clean energy standard. In the wake of these efforts, some expected Senate Majority Leader Harry Reid (D-NV) to introduce comprehensive legislation to address climate change, but the proposed plan lacked bipartisan support during the 111<sup>th</sup> Congress.<sup>33</sup>

More recently, climate change has become a major issue in presidential politics, with many pundits believing that it could be a major issue in the 2020 campaign due to the wildfires, droughts, and flooding that are gripping areas across the country. In fact, many of the best-known Democratic presidential candidates have expressed their public support for the deal, including Senators Kamala Harris (D-CA), Elizabeth Warren (D-MA), Cory Booker (D-NJ), Kirsten Gillibrand (D-NY), Jeff Merkley (D-OR), and Bernie

---

<sup>33</sup> Center for Climate and Energy Solutions. "Congress Climate History." 05 June 2016. Accessed 25 March 2019. C2ES.org. <https://www.c2es.org/content/congress-climate-history/>.

Sanders (Independent Socialist—VT) <sup>34</sup> International pressure has also put the U.S. under increased scrutiny. In example, President Trump withdrew the U.S. from the Paris Climate Accord, which Obama had helped create in 2015. At present, this leaves the U.S. as the only country in the world that is not a signatory of the agreement, which aims to cut global greenhouse gas emissions. <sup>35</sup>

#### **IV. Policy Proposal**

A two-prong approach to implementing the Green New Deal or, at the very least, aspects of it related to CO<sub>2</sub> emissions and curbing global warming is the most feasible approach. The first and primary goal of this proposal is to create a piece of legislation that will address the most immediate climate issues facing our nation and the world, which also can pass the House and Senate, which will require bipartisan support. More clearly, the legislation should halt emissions in the immediate future (through 2030) and lead to decreases in emissions by 2040, with the greatest focus being on the power sector, which is also the greatest contributor to emissions in the U.S. Additionally, it should focus on infrastructure upgrades that help all communities, rural and urban, to adapt to the demands of a changing climate. The second prong is more informal and separate congressional and executive action that forces agencies to better implement monitoring and enforcement of existing and new laws to deal with the “secondary” issues of climate change, such as industrial waste, agricultural runoff, and air quality.

---

<sup>34</sup> Worland, Justin. “Wildfires, Flooding and Droughts Could Make Climate Change an Issue in 2020. Some Are Pushing for It to Be the Top One.” 05 March 2019. Accessed 25 March 2019. *TIME*. <http://time.com/5543102/2020-election-climate-change/>.

<sup>35</sup> Friedman, Lisa. “Syria Joins Paris Climate Accord, Leaving Only U.S. Opposed.” 07 November 2017. Accessed 25 March 2019. *The New York Times*. <https://www.nytimes.com/2017/11/07/climate/syria-joins-paris-agreement.html>.

Based on the fact that the first and most recent Green New Deal proposal was voted down in the Senate (57-0), the proposal must be reworked. Aside from all Republican Senators voting against the resolution, Senators Joe Manchin (D-WV), Krysten Sinema (D-AZ), Doug Jones (D-AL), and Angus King (I-VE) also voted against the measure, citing concerns about the broad and extreme goals that it proposes. The Democratic response to the failure was to propose a new resolution that only acknowledges that manmade climate change is a scientific fact and that the government should take action on it.<sup>36</sup> The full text of the measure is included below:

“That it is the sense of Congress that—

(1) climate change is real; (2) human activity during the last century is the dominant cause of the climate crisis; and (3) the United States and Congress should take immediate action to address the challenge of climate change.”

The Green New Deal, as it is, is simply too expansive to receive widespread support, and the proposed alternative, above, is too brief and does not suggest substantive action to address the problem of climate change. The portions of the bill that should remain are specific to climate change, staying away from broader economic issues. Many of the climate-oriented goals, however, also need to be less stringent and more realistic. The portion of the bill that states there is a “4-decade trend of wage stagnation, deindustrialization, and anti-labor policies...” and continues to discuss hourly wage issues, the Great Recession, and the erosion of collective bargaining and workers’ rights is one such example of an issue that is outside of the reasonable scope of a proposal to

---

<sup>36</sup> Meyer, Robinson. “The 3 Democrats Who Voted Against the Green New Deal.” 26 March 2019. Accessed 26 March 2019. *The Atlantic*. <https://www.theatlantic.com/science/archive/2019/03/climate-change-which-democrats-oppose-green-new-deal/585802/>.

address climate. Similarly, the broad discussions of growing income inequality, gender and minority earnings gaps as compared to white males, and other economic issues also does not build bipartisan support for the bill. To that extent, these proposals should be taken up in a separate bill and the Green New Deal should be substantially limited in scope to government action on climate change, not income inequality and economic issues.

Put simply, there are a number of components to the Green New Deal that could be redeveloped into a separate legislative package focusing solely on the issue of climate change, all of which should be set on a slightly longer timeframe than the current “10-year national mobilization effort” that is suggested by the legislation. Broadly speaking, most goals should have timelines that are specifically catered to the challenges of undertaking them. Additionally, no goal timeline should surpass 2040, based on the aforementioned critical date of 2050, by which there would be significant ocean level increase and warming if there is no change in U.S. and international policy. The name for this new proposal should be the Bipartisan Effort to Address Climate and Offer New Solutions (BEACONS Act).

First, the legislation should hold greenhouse gas emissions across all sectors to no greater than current levels through 2025, as opposed to the more drastic net-zero level suggested by the Green New Deal. By 2027, emissions in power and transportation sectors must be reduced by 10% of current levels and by 2030, they must be decreased by 20% of current levels. After 2030, the legislation would require examination of the costs associated with the reductions and develop guidance for other sectors on best practices

for reducing emissions. The goal would be to provide a road map for industry, agriculture, and other sectors to reduce their emissions by half by 2035.

Second, as suggested by the Green New Deal, the U.S. should focus on building resiliency against climate change-related disasters, such as extreme weather, including by leveraging funding and providing investments for community-defined projects and strategies, which should include repairing and upgrade infrastructure to ensure universal access to clean water and reducing the risks posed by climate impacts.

Third, the U.S. should meet 100 percent power demand through clean, renewable, and zero-emission energy sources, including by dramatically expanding and upgrading renewable power sources and by deploying new capacity by 2035. As part of this goal, the U.S. should also make upgrades to the U.S. power grid for the dual purposes of maximizing energy efficiency and affordable access to electricity, as well as securing our nation's power grid from potential threats.

Fourth, the government should implement new standards for new commercial/industrial buildings in the U.S. to ensure higher water and electric efficiency. This program should also rework and extend the benefits of the Energy Policy Act of 2005 (EPACT), which offers a tax deduction of \$1.80 per square foot for buildings that save at least 50% of the heating and cooling energy of a system or building that meets ASHRAE Standard 90.1-2007.<sup>37</sup> It is recommended that the efficiency of buildings that qualify for this tax credit be raised to 70% and the tax credit be raised by \$.60 to \$2.40.

---

<sup>37</sup> U.S. Department of Energy. "Tax Incentives for Energy Efficiency Upgrades in Commercial Buildings." 04 March 2019. Accessed 26 March 2019. *Energy.gov*. <https://www.energy.gov/eere/buildings/tax-incentives-energy-efficiency-upgrades-commercial-buildings>.

This program would phase in the requirement by first providing the full benefit up until 2025, then requiring buildings meet the standard by 2030, while slowly phasing out the benefit in each year leading to 2030.

Fifth, just as the Green New Deal currently suggests, the federal government should work collaboratively with farmers and ranchers in the United States to remove pollution and greenhouse gas emissions from the agricultural sector as much as is technologically feasible, including by supporting family farming; by investing in sustainable farming and land use practices that increase soil health; and by building a more sustainable food system that ensures universal access to healthy food. These steps should be supported through targeted subsidies to farmers and should focus on shifting the U.S. agricultural subsidy system toward more efficient use of farmland, overall.

Sixth, as suggested by the current legislation, the government should focus on overhauling transportation systems in the United States to remove pollution and greenhouse gas emissions from the transportation sector as much as is technologically feasible, including through investment in zero-emission vehicle infrastructure and manufacturing via increased tax credits for consumers purchasing electric and alternative fuel vehicles through 2025; and clean, affordable, and accessible public transit by helping struggling localities through grants and no-interest loans from the federal government to replace aging gas-powered bus fleets with electric buses.

This redesign and repackaging of the Green New Deal as the BEACONS Act will focus on less partisan issues as opposed to labor laws and wealth disparity, which are secondary to the most pressing issues facing our country and planet in the wake of the aforementioned extreme weather events caused by climate change.

The BEACONS Act should be introduced with complimentary bills in both the House and Senate, which should be cosponsored in a bipartisan effort with Republican Senators that have shown some support for action to curb global warming in the past. In the Senate, Senators Susan Collins (R-ME) and Edward Markey (D-MA) are potential sponsors of the legislation. In the House, Representatives Alexandria Ocasio-Cortez (D-NY-14) and Brian Fitzpartick (R-PA-1) are potential sponsors.

Separate from this concerted, legislative action, the Democratic Party should focus on pushing agencies such as the EPA to better monitor and enforce environmental standards. Similarly, the U.S. Armed Forces and Department of Energy should increase efforts to clean up hazardous materials across the U.S. The actions are important, but should not be prioritized at the same level of aforementioned, recommended legislative action in the form of a redesigned Green New Deal.

**V. Policy Analysis**

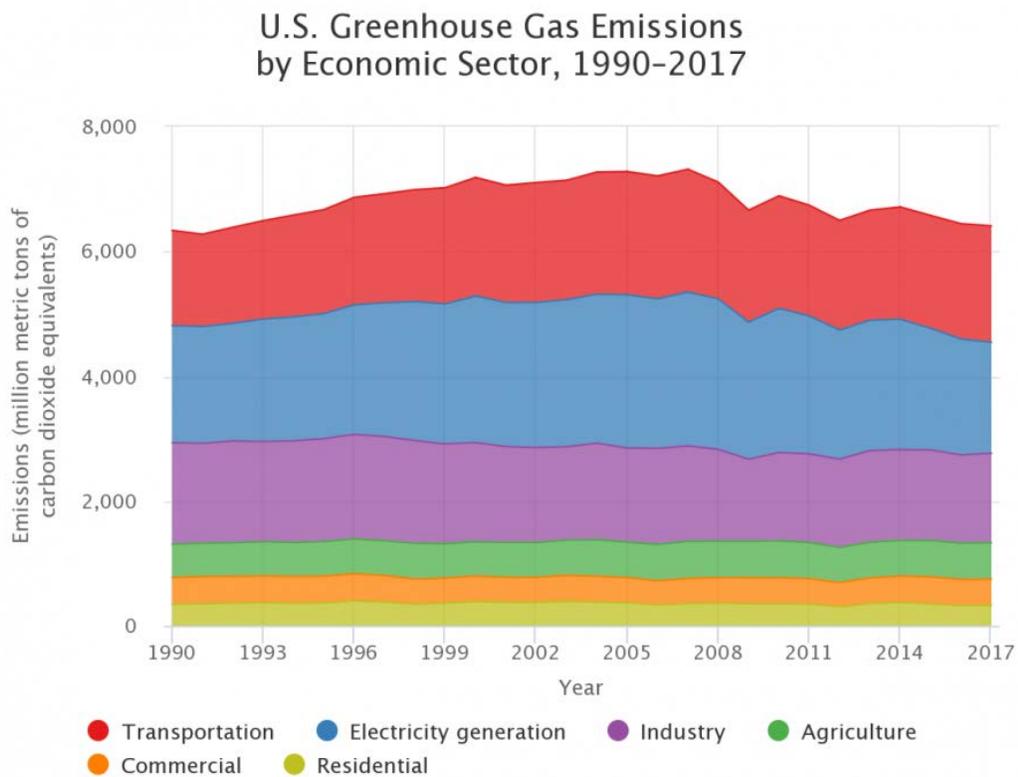
***i. Greenhouse Gas Emission Reductions and Moving to Renewable Energy by 2035 in the BEACONS Act***

The first portion of the proposal is to hold greenhouse gas emissions across all sectors to no greater than current levels through 2025, as opposed to the more drastic net-zero level suggested by the Green New Deal. By 2030, emissions in power and transportation sectors must reduce emissions by 20% each, with a 10% requirement by 2027.

First, this goal is reasonable. In layman's terms, it allows all major sectors (transportation, electricity, industry, commercial & residential, and agriculture) to

continue what they are currently doing in terms of operations and greenhouse emissions for the short term, giving them time to plan and implement reduction strategies by 2025. Additionally, this lead time allows for sufficient planning of reduction strategies over the course of 2025-30, power and transportation sectors could implement new technology required for meeting these requirements.

Figure 2. U.S. Greenhouse Gas Emissions by Economic Sector, 1990-2017<sup>38</sup>



Source: U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

There are two paths to cut these sector-wide figures: switching to carbon neutral technology for transportation and power and/or implementing major carbon capture and storage (CCS) solutions for the power sector.

<sup>38</sup> U.S. Environmental Protection Agency. "Inventory of U.S. Greenhouse Gas Emissions and Sinks." <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>.

From the perspective of technology capacity and cost, changing technologies is easiest and cheapest, as of now, and helps to enhance our national security and self-sufficiency. In the power sector, nuclear, wind, hydroelectric, and solar technologies have reached maturity and are capable of providing renewable energy alternatives for the U.S. power grid. A December 2018 report by Carbon Tracker Initiative found that 42% of global coal capacity is currently unprofitable and the U.S. could save \$78 billion by closing coal-fired power plants, which would be in line the Paris Climate Accord goals. This is primarily because the cost to build new wind and solar energy sources has fallen below the cost of running coal-fired power plants across the country.<sup>39</sup> For example, Colorado's Xcel will retire 660 megawatts (MW) of coal capacity ahead of schedule in favor of renewable sources and battery storage, and reduce costs in the process.<sup>40</sup> Additionally, Midwestern utility MidAmerican will be the first utility to reach 100% renewable energy by 2020 without increasing customer rates<sup>41</sup>, and Indiana's NIPSCO will replace 1.8 gigawatts (GW) of coal with wind and solar.<sup>42</sup>

Lazard's annual Levelized Cost of Energy (LCOE) analysis reports solar photovoltaic (PV) and wind costs have dropped an extraordinary 88% and 69% since 2009, respectively. Meanwhile, coal and nuclear costs have increased by 9% and 23%, respectively. Even without accounting for current subsidies, renewable energy costs can

---

<sup>39</sup> Ambrogi, Stefano. "42% of global coal power plants run at a loss, finds world-first study." 30 November 2018. Accessed 25 March 2019. *Carbon Tracker Initiative*. <https://www.carbontracker.org/42-of-global-coal-power-plants-run-at-a-loss-finds-world-first-study/>.

<sup>40</sup> Pyper, Julia. "Xcel to Replace 2 Colorado Coal Units with Renewables and Storage." 29 August 2018. Accessed 25 March 2019. *Green Tech Media*. <https://www.greentechmedia.com/articles/read/xcel-retire-coal-renewable-energy-storage#gs.72tjaq>.

<sup>41</sup> MidAmerican Energy Company. "Wind XII project positions MidAmerican Energy to hit 100 percent renewable goal." 30 May 2018. Accessed 25 March 2019. *MidAmerican Energy News*. <https://www.midamericanenergy.com/news-article.aspx?story=858>.

<sup>42</sup> Walton, Robert. "NiSource subsidiary announces plan to end coal use within 10 years." 21 September 2018. Accessed 25 March 2019. *Utility Dive*. <https://www.utilitydive.com/news/nisource-subsi-dary-announces-plan-to-end-coal-use-within-10-years/532876/>.

be considerably lower than the marginal cost of conventional energy technologies.<sup>43</sup>

Additionally, LCOE analysis reported new onshore wind costs \$29-\$56 per megawatt hour (MWh) to build without subsidies and \$14-\$47/MWh to build with subsidies. New utility solar PV costs \$36-\$44/MWh to build without subsidies and \$32-\$41/MWh to build with subsidies. Comparatively, marginal costs—the cost to operate existing plants—are \$27-\$45/MWh for coal and \$24-\$31/MWh for nuclear.<sup>44</sup>

Figure 3. Historical LCOE Comparison Reveals Dramatic Declines for Wind and Solar<sup>45</sup>



This option also fast-tracks the transition to meet 100 percent power demand through clean, renewable, and zero-emission energy sources, including by dramatically expanding and upgrading renewable power sources and by deploying new capacity by

<sup>43</sup> Mahajan, Megan. "Plunging Prices Mean Building New Renewable Energy Is Cheaper Than Running Existing Coal." 3 December 2018. Accessed 10 April 2019. <https://www.forbes.com/sites/energyinnovation/2018/12/03/plunging-prices-mean-building-new-renewable-energy-is-cheaper-than-running-existing-coal/#77ef500531f>

<sup>44</sup> Lazard. "Lazard's Levelized Cost of Energy Analysis – Version 12.0." 01 November 2018. Accessed 10 April 2019. <https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-12-0-final.pdf>.

<sup>45</sup> *ibid.*

2035, another core tenant of the plan. As mentioned previously, this will achieve savings for most power plant operators.

National security experts, such as General James Jones, also argue that the switch from foreign oil to alternative energy sources is critical for U.S. national security: “Our entire economy depends on the expectation that energy will be plentiful, available, and affordable. Nations like Venezuela and Iran can use oil and gas as political and economic weapons by manipulating the marketplace. Half of our trade deficit goes toward buying oil from abroad, and some of that money ends up in the hands of terrorists.”<sup>46</sup>

The other alternative, carbon capture and storage or sequestration (CCS), would be more difficult, but is an option for existing power companies that do not want to transition from fossil fuels to renewable energy. The federal budget signed by President Trump in February 2018 included major tax credits for capturing and storing carbon emissions. The measure provides a tax credit of \$50 for every metric ton of carbon dioxide buried underground and \$35 for every ton put to work in other ways. Companies will have six years to begin qualifying projects, and twelve years from the time they begin operations to claim the credits. Current estimates put the cost of carbon capture is about \$60 per metric ton for coal-fired plants and around \$70 for natural-gas plants.<sup>47</sup> Experts feel that this new wave of incentives could finally make CCS technology inexpensive enough for power plants to implement it more immediately. These technologies could also be used to lessen carbon gas emissions by the industrial sector,

---

<sup>46</sup> Bengtson. “American Energy Independence: Introduction.” December 2010. Accessed 10 April 2019. *American Energy Independence*. <http://www.americanenergyindependence.com/aei-intro.pdf>.

<sup>47</sup> Rathi, Akshat. “Trump signed a landmark bill that could create the next big technologies to fight climate change.” 9 February 2018. 10 April 2019. *Quartz*. <https://qz.com/1203803/donald-trump-signed-a-landmark-bill-to-support-carbon-capture-and-nuclear-power/>.

according to Julio Friedmann of the Energy Futures Initiative, who was previously principal deputy assistant secretary at the US Department of Energy's Office of Fossil Energy. Friedman believes that the carbon capture tax credits will also kick start research and investments into emerging technologies, such as using captured carbon dioxide to produce alternative fuels, building materials, and other products.<sup>48</sup> Experts also believe that without CCS technology, it will be unlikely that the world can prevent temperatures rising more than 2°C.<sup>49</sup>

**ii. *Building Resiliency Against Climate Change-Related Disasters with BEACONS***

The U.S. should focus on building resiliency against climate change-related disasters, such as extreme weather, including by leveraging funding and providing investments for community-defined projects and strategies. On April 9, 2019, the U.S. House of Representatives Committee on Homeland Security, Subcommittee on Emergency Preparedness, Response and Recovery heard testimony on the impacts of climate change on homeland security, specifically in regard to disasters, with witness from the Union of Concern Scientists, International Association of Fire Chiefs, and others organization on the frontline of climate-related disasters. Testimony focused on the hyperactive 2017 hurricane season and unprecedented California wildfires, as key results of climate change that are having significant impact on the operations of the Department of Homeland Security (DHS) and the U.S. economy. Chairman Bennie G. Thompson (D-

---

<sup>48</sup> Temple, James. "The carbon-capture era may finally be starting." 20 February 2018. Accessed 10 April 2019. *MIT Technology Review*. <https://www.technologyreview.com/s/610296/the-carbon-capture-era-may-finally-be-starting/>.

<sup>49</sup> Temple, James. "Potential Carbon Capture Game Changer Nears Completion." 30 August 2017. Accessed 10 April 2019. *MIT Technology Review*. <https://www.technologyreview.com/s/608755/potential-carbon-capture-game-changer-nears-completion/>.

MS) argued, “The Federal government is already incapable of adequately responding to the disasters we’re seeing now, let alone as they get worse in future years.”<sup>50</sup>

According to the Intergovernmental Panel on Climate Change, Chairman Thompson and experts are correct. An increase of greenhouse gases in the atmosphere will probably boost temperatures over most land surfaces, though the exact change will vary regionally. More uncertain—but possible—outcomes of an increase in global temperatures include increased risk of drought and increased intensity of storms, including tropical cyclones with higher wind speeds, a wetter Asian monsoon, and, possibly, more intense mid-latitude storms. Each region of the U.S. will be affected by these impacts. The Northeast will see more frequent and intense heatwaves, heavy downpours, and sea level rise. The Northwest will be affected by changes in the timing of streamflow, which will reduce water supply. Additionally, increasing wildfires, insect outbreaks, and tree diseases will cause more tree die-off. The Southeast will see extreme heat, which will affect health, agriculture, energy, and decrease water supplies. The Midwest will experience extreme heat, heavy downpours, and flooding. Climate change will also exacerbate risks to the Great Lakes. Finally, the Southwest will see increase heat, drought, insect outbreaks, and wildfires.<sup>51</sup>

To Congressman Thompson’s point, the cost of climate change-related disasters is immense, but planning and mitigation could help offset costs when disaster strikes.

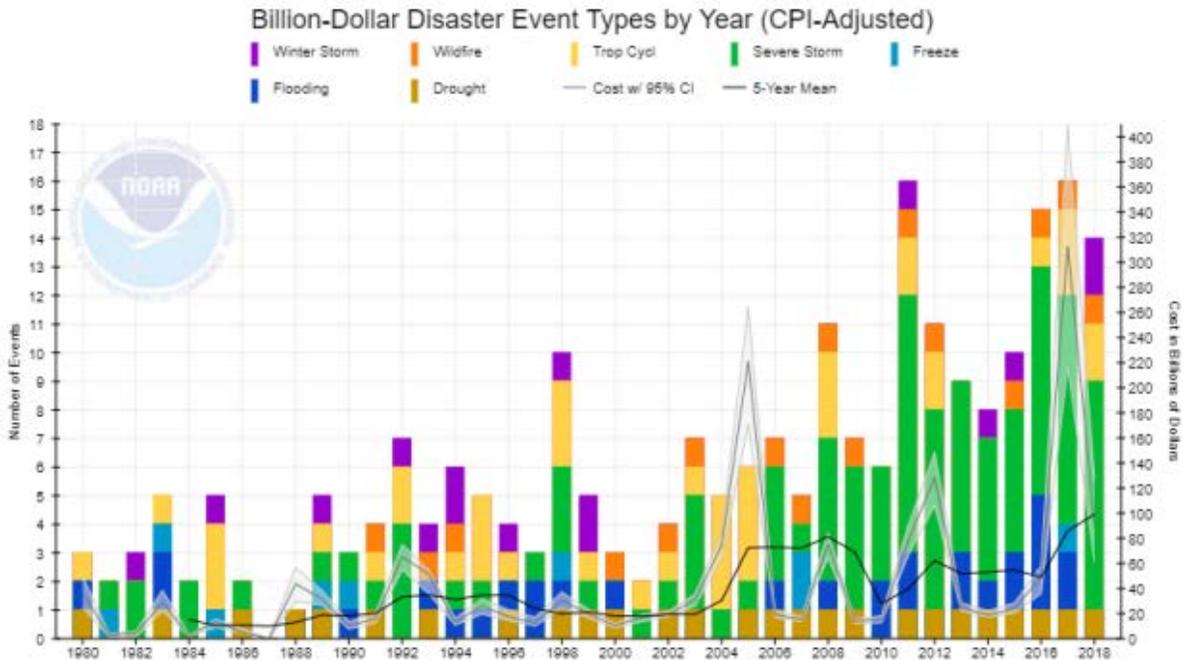
---

<sup>50</sup> Thompson, Bennie G. “Hearing Statement of Chairman Bennie G. Thompson (D-MS): Assessing the Homeland Security Impacts of a Changing Climate.” 09 April 2019. Accessed 10 April 2019. *Committee on Homeland Security*. <https://homeland.house.gov/sites/democrats.homeland.house.gov/files/documents/04.09.19%20FINAL%20BGT%20Statement.pdf>.

<sup>51</sup> NASA. “How climate is changing: Effects.” 01 January 2019. Accessed 12 April 2019. *NASA.gov – Global Climate Change*. <https://climate.nasa.gov/effects/>.

NOAA estimates total damages from 2017 natural disasters, alone, were over \$300 billion and costs have only increased since the 1980s.<sup>52</sup>

Figure 4. Billion-Dollar Disaster Event Types by Year (CPI-Adjusted)<sup>53</sup>



In response to the 2017 disasters, Congress introduced three bills for disaster recovery (September, October, and February), which totaled over \$120 billion. The Department of Homeland Security (DHS) received the most funding at over \$50 billion, with most going to FEMA. The Department of Housing and Urban Development (HUD) received over \$35 billion – the second largest appropriation – to fund the Community Development Block Grant – Disaster Relief Program (CDBG-DR). Since September 11th, 2001, Congress has regularly directed supplemental dollars to CDBG-DR, a flexible program that allows the recipient state and local governments to develop their own action plans for how to spend the money, within some broad requirements and guidelines set by

<sup>52</sup> Smith, Adam B. “2017 - U.S. Billion-Dollar Weather and Climate Disasters: A Historic Year in Context.” 8 January 2018. Accessed 12 April 2019. NOAA Climate.gov. <https://www.climate.gov/news-features/blogs/beyond-data/2017-us-billion-dollar-weather-and-climate-disasters-historic-year>.

<sup>53</sup> *ibid.*

HUD.<sup>54</sup> The Hazard Mitigation Grant Program (HMGP) is similar to the CDBG-DR program, as it is a mitigation program that is often funded through both enacted and supplemental appropriations.

Regrettably, the lion's share of appropriations is spent on general rebuilding funding across all of these programs, with only slightly more than one quarter of funding going toward mitigation. In the February 2018 appropriation bill of \$90 billion, Congress and agencies have explicitly directed funding to future risk reduction beyond HMGP. Congress provided approximately \$12 billion for risk reduction through HUD's CDBG-DR program and about \$16.5 billion for Corps of Engineers flood and storm damage reduction projects.<sup>55</sup> The goal of the proposed BEACONS Act would be to proactively fund DHS, HUD, the Army Corps of Engineers, and the USDA with \$20 billion, split between each agency, with 40% going to DHS, 30% for HUD, 20% for the Corps, and 10% for USDA. This is over double the average enacted appropriations for FYs 12-17, but less than half of the total appropriations for 2018. While no quantitative data exists on the impact of this proposed increase, it could be expected that the four agencies would be able to drastically increase efforts to prepare for climate-related extreme weather events. The grant programs would also ensure that communities across the country could develop programs that were unique to their regional issues related to climate change.

***iii. Energy Efficient Commercial Buildings Through the BEACONS Act***

---

<sup>54</sup> Lingle, Brett; Kousky, Carolyn; Shabman, Leonard. "Federal Disaster Rebuilding Spending: A Look at the Numbers." 22 February 2018. Accessed 10 April 2019. *Wharton: Risk Management and Decision Processes Center*. <https://riskcenter.wharton.upenn.edu/disaster-aid/federal-disaster-rebuilding-spending-look-numbers/>.

<sup>55</sup> *ibid.*

The government should implement new standards for new commercial/industrial buildings in the U.S. to ensure higher water and electric efficiency. This program should also rework and extend the benefits of the Energy Policy Act of 2005 (EPACT), which offers a tax deduction of \$1.80 per square foot for buildings that save at least 50% of the heating and cooling energy of a system or building that meets ASHRAE Standard 90.1-2007.<sup>56</sup> It is recommended that the efficiency of buildings that qualify for this tax credit be raised to 70% and the tax credit be raised by \$.60 to \$2.40 – a 1/3 increase. This program would phase in the requirement by first providing the full benefit up until 2025, then requiring buildings meet the standard by 2030, while slowly phasing out the benefit in each year leading to 2030. This model would incentivize rapid expansion of new buildings, but also encourage older buildings to be upgraded. The program would apply to offices, retail stores, warehouses, apartment buildings (minimum of four stories) and public buildings.

*Figure 5. Proposed Tax Savings Under New EPACT Standards*

Maximum Allowable Tax and Energy Savings for Energy-Efficient Building Improvements Under the New EPACT Standards from the BEACONS Act		
Eligible Systems	Qualification	Tax Deduction
<ul style="list-style-type: none"> <li>• HVAC/Water Heating</li> <li>• Building Envelope</li> <li>• Lighting</li> </ul>	Reduces Overall Energy Costs	Off Cost of System
One out of three	23.33%	\$0.80 per square foot
Two out of three	46.66%	\$1.60 per square foot
Three out of three	70%	\$2.40 per square foot

Eligible systems would include HVAC/water heating, the building envelope, and lighting. In this way, it would not differ in any way from requirements for the current

<sup>56</sup> U.S. Department of Energy. "Tax Incentives for Energy Efficiency Upgrades in Commercial Buildings." 04 March 2019. Accessed 12 April 2019. *Energy.gov*. <https://www.energy.gov/eere/buildings/tax-incentives-energy-efficiency-upgrades-commercial-buildings>.

program, but it would change the energy cost reduction requirements and savings on the system. Additionally, the program would benefit owners and lessees, designers of government buildings, and apply to new construction, renovations, or additions.

Administratively, the Department of Energy (DOE), who manages the EPACT program, may see additional interest in the program. The requirements for certification, to that extent, would remain identical. Certification of energy cost reduction would be completed by a third-party, licensed engineer or contractor; DOE approved software would be used to measure, track, and report efficiencies; field inspections would be required; and a written report to owner of projected energy cost reductions would be required. One major change would be the updating of the 2001 “reference building” used by DOE (ASHRAE 90.1-2001).<sup>57</sup> The recommendation is to set the standard to a 2010 reference building based on considerations such as the prevalence of LED lighting systems and other technology advancements. This change will make it more difficult to qualify for energy credits as the efficiency of the reference building will be considerably higher than the 2001 reference. For this reason, however, it will also push commercial buildings/applicants toward higher energy efficiency. The most difficult aspect of the credit, however, will be the envelope credit, which largely relies on insulation and windows, which are more difficult to make more efficient compared to the reference building.

Aside from the tax credit for energy efficient commercial buildings, there are inherent cost savings for owners who choose to have more efficient commercial

---

<sup>57</sup> Gunderson, Clifton. “Energy Efficient Commercial Building Tax Deduction (179D).” 20 August 2018. Accessed 10 April 2019. *Clifton Gunderson, LLP*. [https://www.naiop-colorado.org/portals/1/pdfs/pres\\_NAIOP\\_Johnson.pdf](https://www.naiop-colorado.org/portals/1/pdfs/pres_NAIOP_Johnson.pdf).

buildings. In fact, about 20% of all of the energy that is used in the U.S. goes to power commercial buildings. Additionally, certain capital improvements can achieve energy efficiencies upward of 75%, drastically cutting heating, water, and lighting costs for businesses.<sup>58</sup>

***iv. Addressing Agricultural Greenhouse Gas Emissions with the BEACONS Act***

Under the BEACONS Act, the federal government would work collaboratively with farmers and ranchers in the United States to remove pollution and greenhouse gas emissions from the agricultural sector as much as is technologically feasible, including by supporting family farming; by investing in sustainable farming and land use practices that increase soil health; and by building a more sustainable food system that ensures universal access to healthy food. These steps should be supported through targeted subsidies to farmers and should focus on shifting the U.S. agricultural subsidy system toward more efficient use of farmland, overall.

This goal can be achieved in a number of ways. These activities may include shifting to conservation tillage, reducing the amount of nitrogen fertilizer applied to crops, changing livestock and manure management practices, and planting trees or grass. The Federal Government should also offer carbon offsets and incentive payments to encourage rural landowners to pursue these climate-friendly activities as part of a broader effort to combat climate change. The extent to which farmers adopt such activities would depend on their costs, potential revenues, and other economic incentives created by

---

<sup>58</sup> Roberts, David L. "No Brainer – Commercial Buildings Should Save Money by Becoming More Energy Efficient." 28 September 2012. Accessed 10 April 2019. *Clean Technica*. <https://cleantechnica.com/2012/09/28/commercial-building-energy-efficiency-strategies/>.

climate policy. Existing Federal conservation programs provide preliminary estimates of the costs of agricultural carbon sequestration.<sup>59</sup>

Overall, agriculture accounted for 9.0% of the 2017 greenhouse gas emissions. Nonetheless, it is both a source and sink of greenhouse gases: sources generate emissions to the atmosphere and sinks remove carbon dioxide and sequester it in plants and soil. In example, land use conversion, cover crop/no tillage, and forest planting/remaining all take thousands of millions metric tons of carbon dioxide out of the atmosphere, while cropland, manure, rice cultivation, enteric fermentation, and agricultural soil management all generate greenhouse admissions.<sup>60</sup>

Soil management is the most important aspect of this policy. To that extent, one component of the policy is switching from chemical fertilizers, which have added nitrogen, to organic fertilizers. In other parts of the world, the switch to organic fertilizer reduces cost, but, within the United States, while organic fertilizer is cheaper per pound, it does not provide the same amount of nutrients as chemical fertilizers per pound. The tradeoff, however, is that organic fertilizer is less acidic, increases organic matter in soil, improves soil structure and tilth, improves water holding capacity, reduces soil crusting problems, and reduces erosion from wind and water. Chemical fertilizers, in contrast, have acids that stunt the growth of microorganisms and add ammonium sulphate, ammonium phosphate, ammonium nitrate, urea, and ammonium chloride to the soil and runoff. Experts argue that while chemical fertilizers have led to record crop yields, they

---

<sup>59</sup> Horowitz, John; Gottlieb, Jessica. "The Role of Agriculture in Reducing Greenhouse Gas Emissions." September 2010. Accessed 10 April 2019. *U.S. Department of Agriculture, Economic Research Service*. [https://www.ers.usda.gov/webdocs/publications/42842/8494\\_eb15\\_1\\_.pdf?v=41055](https://www.ers.usda.gov/webdocs/publications/42842/8494_eb15_1_.pdf?v=41055).

<sup>60</sup> Johnson, Renee. "Greenhouse Gas Emissions and Sinks in U.S. Agriculture." 17 September 2018. Accessed 10 April 2019. *Congressional Research Service*. <https://fas.org/sqp/crs/misc/IF10979.pdf>.

are killing soil and threatening farms. Specifically, although the United States has some of the richest soils in the world, decades of agricultural abuse have taken their toll, depleting the dirt of essential nutrients and killing off bacteria and fungi that create organic material essential to plants.<sup>61</sup>

Additionally, the BEACONS Act would seek to promote integrated cropping-livestock systems at small farms across the country. This system relies on three components: (1) livestock graze the field crops and pasture, either directly or after harvesting; (2) farmers collect manure and apply it to fields as fertilizer, with additional organic fertilizer or a small amount of chemical fertilizer; and (3) the natural fertilizer improves soil health and quality, thereby increasing crop yields, while reducing greenhouse gas emissions as less chemical fertilizer is required. The majority of cost for this program would be in education, although some crop yields could be effected as farmers worked to learn the system and replace their current chemical fertilizer only farming. This addresses the primary agricultural greenhouse gas emission contributor – soil management, which accounts for 52% of the 556.9 million metric tons of carbon dioxide equivalent emissions for 2016 for the agricultural sectors.<sup>62</sup>

Finally, the USDA should oversee widespread nutrition education reform that focuses more heavily on vegetables as opposed to meat from livestock. Child nutrition programs would still be administered through the U.S. Department of Agriculture's Food and Nutrition Service (USDA-FNS) programs that provide food for children in school or

---

<sup>61</sup> Schiffman, Richard. "Why It's Time to Stop Punishing Our Soils with Fertilizers." 03 May 2017. Accessed 10 April 2019. *Yale Environment*. <https://e360.yale.edu/features/why-its-time-to-stop-punishing-our-soils-with-fertilizers-and-chemicals>.

<sup>62</sup> Johnson, Renee. "Greenhouse Gas Emissions and Sinks in U.S. Agriculture." 17 September 2018. Accessed 10 April 2019. *Congressional Research Service*. <https://fas.org/sqp/crs/misc/IF10979.pdf>.

institutional settings. Additionally, this would not require an increase in annual, mandatory funding, nor would it fundamentally change the programs that administer education - the National School Lunch Program (NSLP) and the School Breakfast Program (SBP), the Child and Adult Care Food Program (CACFP), or others. Instead, it would focus on cuts to the Special Milk Program (SMP) (Child Nutrition Act, Section 3 (42 U.S.C. 1772)) and enhancements to the National School Lunch Program (NSLP) (Richard B. Russell National School Lunch Act (42 U.S.C. 1751 et seq.)); the School Breakfast Program (SBP) (Child Nutrition Act, Section 4 (42 U.S.C. 1773)); the Child and Adult Care Food Program (CACFP) (Richard B. Russell National School Lunch Act, Section 17 (42 U.S.C. 1766)); and the Summer Food Service Program (SFSP) (Richard B. Russell National School Lunch Act, Section 13 (42 U.S.C. 1761)).<sup>63</sup> These enhancements would require local, state, and federal partners to provide meals, snacks, and programming that more heavily focus on vegetables than meat. Programs would include suggesting students and families participate in “Meatless Mondays” and other initiatives that educate citizens about the water, land, and pollution effects of livestock and how being more reliant on vegetables can improve the environment and their physical health.

v. ***Transportation Policy Considerations Under the BEACONS Act***

BEACONS will focus on overhauling transportation systems in the United States to remove pollution and greenhouse gas emissions from the transportation sector as much as is technologically feasible, including through investment in zero-emission vehicle

---

<sup>63</sup> Billings, Kara Clifford; Aussenberg, Randy Allison. “School Meal Programs and Other USDA Child Nutrition Programs: A Primer.” 11 February 2019. Accessed 10 April 2019. <https://www.crs.gov/Reports/R43783?source=search&guid=08f62d1467514706a33e3266f8e622d7&index=9>

infrastructure and manufacturing via increased tax credits for consumers purchasing electric and alternative fuel vehicles through 2025; and clean, affordable, and accessible public transit by helping struggling localities through grants and no-interest loans from the federal government to replace aging gas-powered bus fleets with electric buses.

The federal income tax credit of \$7,500 per plug-in electric vehicle (EV) purchased by an individual should remain in place through 2025 and the lifetime cap of 200,000 qualifying vehicles per manufacturer should be eliminated and, instead, be changed to 50,000 per year per manufacturer. The same tax credit range of \$2,500 to \$7,500 per vehicle, depending on battery capacity, should remain. For individuals, the credit can only be used to offset a taxpayer's tax liability in the current tax year (i.e., there is no carryback or carry forward). The credit is nonrefundable, meaning the amount of the credit cannot exceed a taxpayer's tax liability. For businesses, the tax credit is attributable to depreciable property used for business or investment purposes is treated as part of the general business credit. The general business credit can be carried back one year or carried forward for up to 20 years. This represents an extension and expansion of the program, which was created under the American Recovery and Reinvestment Act of 2009 (P.L. 111-5).<sup>64</sup>

Regrettably, this federal tax credit is only one of the factors that contributes to higher EV sales, with access to charging infrastructure and high-occupancy vehicle (HOV) lane exemptions, which are both largely state-specific, being other contributing factors. According to the Joint Committee on Taxation (JCT), IN 2016, 57,066 individual

---

<sup>64</sup> U.S. Congress. "American Recovery and Reinvestment Act of 2009, Public Law 111-5." 17 February 2009. Accessed 10 April 2019. *U.S. Congress*. [https://www.gao.gov/hcac/13101\\_div\\_a\\_title13111-5.pdf](https://www.gao.gov/hcac/13101_div_a_title13111-5.pdf).

taxpayers claimed \$375 million in plug-in EV tax credits. EV tax credits are disproportionately claimed by higher-income taxpayers. Most of the tax credits (78%) are claimed by filers with adjusted gross income (AGI) of \$100,000 or more, and those filers receive an even higher proportion (83%) of the amount of credits claimed. About 7% of credits claimed, and 8% of the total amount of credits, were on returns where the taxpayer's AGI exceeded \$1 million. Across all taxpayers, about 17% of returns filed have an AGI of \$100,000 or more. About 0.3% have an AGI of \$1 million or more. Additionally, while estimates for the expanded program are difficult to determine, the JCT estimates that under current law tax expenditures, or forgone revenue, for the plug-in EV tax credit will be \$7.5 billion between FY2018 and FY2022. From FY2011 through FY2017, tax expenditures for the credit totaled \$2.2 billion.<sup>65</sup>

This shift will also have major effects on the internal combustion engine (ICE) vehicle industry. In 2018, more than 1.7 million plug-in and battery electric vehicles were sold worldwide, a nearly 40% increase over 2017. These account for about 2% of all passenger vehicle sales, both worldwide and in the United States. Additionally, several global automakers have invested significant money in research into EV. The primary effect of increased EV production would be a negative effect on U.S. automobile assembly and parts manufacturing industries, potentially eliminating large numbers of jobs in vehicle and parts production, even if EVs are assembled in the United States. China leads in both electric vehicle production and sales. Of the 42 different electric vehicle models sold in the United States in 2018, 10 were made at seven U.S. plants. U.S.

---

<sup>65</sup> Sherlock, Molly F. "The Plug-In Electric Vehicle Tax Credit." 06 November 2018. Accessed 20 April 2019. *Congressional Research Service*. <https://www.crs.gov/Reports/IF11017?source=search&guid=90201dce758b4bc180393df7f21d2a0d&index=0>.

sales of electric vehicles rose by 80% from 2017 to 2018, led by Tesla and Toyota. More than one million plug-in hybrid and battery electric vehicles are now on U.S. roads.<sup>66</sup>

There is a need for Congress to address this drivetrain issue and ensure that that U.S. can keep up with Chinese electric motor and battery producers. To that extent, there is a history of congressional action on advancing technology in passenger vehicles. In the Energy Independence and Security Act of 2007 (P.L. 110-140), which raised fuel economy standards for the first time in several decades, Congress established the \$25 billion Advanced Technology Vehicles Manufacturing program. It has supported technological development by automakers, including at Ford, Tesla, and Nissan plants. The \$16 billion remaining authority could be focused on converting internal combustion engine capacity to electric vehicle capacity.<sup>67</sup> The American Recovery and Reinvestment Act of 2009 (P.L. 111-5) provided grants of \$2.4 billion to support the establishment of U.S. lithium-ion battery manufacturing facilities. These grants anticipated a more rapid acceptance of electric vehicles, and the capacity they envisioned has not been fully utilized.<sup>68</sup> Congress could address changing skills needs through the existing Workforce Innovation and Opportunity Act (P.L. 113-128), which makes grants to the states to identify workforce needs at the local level. Workers who today manufacture parts for gasoline or diesel engines could be retrained to make parts for electric vehicle motors and

---

<sup>66</sup> Canis, Bill. "Electrification May Disrupt the Automotive Supply Chain." 08 February 2019. Accessed 20 April 2019. *Congressional Research Service*. <https://crsreports.congress.gov/product/pdf/IF/IF11101>.

<sup>67</sup> U.S. Congress. "Energy Independence and Security Act of 2007 (P.L. 110-140)" 04 January 2007. Accessed 20 April 2019. *Government Printing Office*. <https://www.govinfo.gov/content/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf>.

<sup>68</sup> U.S. Congress. "American Recovery and Reinvestment Act of 2009, Public Law 111-5." 17 February 2009. Accessed 20 April 2019. *U.S. Congress*. [https://www.gao.gov/hcac/13101\\_div\\_a\\_title13111-5.pdf](https://www.gao.gov/hcac/13101_div_a_title13111-5.pdf).

the lithium-ion batteries that power them, although there may be significantly fewer such jobs than exist in automotive supply chains today.<sup>69</sup>

Diesel and gasoline-alternative bus solutions have grown considerably over the last 20 years. They will be critical to the success of the BEACONS Act. One of the limiting factors, however, is intricately connected with the aforementioned issue of EV manufacturing capacity in the United States. Buy America requirements are integral to federal transportation funding as Congress has required that federally funded highway, public transportation, aviation, and intercity passenger rail projects use U.S.-made manufactured goods, which is difficult to determine. The Federal Transit Administration (FTA), which provides grants to public transportation agencies, requires that transit buses acquired with federal public transportation funding undergo final assembly in the United States and that at least 65% of the cost be manufactured domestically. This threshold rises to 70% for buses delivered in FY2020 or later. In terms of buses, the regulations were drafted for vehicles that have engines and transmissions and are powered by liquid fuels. Current rules may not readily apply to battery electric buses that operate exclusively on electricity. Additionally, the average cost of an electric bus is around \$300,000.<sup>70</sup> Pilot grant programs could be initiated through the BEACONS Act with initial grants of \$30 million dollars, which would allow for the purchase and deployment of 100 electric buses across the country.

---

<sup>69</sup> Canis, Bill. "Electrification May Disrupt the Automotive Supply Chain." 08 February 2019. Accessed 20 April 2019. *Congressional Research Service*. <https://crsreports.congress.gov/product/pdf/IF/IF11101>.

<sup>70</sup> *ibid.*

## **VI. Political Analysis**

The primary issue with the BEACONS Act is the opposition to climate change-related initiatives in Congress, although the trend seems to be turning in favor of support, especially in the Democrat-controlled House of Representatives. On March 6, 2018, you (Senate Minority Leader Chuck Schumer (D-NY)) took to the floor of the Senate, stating, "For the first time in a long time, the Senate is finally debating the issue of climate change, and it's about time, if you ask me." You then called for the creation of a Senate committee on climate change that would mirror a panel on the House side. You also demanded a full day of debate on global warming, seeking to pass a messaging resolution declaring that climate change is real and dangerous, as well as holding numerous hearings on global warming since January. Additionally, other Democratic Senators have stepped up following the introduction of the Green New Deal in both the House and Senate, especially those running for the Democratic nomination for President in 2020 – such as Sens. Kamala Harris (D-CA) and Kristen Gillibrand (D-NY). Even former New York City Mayor Michael Bloomberg, upon dropping out of the presidential race, stated that he intended to donate heavily to campaigns and initiatives focused on eliminating fossil fuels.<sup>71</sup>

Congress largely stopped holding climate-related hearings when Republicans took control in 2012. Rafe Pomerance, the leading climate scientist mentioned earlier, was the first lobbyist that was able to push for congressional hearings in the 1980s – the first of which, in 1986, was chaired a Republican, John Chafee from Rhode Island. Aside from

---

<sup>71</sup> Matthews, Mark K. "Climate change pervades Congress after years of quiet." 07 March 2019. Accessed 20 April 2019. *E&E News*. <https://www.eenews.net/stories/1060123363>.

the renewed push for hearings, many, like Rep. Raul Grijalva (D-AZ), have pushed for legislation to be introduced that would expand funding for climate research. Regrettably, high-level bipartisan agreement will be necessary if Congress wants to pass big climate legislation - for example, a carbon tax, what economists say is the most efficient way for the country to tackle global warming. Rafe Pomerance says that kind of legislation requires both parties, arguing that the market mechanism pricing has been attempted twice before by Democrats, but did not pass.<sup>72</sup>

In short, Republicans in Congress are currently united on opposing extreme legislative measures such as the Green New Deal, while Democrats are divided, but generally support the Green New Deal and other legislation that seeks to address climate change. BEACONS, however, seeks to address these concerns by pulling back on some of the more extreme policies of the Green New Deal. In example, it does not seek to tie wealth inequality in the U.S. nor globally with climate change. Instead, it seeks to build bipartisan support around smaller issues that impact key sectors of the economy and U.S. domestic and foreign policy. While support for moderate climate change issues in the House may be easier to come by, it is likely that all 45 Democratic Senators and both Independent Senators (Sens. King and Sanders) would generally be supportive of climate change measures. The only Senate Republicans that may be swayed are Senator Murkowski and other Republicans who have been meeting in small groups to come up with a strategy on the issue: Senators John Cornyn of Texas, Cory Gardner of Colorado, Susan Collins of Maine, Bill Cassidy of Louisiana, Thom Tillis of North Carolina, Rob

---

<sup>72</sup> Hersher, Rebecca. "Congressional Democrats Say Climate Change Is A Priority As They Control The House." 05 February 2019. Accessed 20 April 2019. *NPR Politics*. <https://www.npr.org/2019/02/05/691734569/congressional-democrats-say-climate-change-is-a-priority-as-they-control-the-hou>.

Portman of Ohio, Lindsey Graham of South Carolina, and former 2012 presidential nominee Mitt Romney, now a senator representing Utah.<sup>73</sup>

Public opinion on climate change, however, is significantly different than Congressional leanings. According to Brookings, more Americans than ever are pointing to experiences with warmer temperatures as the main reason they believe global warming is occurring. For Americans who believe that climate change is occurring, factors beyond weather (such as: declining polar species) appear to be having the greatest effect on convincing an individual that the planet is warming. Additionally, nearly 80% of Democrats believe in global warming, while Republicans are almost evenly split with 47% seeing evidence of increasing global temperatures.<sup>74</sup> Pew Research Center has found that roughly four-in-ten Americans expect harmful effects from climate change on wildlife, shorelines and weather patterns. At the same time, many are optimistic that both policy and individual efforts to address climate change can have an impact. Additionally, roughly two-thirds of Americans say climate scientists should have a major role in policy decisions about climate matters, more than say that the public, energy industry leaders, or national and international political leaders should be so involved.<sup>75</sup>

According to the Union for Concerned Scientists, there are a number of prominent organizations that are skeptical of global warming and would likely oppose any measure of the BEACONS Act that is based on the argument to curb climate change. These

---

<sup>73</sup> Natter, Ari. "Republicans Who Couldn't Beat Climate Debate Now Seek to Join It." 05 March 2019. 20 April 2019. *Forbes*. <http://fortune.com/2019/03/05/republicans-climate-change/>.

<sup>74</sup> Borick, Christopher P.; Rabe, Barry. G. "Belief in Global Warming on the Rebound: National Survey of American Public Opinion on Climate Change." 28 February 2012. Accessed 20 April 2019. *Brookings Institute*. <https://www.brookings.edu/research/belief-in-global-warming-on-the-rebound-national-survey-of-american-public-opinion-on-climate-change/>.

<sup>75</sup> Funk, Cary et. Al. "The Politics of Climate: Public views on climate change and climate scientists." 04 October 2016. Accessed 20 April 2019. *Pew Research Center*. <https://www.pewresearch.org/science/2016/10/04/public-views-on-climate-change-and-climate-scientists/>.

groups also hold substantial sway over politicians in Congress who would be critical to passing any legislation. One connecting factor for these organizations is that fact that the majority of them have received large donations from the fossil fuel industry.

Furthermore, many of them have been established or supported by the fossil fuel billionaire Koch brothers. The American Enterprise Foundation (AEI) has funded research efforts to undermine climate scientists, and has received \$3,615,000 from ExxonMobil from 1998-2012, and more than \$1 million in funding from Koch foundations from 2004-2011. Americans for Prosperity (AFP) started from a group founded in 1984 by Charles and David Koch, with the Koch brothers and prominent Koch Industries executive serving as board members. AFP similarly funds ant-climate change research and received \$3,609,281 in donations from Koch Industries from 2007-2011. American Legislative Exchange Council (ALEC) is another staunch opponent of global warming, writing model legislation that it regular submits to Congress to undermine climate change addressing legislation. ALEC received more than \$1.6 million from ExxonMobil from 1998-2012 [18], and more than \$850,000 from Koch foundations from 1997-2011. The Beacon Hill Institute (BHI) at Suffolk University has published misleading analyses of clean energy and climate change policies in more than three dozen states. Additionally, it has received at least \$725,000 from the Charles G. Koch Foundation from 2008-2011. Other major Koch-backed lobbying firms and think tanks that actively oppose climate change by drafting legislation and acting as a pass-through for Congressional donations include the Heritage Foundation, Cato Institute, the Institute

for Energy Research, the Manhattan Institute for Policy Research, and the Heartland Institute.<sup>76</sup>

Political Action Committees (PACs), wealthy individual donors, and companies aligned with the oil and gas industries will also be opposed to nearly every aspect of the BEACONS Act as it will negatively impact the ICE automobile industry, have immediate impacts on oil sales from both domestic and foreign sources, and possibly be the first step in making the oil and gas industries obsolete. Historical information confirms the influence and power of the oil and gas industry. The fossil fuel industry contributed \$42,373,561 to Congressional campaigns during the 113th Congress (2013 & 2014). In 2013, oil, gas, and coal lobbying totaled \$156,776,386 and, in 2014, totaled \$151,437,335. This totaled to more than \$350 dollars that the oil, gas, and coal industries spent to influence officials during the 113<sup>th</sup> Congress. Comparatively, the total amount of federal production and exploration subsidies given to the fossil fuel industry in 2013 and 2014 was over \$41.8 billion – a ratio of donations to subsidies of roughly \$1:\$119.<sup>77</sup> These influences will represent a significant hurdle to overcome for any legislation. To that point, these will obviously all impact the reduction of greenhouse gases proposed for the energy and transportation sectors, especially related to the cost of CCS or eliminating coal-fired power plants

While building and energy efficiency standards have already passed through Congress and been in effect for some time, increasing the tax credit may be a more

---

<sup>76</sup> Union of Concerned Scientists. "Global Warming Skeptic Organizations (2013)." 16 August 2013. Accessed 20 April 2019. *Union of Concerned Scientists*. <https://www.ucsusa.org/global-warming/solutions/fight-misinformation/global-warming-skeptic.html>.

<sup>77</sup> Oil Change International. "Fossil Fuel Funding to Congress." January 2015. Accessed 20 April 2019. *Oil Change International*. <http://priceofoil.org/fossil-fuel-industry-influence-in-the-u-s/>.

difficult fight, especially under the current political climate. This is an educated inference based on the opposition that the Trump Administration has had to energy efficiency programs, such as Energy Star. In 2017, for example, the Trump administration wanted to shut down Energy Star, a 25-year-old program run by the U.S. Environmental Protection Agency, as part of its plan to slash the EPA budget. While the White House was expected to try to rein in EPA — the agency was a Trump target during the presidential campaign — the move to eliminate Energy Star was unexpected. In response, in April 2017, more than 1,000 participants — including major manufacturers such as United Technologies, real estate firms such as CBRE Group and retailers such as Staples — asked Congress to protect the program.<sup>78</sup> Unexpected and historically unprecedented policy stances such as this do create significant uncertainty in the opposition to any specific program suggested under the BEACONS Act.

With that said, building trade unions by-and-large support increases in and expansions of tax credits for energy retrofits and other initiatives that they expect to have a direct increase in the amount of work available to members. They may also be able to push Republicans to support increases in these programs. According to an editorial by Michael Theriault, former Executive Secretary-Treasurer of the San Francisco Building & Construction Trades Council, energy efficient retrofits to building could create more than 3.3 million cumulative job years of employment. Additionally, Theriault highlighted

---

<sup>78</sup> Gunter, Marc. "Killing Energy Star: A Popular Program Lands on the Trump Hit List." 04 May 2017. Accessed 20 April 2019. *Yale Environment 360*. <https://e360.yale.edu/features/killing-energy-star-a-popular-program-lands-on-the-trump-hit-list>.

the importance of bipartisan support at the federal and state levels, as well as the fact that his and other unions have worked tirelessly to advocate for these programs.<sup>79</sup>

Power companies are likely to support some aspects of BEACONS related to energy efficiency in commercial buildings and upgrades to the electric grid, so long as certain policies are also implemented to offset the revenue loss from less electricity being generated. At least 44 states and Washington, D.C. have established utility revenue incentives for energy efficiency through decoupling mechanisms, lost-revenue adjustment mechanisms (LRAMs) and performance incentives. Decoupling breaks the link between electricity sales and profits while allowing utilities to collect approximately the same revenue as they would under traditional regulation. Unlike traditional regulation, in which energy prices are fixed and revenues fluctuate along with electricity sales, decoupling mechanisms allow rates to be adjusted up or down as a utility's actual energy sales fluctuate above or below the amount needed to cover their revenue requirement. Additionally, LRAMS allow utilities to recover lost revenues resulting exclusively from approved energy efficiency programs. Regulators are tasked with making calculations regarding the estimated energy savings connected with efficiency programs. These estimated savings are then used to determine the efficiency-related revenue shortfall a utility can recover. Finally, the majority of states already implement some form of performance incentive mechanisms, whether through shared net benefits, energy savings-based, multifactor, rate of return, or other programs.<sup>80</sup> To a lesser extent,

---

<sup>79</sup> Theriault, Michael. "Trump, the Trades, Energy Efficiency." 05 March 2017. Accessed 20 March 2019. *Organized Labor – The Voice of The San Francisco Building & Construction Trades Council*.

<https://sfbuildingtradesCouncil.org/news/building-the-trades/834-trump,-the-trades,-energy-efficiency>.

<sup>80</sup> Cleveland, Megan; Dunning, Logan; Heibel, Jesse. "State Policies for Utility Investment in Energy Efficiency." 04 April 2019. Accessed 20 March 2019. *National Conference of State Legislatures*. [http://www.ncsl.org/Portals/1/Documents/energy/Utility\\_Incentives\\_4\\_2019\\_33375.pdf?ver=2019-04-04-154310-703](http://www.ncsl.org/Portals/1/Documents/energy/Utility_Incentives_4_2019_33375.pdf?ver=2019-04-04-154310-703)>.

power companies support energy efficiency because it assists with prevents brownouts in summer, when extreme heat and widespread use of air conditioners can cause city-wide power outages.

As alluded to previously, however, coal-fired power plant owners and investors will likely oppose many of the portions of the BEACONS Act that seek to force companies to implement carbon emissions cuts through either expensive scrubbing and sequestration technologies or through switching to renewable energy sources. In no uncertain terms, this change would affect the entire industry, because, as discussed in the policy analysis section, it would be more economical for the industry to switch to renewables as opposed to retrofitting existing coal-fired power plants. This change to new forms of energy would be dramatic, requiring a workforce that was experienced in the installation, operation, and maintenance of wind, hydroelectric, and solar energy production, while slowly eliminating jobs related to coal-fired power plants. LIUNA, a major energy industry labor union, would likely oppose the rapid expansion of renewables and eradication of traditional energy jobs. While LIUNA supports an “all-of-the-above” energy policy that advocates for coal, oil, natural gas, wind, solar, and nuclear power, the majority of their membership works in oil and natural gas, which accounts for 62% of U.S. energy sources today. LIUNA has already expressed mixed opinions on moving forward, arguing that while they have been on the forefront of supporting climate change legislation with carbon reduction targets as high as any other union, they believe that attempts to derail energy production project-by-project, as some in the environmental

movement advocate, will not impact climate change and will only stall creation of desperately needed jobs.<sup>81</sup>

Unions, in general, support the expansion of renewable energy and investment in modernizing U.S. energy infrastructure. The American Society of Civil Engineers (ASCE) awarded U.S. energy infrastructure a D+ in 2013 and found a \$107 billion investment gap in our electricity infrastructure. Closing the gap would save American businesses \$126 billion, prevent the loss of 529,000 jobs and avert \$656 billion in personal income losses by 2020. Additionally, modernizing and upgrading America's electric transmission system alone could create an additional 150,000 to 200,000 jobs every year over the next two decades and make energy delivery more efficient and reliable.<sup>82</sup>

The public and many private corporations are also supportive of switching to 100 percent renewable energy. The Sierra Club notes that so far in the US, more than 80 cities, five counties, and two states have committed to 100 percent renewables. Six cities have already hit the target. Additionally, the group RE100 tracks 152 private companies across the globe that have committed to 100 percent renewables, including Google, Ikea, Apple, Facebook, Microsoft, Coca-Cola, Nike, GM, and Lego.<sup>83</sup> Additionally, the Edison Electric Institute, a trade group for utilities, recently contracted an independent market research firm, Maslansky & Partners, to examine opinions on renewable energy. The firm analyzed existing utility messaging, interviewed utility execs and environmentalists, ran a

---

<sup>81</sup> LIUNA. "LIUNA Members Build Energy Systems from Natural Gas Extraction to Solar Panels." 20 March 2019. Accessed 20 March 2019. *LIUNA.org*. <https://www.liuna.org/energy>.

<sup>82</sup> *ibid*.

<sup>83</sup> Roberts, David. "Utilities have a problem: the public wants 100% renewable energy, and quick." 11 October 2018. Accessed 24 April 2019. *Vox*. <https://www.vox.com/energy-and-environment/2018/9/14/17853884/utilities-renewable-energy-100-percent-public-opinion>.

national opinion survey, and did a couple of three-hour sit-downs with “media informed customers” in Minneapolis and Phoenix. The research found that while utilities do not feel that 100% renewable energy is feasible at present, the vast majority of the public feels the opposite – that it is reasonable and feasible. Additionally, 74% of respondents think that U.S. utility companies should use solar as much as possible, with another 70% agreeing that in the near future, we should produce 100% of our electricity from renewable energy sources such as solar and wind. Even more striking is the fact that 51% of respondents believe that 100% renewable energy is a good idea, even it raises their energy bills by as much as 30%.<sup>84</sup>

In terms of cutting agricultural carbon emissions, grants will provide significant assistance to farmers, but will not easily sway their opinions on carbon taxes and reduction. In July 2018, Rep. Steve Scalise took to the floor of the House of Representatives to oppose a carbon tax. Instead of relying on the transportation and energy sectors as the basis of his argument opposing carbon taxes and reduction in emissions, however, Rep. Scalise discussed agriculture’s resistance to the policy. The letter that he shared from the American Farm Bureau Federation was clear – “Agriculture is an energy-intensive sector, and a carbon tax levied on farmers and ranchers would be devastating.”<sup>85</sup> For over thirty years, the Farm Bureau has aligned agriculture closely with the fossil fuel agenda. Though little noticed next to the influence of the fossil fuel industry, the farm lobby pulled in tandem with the energy lobby in a mutually reinforcing

---

<sup>84</sup> Maslansky & Partners. “EEI: Strategic Issues Roundtable.” 10 October 2018. Accessed 20 March 2019. *Edison Electric Institute*. <http://www.eei.org/about/meetings/meeting.aspx?EEIEventId=3FB9CA76-5F7B-40F6-9441-0FDAF90170F9>.

<sup>85</sup> U.S. House of Representatives. “EXPRESSING THE SENSE OF CONGRESS THAT A CARBON TAX WOULD BE DETRIMENTAL TO THE UNITED STATES ECONOMY; Congressional Record Vol. 164, No. 122.” 19 July 2018. Accessed 20 March 2019. *Congress.gov*. <https://www.congress.gov/congressional-record/2018/07/19/house-section/article/H6563-1>.

campaign to thwart the Kyoto Protocol on climate change, legislation like the Waxman-Markey economy wide cap-and-trade plan, and regulations that would limit fossil fuel emissions. Furthermore, Congress has been heavily lobbied by farm interests to oppose any policies that would increase the cost of farming or put agriculture to blame for carbon emissions and global warming.<sup>86</sup>

Automakers, another powerful lobbying group, nearly unanimously support the EV credit and moving toward EVs. GM and Tesla have already reached their 200,000-unit cap and are seeing their current \$7,500 tax credit being phased out. Other manufacturers, such as Nissan, Kia, and Volkswagen, are actively ramping up EV production and breaking into the market aggressively. The Alliance of Automobile Manufacturers have been actively lobbying Congress to increase and extends tax credits for EVs, as well as support domestic manufacturing through new subsidy and incentive programs.<sup>87</sup>

In short, both public and private interests will be heavily at play and in conflict over a number of proposals within the BEACONS Act. Nonetheless, careful political maneuvering could result in major components making its way through Congress.

## **VII. Recommendation:**

First and foremost, the BEACONS Act aims to address the aspects of the Green New Deal that were most controversial in Congress by either removing them or making

---

<sup>86</sup> Banerjee, Neela. Gustin, Georgina. Cushman, John H. "The Farm Bureau: Big Oil's Unnoticed Ally Fighting Climate Science and Policy." 21 December 2018. Accessed 20 March 2019. *Inside Climate News*. <https://insideclimatenews.org/news/20122018/american-farm-bureau-fossil-fuel-nexus-climate-change-denial-science-agriculture-carbon-policy-opposition>.

<sup>87</sup> Kulisch, Eric. "Automakers need a consensus on EV tax credits, Dingell says." 27 February 2019. Accessed 15 April 2019. *Autonews*. <https://www.autonews.com/retail/automakers-need-consensus-ev-tax-credits-dingell-says>.

them less likely to be strongly opposed by political decision makers. To that extent, my recommendation is to introduce the BEACONS Act as discussed in the policy proposal section in its entirety, including the aspects related to reducing carbon emissions, building resiliency against climate-related disasters, moving to renewable power, implementing new energy efficiency standards, reducing agricultural pollution, and overhauling the transportation system to move toward EV and zero-emission vehicles. One major concern, however, is that any effort would be vetoed by President Trump, especially with the razor-thin margins that are likely to pass the measures through both the House and Senate. As such, it may be impossible to pass the BEACONS Act without a Democrat in the White House, pushing this effort to 2020, at least. Nonetheless, introducing the legislation and securing Republican support early could be critical in the longer battle for Congressional action on climate change.

First, you must identify a sponsor and co-sponsors of the BEACONS Act in the Senate. As recommended earlier, you should approach Senator Market, whom originally introduced the Green New Deal in the Senate, and request that he sponsor the BEACONS Act. Additionally, while difficult to do, Sen. Murkowski should be approached as the lead co-sponsor of the legislation. As mentioned previously, Alaskans are currently facing the reality of climate change, causing both thinning sea ice and drought depending on the season and region. Murkowski has also publically discussed the effects of climate change and opinions of Alaskans in interviews and in her role on the Senate Energy and Natural Resources Committee. With Murkowski's support, it should be easier to secure co-sponsorship from a number of Democratic Senators, across the spectrum.

Second, you should work with House Leader Pelosi to identify a comprehensive list of supporters and co-sponsors for a House version of the BEACONS Act. In contrast to the Green New Deal, it may be more beneficial for Rep. Ocasio-Cortez, who has publically attacked countless Republicans for opposing her Green New Deal, to not sponsor the legislation.<sup>88</sup> Instead, I suggest that someone in leadership, such as Rep. Steny Hoyer (D-MD), sponsor the leadership in an effort to unite Democrats in the House on the issue. Identifying Republican co-sponsors in the House may be difficult, but there are some possible paths to Republican support. Pelosi and Democratic leadership should court Rep. John Shimkus (R-IL) as a lead co-sponsor of the legislation. Rep. Shimkus recently argued in a letter, along with the top Republican on the House Energy and Commerce Committee, that, “prudent steps should be taken to address the current and future climate risks.”<sup>89</sup> Securing Shimkus’s support and that of other climate-aware Republicans in Congress could be the linchpin in securing widespread support for the BEACONS Act in the House.

Simultaneously, there should be a large-scale lobbying effort to identify and solidify support from a number of the special interests discussed during the political analysis. The support of labor unions is critical. AFL-CIO, United Steelworkers, LIUNA, the International Trade Union Federation (ITUC), Teamsters, and the United Auto Workers must all be approached from the beginning to pressure both Republicans and Democrats into supporting BEACONS. These groups can most effectively be leveraged

---

<sup>88</sup> Clark, Dartunorro. “Ocasio-Cortez: Republicans made 'total fools of themselves' attacking the Green New Deal.” 29 March 2019. Accessed 10 April 2019. *NBS News*. <https://www.nbcnews.com/politics/politics-news/aoc-dismisses-green-new-deal-s-hill-critics-i-m-n989006>.

<sup>89</sup> Natter, Ari. “Republicans Who Couldn’t Beat Climate Debate Now Seek to Join It.” 05 March 2019. Accessed 05 April 2019. *Fortune*. <http://fortune.com/2019/03/05/republicans-climate-change/>.

in the House, where Republicans faced significant losses in 2018, largely due to the organizing of labor unions and other left-leaning groups in district races. The Senate will be less responsive to union efforts. Nonetheless, automakers will be an effective tool in pushing for support in the Senate. Unions should specifically focus on the aspects of the BEACONS Act related to EV production, due to the increase in automotive jobs; the shifting of the power industry toward renewables, where LIUNA and other groups can expect to see substantial job creation; and the modernization and efficiency of new commercial buildings, from which the AFL-CIO and other construction unions will see new jobs.

Automakers, and the automotive industry at large, have held power in Congress for decades. While Tesla is the most disruptive force in the EV market, GM and other manufacturers have a longer history in Congress and are better suited to pressure those on the fence in Congress to support core aspects of BEACONS related to reducing the carbon footprint of the automotive industry and advocating for continued and increased credits for EV purchases.

Regrettably, the agricultural aspects of the BEACONS Act will be difficult, if not impossible, to get through Congress. Agribusiness, which includes agricultural services, tobacco, crop production, food processing, forestry, dairy, livestock, and poultry, spent nearly \$135 million on lobbying Congress in 2018.<sup>90</sup> This represents a considerable force in Congress and the majority of agricultural lobbying is for both agriculture subsidies and fighting against regulations that seek to limit emissions and pollution from agricultural

---

<sup>90</sup> Open Secrets. "Agribusiness: Lobbying 2018." 16 February 2019. Accessed 29 April 2019. *OpenSecrets.org*. <https://www.opensecrets.org/industries/lobbying.php?cycle=2018&ind=A>.

sources.<sup>91</sup> While agricultural interests do not oppose all efforts to make farming more efficient, it is likely that they will oppose any legislation that seeks to blame the industry for substantial greenhouse gas emissions or could impact farms and the industry negatively, in any way.<sup>92</sup>

If you can effectively whip support in the Senate and work with House leadership to do the same, it may be possible to get the majority of the BEACONS Act passed, with the exception of changes to agricultural emissions, and an openness to some negotiation over power industry limits and changes.

---

<sup>91</sup> Huehnergath, Nancy Fink. "Big Agriculture Bullies and Lobbies to Keep Americans in the Dark." 05 May 2016. 20 April 2019. *Forbes*. <https://www.forbes.com/sites/nancyhuehnergath/2016/05/05/big-ag-bullies-and-lobbies-to-keep-americans-in-the-dark/#288efd8e502c>.

<sup>92</sup> Newman, John. "Agriculture and Greenhouse Gas Emissions." 05 March 2019. Accessed 21 April 2019. *American Farm Bureau Federation*. <https://www.fb.org/market-intel/agriculture-and-greenhouse-gas-emissions>.

## **Curriculum Vitae**

Max Green was born on July 20, 1991 in Cumberland, Maryland. He graduated with a Merit Diploma from Fort Hill High School in 2009. As a high school senior, Max co-authored an oral history book, *Hidden Stories, Discovered Voices: A History of African Americans in Cumberland, Maryland*.

Max graduated magna cum laude from Frostburg State University in 2013, dual-majoring in political science and law, with a minor in leadership studies. During his time at Frostburg State University, Max presented graduate-level research on sociology and political science topics while serving as an undergraduate teaching assistant for the university's Honors Program. Max also served as a teaching assistant within the university's Office of Leadership and Experiential Learning. During his junior year, Max was awarded both the Derek Thomson Sheely Leadership Award and the J. Glenn Beall Institute for Public Affairs Scholarship, which included a full-time internship in U.S. Senator Ben Cardin's (D-MD) office. As a senior, Max was selected as a member of the university's President's Leadership Circle and received the Dennis and Dawn Thomas Presidential Leadership Scholarship. Upon graduation, Max was inducted into Pi Sigma Alpha, National Political Science Honor Society.

Max completed his graduate studies at Johns Hopkins University between 2016 and 2019, where he was enrolled in the Masters' of Arts in Public Management and Certificate in Government Analytics combined program. While enrolled at Johns Hopkins University, Max also completed a Masters' Certificate in Project Management, with a concentration in IT project management, through The George Washington, University School of Business.