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Destroying Ourselves: Is it Time to Find an Alternative to the Gas Tax?

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COMMENT

**DESTROYING OURSELVES: IS IT TIME TO FIND AN
ALTERNATIVE TO THE GAS TAX?**

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“A nation that destroys its soils destroys itself.”

— Franklin D. Roosevelt¹

INTRODUCTION

Our world is dying, and we are killing it. To date, we have nowhere else to turn. The United States has the third largest population in the world,² the largest economy,³ is the second-highest global contributor to air pollution,⁴ and produces more waste and recycles less than any other developed nation.⁵ As one of the world’s most powerful nations, the United States’ government needs to take an active role in developing laws and policies to mitigate the damage done thus far.⁶

1. A statement from Franklin D. Roosevelt made upon receiving the Schlich Forestry Medal on January 29, 1935, in OXFORD ESSENTIAL QUOTATIONS (Susan Ratcliffe ed., Oxford University Press, 5th ed. 2017).

2. *U.S. Census Bureau Current Population*, U.S. CENSUS BUREAU <https://www.census.gov/popclock/print.php?component=counter> (last visited Aug. 11, 2020).

3. *See GDP (current US\$)*, THE WORLD BANK, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true (last visited Aug. 11, 2020).

4. *Each Country’s Share of CO2 Emissions*, UNION OF CONCERNED SCIENTISTS <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions> (last updated May 11, 2020); Thomas C. Frohlich & Liz Blossom, *These countries produce the most CO2 emissions*, USA TODAY <https://www.usatoday.com/story/money/2019/07/14/china-us-countries-that-produce-the-most-co-2-emissions/39548763/> (last updated Jul. 14, 2019, 1:59 PM).

5. Emily Holden, *US produces far more waste and recycles far less of it than other developed countries*, GUARDIAN (July 3, 2019, 12:01 AM), <https://www.theguardian.com/us-news/2019/jul/02/us-plastic-waste-recycling>; see Jeff Turrentine, *The United States Is the Most Wasteful Country In the World*, NAT. RESOURCE DEF. COUNCIL (July 12, 2019), <https://www.nrdc.org/onearth/united-states-most-wasteful-country-world>.

6. “While modifications and changes are underway to lessen the use of natural gas and oil, replacing *all* fossil fuels in the United States unquestionably requires technological development and very significant change, including change in the policies and laws that currently support fossil fuels over renewable resources.” Meredith A. Wegener, *Balancing Rights in a New Energy Era: Will the Mineral Estate’s Dominance Continue?*, 57 HOUS. L. REV. 1037, 1039 (2020). The main

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Historically, policymakers have often used taxes to influence American behavior. A tax on gas or carbon may impact the decisions Americans make daily in choosing: (1) the distance between home and work; (2) to ride in a carpool or use public transportation; or (3) to purchase an SUV or a hybrid.⁷ Nonetheless, influencing behaviors through a Pigouvian tax⁸ alone may not be the most effective way to repair the damage done. Pure imposition of taxes may discourage bad behavior; however, an effective tax policy should incentivize good behavior by also providing tax credits.⁹ Psychologists have proven individuals are more inclined to adopt prosocial behaviors based on the framing of the decision situation.¹⁰ Therefore, Americans are more likely to lower their fossil fuel consumption if tax credits or incentives are implemented.

challenge to a sudden transition away from petroleum is the lack of a replacement energy source with the same abundance, reliability, and affordability. Renewable energy sources are a promise-filled future that require industrial electric power-storing capacity to replace combustible hydrocarbons. Monika U. Ehrman, *A Call for Energy Realism: When Immanuel Kant Met the Keep it in the Ground Movement*, 2019 UTAH L. REV. 435, 459 (2019).

7. See N. Gregory Mankiw, *Smart Taxes: An Open Invitation to Join the Pigou Club*, 35 EASTERN ECON. J. 14, 17 (2009), https://scholar.harvard.edu/files/mankiw/files/smart_taxes.pdf.

8. Pigovian taxes are intended to change behavior rather than raise revenue and are often used to discourage people from using harmful products such as carbon, gasoline, fat, sugar, guns, cigarettes, and alcohol. Victor Fleischer, *Essay, Curb Your Enthusiasm for Pigovian Taxes*, 68 VAND. L. REV. 1673, 1674-75 (2015).

9. An example of a successful Pigouvian tax is the Tobacco Tax in the United States. Evidence proves “cigarette taxes substantially reduce smoking rates and generate large improvements in public health.” Jason Furman, Council of Econ. Advisers, *Address at the 2016 World Bank Conference: Six Lessons from the U.S. Experience with Tobacco Taxes 5* (May 24, 2016), (transcript available at https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160524_cea_tobacco_tax_speech.pdf). However, this is only an improvement, Americans still purchase cigarettes. To further reduce smoking rates, or other harmful human behaviors, a successful tax policy will also incentivize Americans not to engage in that behavior with tax incentives and tax credits.

10. Psychological studies prove that how a situation is framed influences how it is perceived. Uri Gneezy, Stephan Meier & Pedro Rey-Biel, *When and Why Incentives (Don't) Work to Modify Behavior*, 25 J. ECON. PERSP. 191, 200 (Fall 2011) (“For example, whether a prisoner’s dilemma game is labeled as a ‘Wall Street Game’ or a ‘Community Game’ can change behavior substantially.”)

Furthermore, Americans need to reduce their consumption of fossil fuels.¹¹ Such a change cannot happen overnight—not when the fossil fuel industry is so intertwined with the American economy.¹² Every day we use fossil fuels to “heat our homes, run our vehicles, power industry and manufacturing, and provide us with electricity.”¹³ This dependence has led to countless wars¹⁴ and worsening climate change.¹⁵ To successfully break the United States’ oil addiction,¹⁶ Americans need to be both persuaded and dissuaded. To achieve this,

11. The Earth’s ozone layer, which protects all life on the planet from the harmful rays of the sun, is depleted by the harmful activities of Americans. A thinner ozone layer is linked to cataracts, skin cancer, and crop damage. *Basic Ozone Layer Science*, U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/ozone-layer-protection/basic-ozone-layer-science> (last visited Aug. 15, 2020). It is important to note that holes in the ozone are not a result of global warming. Ozone holes can occur from natural environmental factors like a polar vortex. *See, e.g.*, Allen Kim, *The largest-ever Arctic ozone hole developed this spring. Now, scientists say its closed.*, CNN (Apr. 27, 2020, 8:37 PM), <https://www.cnn.com/2020/04/27/world/ozone-hole-arctic-scn-trnd/index.html>. Whereas global warming occurs from an excess of carbon in the atmosphere when fossil fuels are burned, and “these gases spread around the planet like a blanket.” This blanket of gases trap in solar heat that would normally radiate into space. However, both ozone holes and global warming are caused by human activities that release gases and harm the Earth’s atmosphere. *Global Warming FAQ*, UNION OF CONCERNED SCIENTISTS, <https://www.ucsusa.org/resources/global-warming-faq> (last updated May 24, 2018). Evidence suggests, as the ozone layer thins, less heat is released—further heating up the earth and contributing to the same negative of fossil fuels and global warming. *See Is There a Connection Between the Ozone Hole and Global Warming*, UNION OF CONCERNED SCIENTISTS <https://www.ucsusa.org/resources/ozone-hole-and-global-warming#.Wv7WBliUuUk> (last updated July 27, 2017).

12. “The United States gets 81% of its total energy from oil, coal, and natural gas, all of which are fossil fuels.” *Fossil Fuels*, THE NAT’L ACAD. OF SCI., ENG’G, AND MED.: OUR ENERGY SOURCES, <http://needtoknow.nas.edu/energy/energy-sources/fossil-fuels/> (last visited Aug. 16, 2020) [hereinafter *Fossil Fuels*].

13. *Id.*

14. *See infra* note 36 for more information regarding the oil wars.

15. *See* discussion *infra* Section I.B.

16. Adam D.K. Abelkop, Note, *Why the Government Should Drink Your Milkshake: The Case for Restructuring the Federal Gas Tax*, 35 IOWA J. CORP. L. 393, 398 (2009) (explaining how America’s “mammoth level” consumption of oil is “popularly referenced as its ‘oil addiction’”).

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the government must implement taxes and incentives to deter certain behaviors and incentivize others.¹⁷

Part I of this Comment explores the history of the gas tax, explains why it is failing, and the negative impact the use of fossil fuels has on the environment. Part II elaborates on the current policy intended to either replace the gas tax, save the environment, or both. Further, this section introduces Georgia's film tax credit policy that could serve as a model for implementing renewable energy business tax credit. Part III suggests tax policy proposals that should be adopted at the federal level or experimented with at the state level to replace the gas tax, create jobs, and combat climate change. Part IV addresses possible counterarguments to the proposals put forth in this Comment. Finally, this Comment concludes with a solution to the problem, entailing a collection of taxes and tax credits that ease Americans away from fossil fuels to cleaner, renewable energy, and in the process, creates jobs and stimulates the post-COVID-19 United States economy.

I. WHEN WILL WE EVER LEARN?¹⁸

A. *The History of the Gas Tax*

Fossil fuels have not only been vital to the United States economy¹⁹ but were also fundamental to the initial construction and

17. See Gneezy, Meier & Rey-Biel, *supra* note 10.

18. PETE SEEGER, *Where Have All the Flowers Gone?*, IF I HAD A HAMMER: SONGS OF PEACE & STRUGGLE (Smithsonian Recording 1998).

19. "America's oil and natural gas industry supports 10.3 million jobs in the United States and nearly 8 percent of our nation's Gross Domestic Product." *Oil & Natural Gas Contribution To U.S. Economy Fact Sheet*, AM. PETROLEUM INST., <https://www.api.org/news-policy-and-issues/taxes/oil-and-natural-gas-contribution-to-us-economy-fact-sheet#:~:text=Economy%20Fact%20Sheet-,Oil%20%26%20Natural%20Gas%20Contribution%20to%20U.S.%20Economy%20Fact%20Sheet,here%20at%20home%20every%20year.> (last visited Aug. 26, 2020). See also *Understanding the Climate System*, THE NAT'L ACAD. OF SCI., ENG'G, AND MED., https://sites.nationalacademies.org/sites/climate/SITES_193558 (last visited Jan. 24, 2020); Brigham Daniels, Hannah Polikov, Timothy Profeta & James Salzman, *Regulating Climate: What Role for the Clean Air Act?*, 39 ENVTL. L. REP. NEWS & ANALYSIS 10837, 10838 (2009) (stating that fossil fuels are present "in every corner of the American economy").

maintenance of United States roads.²⁰ In 1919, Oregon made history as the first state to institute a tax on gas.²¹ This tax did not aim to limit the emission of greenhouse gases but to repair the damage done to the roads by the gas-powered vehicles.²²

By 1925, thirty-five states implemented a gas tax, which created over \$79 million in revenue, and in 1932, when every state had a version of the tax, Congress became interested.²³ The Revenue Act of 1932 established the first federal gas tax in the United States.²⁴ Public officials defended the tax as a necessary way to generate revenue after the Great Depression, and in its first year, it generated \$124.9 million.²⁵ Although Americans, historically, have been opposed to anything labeled a “tax,” the gas tax became quite popular with the public and was credited with creating the United States highway system.²⁶

In the years since 1932, Congress has raised the tax to continue funding the construction and maintenance of roads across the United States.²⁷ The tax was effective until 1990,²⁸ but then Congress “broke

20. See Olivia B. Waxman, *Why Americans First Started Paying a Separate Tax on Gas*, TIME: HIST. (June 6, 2017), <https://time.com/4803516/gas-tax-history/>.

21. See *id.*; Lyman Stone & Richard Borean, *When Did Your State Adopt Its Gas Tax?*, TAX FOUND. (July 16, 2014), <https://taxfoundation.org/when-did-your-state-adopt-its-gas-tax/>.

22. Another unexpected benefit of this tax was that it provided states with “the ability to measure how much gas was being consumed.” Waxman, *supra* note 18.

23. *Id.* (citing Joseph J. Thorndike, *Tax History: How Congress Broke the Gas Tax*, TAXANALYSTS (Oct. 31, 2013), <http://www.taxhistory.org/thp/readings.nsf/ArtWeb/1B663ACC1F6D710F85257D1B00412409?OpenDocument>).

24. *Id.*

25. *Id.* (7.7% of all internal revenue collections during fiscal year of 1933).

26. Niraj Chokshi, *A (very) brief history of the state gas tax on its 95th birthday*, WASH. POST (Feb. 25, 2014, 11:41 AM), <https://www.washingtonpost.com/blogs/govbeat/wp/2014/02/25/a-very-brief-history-of-the-state-gas-tax-on-its-95th-birthday/>.

27. See Waxman, *supra* note 18. “Originally put in place to raise funds during the Great Depression and first increased to help pay for U.S. costs of fighting World War II [C]ongress raised the tax to 3 cents per gallon when it created the Highway Trust Fund in 1956, and dedicated the entire proceeds to the purpose of building and repairing the nation’s roads and bridges.” David Blackmon, *Congress Should Raise The Federal Gas Tax, With Or Without An Infrastructure Bill*, FORBES: ENERGY (Feb. 18, 2018, 08:10 AM),

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the gas tax” when the first Bush administration boosted the “tax from 9.1 cents to 14 cents per gallon. And crucially, [it] used half of the new revenue for deficit reduction, not road construction.”²⁹ Congress has not raised the gas tax since 1933³⁰ Additionally, due to inflation, the corresponding increase in construction costs, and the increase in fuel efficiency, the well is drying up.³¹ To cover these shortfalls, “Congress has had to transfer a total of about \$143 billion to the Highway Trust Fund since 2008.”³² Taxes are like gardens: “[They] don’t do well when left unattended; they require [care] and attention, at least once in a while. Left to their own devices, they tend to decay.”³³

*B. Where Have All the Flowers Gone?*³⁴

The United States is a nation of overindulgence.³⁵ Americans consume fossil fuels daily as if there is an endless supply, and without

<https://www.forbes.com/sites/davidblackmon/2018/02/18/congress-should-raise-the-federal-gas-tax-with-or-without-an-infrastructure-bill/#283284172b97>.

28. See Thorndike, *Tax History: How Congress Broke the Gas Tax*, *supra* note 22.

29. Joseph Thorndike, *The Federal Gas Tax Is Old – And Broken*, FORBES: TAX NOTES (June 7, 2017, 10:24 AM), <https://www.forbes.com/sites/taxanalysts/2017/06/07/the-federal-gas-tax-is-old-and-broken/#499a8b6f2171>; see Thorndike, *Tax History: How Congress Broke the Gas Tax*, *supra* note 22.

30. Thorndike, *The Federal Gas Tax Is Old – And Broken*, *supra* note 27.

31. *Id.*

32. Dan Sichel, *Why it’s time to raise the federal gas tax*, PBS NEWS HOUR: COLUMN (Apr. 13, 2018, 6:17 PM), <https://www.pbs.org/newshour/economy/making-sense/column-why-its-time-to-raise-the-federal-gas-tax>.

33. Thorndike, *The Federal Gas Tax Is Old – And Broken*, *supra* note 27.

34. SEEGER, *supra* note 18.

35. In 2015-2016, 39.8% of American adults were obese. Craig M. Hales, Margaret D. Carroll, Cheryl D. Fryar & Cynthia L. Ogden, Data Brief No. 288, *Prevalence of Obesity Among Adults and Youth: United States, 2015-2016*, CTR. FOR DISEASE CONTROL AND PREVENTION: NCHS 1 (Oct. 2017), <https://www.cdc.gov/nchs/data/databriefs/db288.pdf>. “Weight that is higher than what is considered as a healthy weight for a given height is described as overweight or obese. Body Mass Index, or BMI, is used as a screening tool for overweight or obesity.” *Defining Adult Overweight and Obesity*, CTR. FOR DISEASE CONTROL AND PREVENTION, <https://www.cdc.gov/obesity/adult/defining.html> (last visited Sept 8,

considering the impact of their consumption. Not only is the gas tax no longer generating the necessary revenue to maintain United States roads, but it also incentivizes the continued use of fossil fuels.³⁶ The extensive use of fossil fuels has a wide-spanning impact on both our environment and our society,³⁷ which needs to be curbed.

2020). In 2019, out of a hundred and ninety-two nations, America was ranked the twelfth most obese nation at 36.2%. *Country Comparison: Obesity – Adult Prevalence Rate*, CENT. INTELLIGENCE AGENCY: THE WORLD FACTBOOK, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2228rank.html> (last visited Apr. 10, 2020). As for alcohol, America is ranked at twenty-five for pure alcohol consumption per capita. *Global Drinking Demographics*, ALCOHOL.ORG, <https://www.alcohol.org/guides/global-drinking-demographics/> (last visited Apr. 10, 2020). And with the world's third largest population, the United States “produced the most municipal solid waste in the world – 258 million tons of [municipal solid waste] was generated in 2017.” Hristina Byrnes & Thomas Cs. Frohlich, *Canada produces the most waste in the world. The US ranks third*, USA TODAY: MONEY <https://www.usatoday.com/story/money/2019/07/12/canada-united-states-worlds-biggest-producers-of-waste/39534923/> (last updated Jul. 12, 2019, 1:29 PM). The United States creates about 8.4 billion tons of waste a year. *Id.*

36. See Thorndike, *Tax History: How Congress Broke the Gas Tax*, *supra* note 22; see also Clayton Coleman & Emma Dietz, *Fact Sheet: Fossil Fuel Subsidies: A Closer Look at Tax Breaks and Societal Costs*, EESI (July 29, 2019), <https://www.eesi.org/papers/view/fact-sheet-fossil-fuel-subsidies-a-closer-look-at-tax-breaks-and-societal-costs#4> (“The United States provides a number of tax subsidies to the fossil fuel industry as a means of encouraging domestic energy production. These include both direct subsidies to corporations, as well as other tax benefits to the fossil fuel industry. Conservative estimates put U.S. direct subsidies to the fossil fuel industry at roughly \$20 billion per year; with 20 percent currently allocated to coal and 80 percent to natural gas and crude oil. European Union subsidies are estimated to total 55 billion euros annually.”)

37. After World War II, increased consumption of fossil fuels compelled the U.S. to import more and more oil to meet the demand. Tala Hadavi, *How the U.S. lost its energy independence*, CNBC: MARKETS <https://www.cnbc.com/2019/06/14/how-the-us-lost-its-energy-independence-to-the-middle-east.html> (last updated June 16, 2019, 7:57 AM). Since 1973, between one-quarter and one-half of interstate wars have been connected to oil. Jeff D. Colgan, *Policy Brief, Oil, Conflict, and U.S. National Interests*, Q. J.: INT’L SEC. (Oct. 2013), <https://www.belfercenter.org/publication/oil-conflict-and-us-national-interests>. Japan’s involvement in World War II, the Iran-Iraq war in the 1980s, and the U.S. wars in Iraq were all fueled by dependence on oil. Michael Peck, *5 Oil Wars That Ended in Disaster*, THE NAT’L INT. (Jan. 13, 2016), <https://nationalinterest.org/feature/5-oil-wars-ended-disaster-14885>; Antonia Juhasz, *Why the war in Iraq was fought for Big Oil*, CNN

1. *The Impact of Fossil Fuels on Society*

As of 2020, “81% of total energy [came] from oil, coal, and natural gas, all of which are fossil fuels.”³⁸ In reality, “[t]he production of crude oil is becoming increasingly scarce and more expensive.”³⁹ This dependence on fossil fuels “carries with it the potential to cause a massive economic collapse.”⁴⁰

Investment in and the expansion of the renewable energy industry in the United States will reduce dependence on foreign oil.⁴¹ As a

<https://www.cnn.com/2013/03/19/opinion/iraq-war-oil-juhasz/index.html> (last updated Apr. 15, 2013, 7:42 AM). The Islamic State of Iraq and Syria (“ISIS”), the Sunni extremist group, uses oil to fund the organization’s grand strategy. ISIS “occupies key oil-producing areas of Syria and oil-refining facilities in Iraq,” and fights to gain control over more vital oil sources. The more oil ISIS controls, the more money it will have to fund its troops, “and acquire its vast stockpiles of arms and ammunition.” Michael T. Klare, *Twenty-first century energy wars: how oil and gas are fueling global conflicts*, ENERGYPOST (July 15, 2014), <https://energypost.eu/twenty-first-century-energy-wars-oil-gas-fuelling-global-conflicts/>. Now, with the tensions rising between America and Iran, the potential of new oil war is brewing. This potential war could bring a surge in the price of oil. In 2019, oil prices rose 3% “on the news of a U.S. military drone shot down over the Strait of Hormuz, the critical conduit of 30% of the world’s seaborne oil.” Natasha Turak, *Oil at \$100? Experts predict where crude could go if an Iran conflict breaks out*, CNBC: OIL <https://www.cnbc.com/2019/06/06/heres-how-high-the-price-of-oil-could-go-if-conflict-broke-out-with-iran.html> (last updated June 20, 2019, 10:18 AM).

38. *Fossil Fuels*, *supra* note 11.

39. Andrew Rabalais, Comment, *Drive down to Electric Avenue: Taking Electric Vehicle Incentives Higher*, 5 LSU J. ENERGY L. & RES. 427, 431 (2017).

40. *Id.* at 428.

41. See Adam Wilson, Note, *The Future Looks Bright, or Does It? An Analysis of Solar Energy Law and Policy in the United States*, 22 J. ENVTL. & SUSTAINABILITY L. 333, 336 (2016) (“However, no single renewable energy source alone need be the solution. Clean renewables like solar, wind, and geothermal should all play an integral part in ending the United States’ dependence on fossil fuels, and drawing from multiple sources spurs competition and innovation that will reduce costs and improve technology.”); Rebecca Lefton & Daniel J. Weiss, *Oil Dependence Is a Dangerous Habit*, AM. PROGRESS (Jan. 13, 2010), <https://www.americanprogress.org/issues/green/reports/2010/01/13/7200/oil-dependence-is-a-dangerous-habit/#:~:text=Clean%20energy%20can%20help%20bring,and%20long%2Dterm%20sustainable%20growth> (“The United States has an opportunity right now to reduce its dependence on foreign oil by adopting clean-energy and global warming

result, money spent on energy will be spent domestically contributing to the United States economy and creating jobs. Furthermore, if a profitable and productive, domestic renewable energy industry is cultivated, the United States will no longer have to engage in wars over oil.⁴²

2. *The Impact of Fossil Fuels on the Environment*

Climate change “first entered the public consciousness in the late 1980s, with the establishment of the Intergovernmental Panel on Climate Change (IPCC).”⁴³ However, it is common knowledge a buildup of carbon dioxide in the atmosphere could lead to global warming.⁴⁴ Since the late 1980s, and even before, a plethora of scholars have analyzed and written about the negative effects of climate change and ways to reduce the damage, but as of 2020, the state of our world is only getting worse.⁴⁵

pollution reduction policies that would spur economic recovery and long-term sustainable growth”).

42. Bill McKibben, Opinion, *If the world ran on sun, it wouldn't fight over oil*, GUARDIAN: OIL (Sept. 18, 2019, 01:01 AM), <https://www.theguardian.com/commentisfree/2019/sep/18/climate-crisis-oil-war-iraq-saudi-attack-green-energy> (discussing how America's dependence on oil may lead to another war with a foreign nation—this time Iran); Amy Myers Jaffe & Jareer Ellass, *War and the Oil Price Cycle*, COLUM. J. OF INT'L AFF.: SIPA (Jan. 1, 2016), <https://jia.sipa.columbia.edu/war-oil-price-cycle>; Mamdouh G. Salameh, *Oil Wars*, IAEE: THE ENERGY J. 17 (1st Q. 2015) <https://www.iaee.org/newsletter/issue/33> (detailing how from the early 70s and beyond oil has been a leading cause of war); Nafeez Ahmed, *Iraq invasion was about oil*, GUARDIAN: EARTH INSIGHT, ENV'T (Mar. 20, 2014, 11:23 PM), <https://www.theguardian.com/environment/earth-insight/2014/mar/20/iraq-war-oil-resources-energy-peak-scarcity-economy> (explaining how the 2003 Iraq war was over oil); Juhasz, *Why the war in Iraq was fought for Big Oil*, *supra* note 35 (arguing the winner of the 2003 Iraq war was “Big Oil”).

43. Roberta Mann, *Waiting to Exhale?: Global Warming and Tax Policy*, 51 AM. U.L. REV. 1135, 1141 (2002).

44. *Id.* (citing Ross Gelbspan, THE HEAT IS ON: THE HIGH STAKES BATTLE OVER THE EARTH'S THREATENED CLIMATE 118 (1977)).

45. “Significant advances in climate change detection and attribution science—the branch of science which seeks to isolate the effect of human influence on the climate and related earth systems—have continued to clarify the extent to which anthropogenic climate change causes both slow onset changes and extreme events.” Michael Burger, Jessica Wentz & Radley Horton, *The Law and Science of*

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According to the National Aeronautics and Space Administration (NASA), the Earth's "average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere."⁴⁶ The last decade was the warmest ever recorded.⁴⁷

The world's oceans have absorbed over 90% of this increased heat⁴⁸ causing a shockwave affecting the entire ecosystem.⁴⁹ In fact, "the oceans are heating up 40 percent faster on average than a United

Climate Change Attribution, 45 COLUM. J. ENVTL. L. 57, 61-62 (2020). These extreme events include major hurricanes, monsoon rains, flooding, wildfires, heat waves, and severe droughts. *Id.* at 61. Grant Wilson, *Article: Murky Waters: Ambiguous International Law for Ocean Fertilization and Other Geoengineering*, 49 TEX. INT'L 507, 518-19 (2014) ("While climate change will not cause a global catastrophe overnight, long-term climatic changes could cause massive damage to humans, especially if climate change reaches a tipping point. A recent report from DARA finds that climate change already causes about 400,000 deaths per year, primarily from hunger and communicable diseases and most of which occur in developing countries, with the carbon economy causing almost 4.5 million deaths per year due to pollution, cancer, and dangerous occupations. Looking to the future, imagine the following possible situation: by 2100, half of the planet's biodiversity could be wiped out; of the planet's some 10 billion people, at least half could be suffering from a food crisis; 1.1 to 3.2 billion people could face water scarcity; a sea-level increase of a meter would inundate major coastal cities; and dead zones could expand by a factor of at least 10").

46. Earth Science Communications Team, *Climate Change: How Do We Know?*, NASA: GLOBAL CLIMATE CHANGE <https://climate.nasa.gov/evidence/> (last visited Aug. 18, 2020).

47. Alejandra Borunda, *Weather shows evidence of climate change every single day since 2012*, NAT'L GEOGRAPHIC: SCI. (Jan. 16, 2020), <https://www.nationalgeographic.com/science/2020/01/weather-shows-evidence-of-climate-change-every-single-day-since-2012/>.

48. Tim Wallace, *Oceans Are Absorbing All of the Globe's Excess Heat*, N.Y. TIMES: ENV'T (Sept. 12, 2016), <https://www.nytimes.com/interactive/2016/09/12/science/earth/ocean-warming-climate-change.html?mtrref=www.nytimes.com&assetType=REGIWALL>.

49. "[W]armer ocean temperatures may also increase the destructive potential of extreme weather, like cyclones and hurricanes." *Id.* "The oceans have absorbed much of this increased heat, with the top 700 meters (about 2,300 feet) of ocean showing warming of more than 0.4 degrees Fahrenheit since 1969." Earth Science Communications Team, *Climate Change: How Do We Know?*, *supra* note 45.

Nations panel estimated five years ago.”⁵⁰ As the oceans warm, they expand, causing about one-third of the rise in sea levels.⁵¹ Warmer oceans also cause an increase in extreme weather, such as cyclones and hurricanes.⁵² Not only are these extreme weather patterns more frequent, but they are also more destructive.⁵³ With torrential rainstorms in June and heat waves in January, the weather has become more erratic and unpredictable than ever before.⁵⁴

In 2002, scientists estimated severe weather events triggered by global warming would create \$300 billion in damages, and the United States would bear 10% of those costs.⁵⁵ In the period between 1980 and 2019, 241 weather and climate disasters occurred in the United States, with cumulative costs exceeding \$1.6 trillion.⁵⁶ In 2018 alone, the United States experienced “14 separate billion-dollar disaster events: two tropical cyclones, eight severe storms, two winter storms, drought, and wildfires.”⁵⁷

Correspondingly, warmer waters harm the ocean’s ecosystems. A fifth of the world’s coral reefs⁵⁸ have died in the last three years.⁵⁹ These are the same coral reefs that feed hundreds of millions of people

50. Kendra Pierre-Louis, *Oceans Warming is Accelerating Faster Than Thought, New Research Finds*, N.Y. TIMES: CLIMATE & ENV’T (Jan. 10, 2019), <https://www.nytimes.com/2019/01/10/climate/ocean-warming-climate-change.html>.

51. Wallace, *supra* note 46.

52. *Id.*

53. “[P]owerful storms like Hurricane Harvey in 2017 and Hurricane Florence in 2018 will become more common, and coastlines around the world will flood more frequently.” Pierre-Louis, *supra* note 48.

54. *See* Borunda, *supra* note 45.

55. Mann, *supra* note 41, at 1146.

56. Adam B. Smith, *2018’s Billion Dollar Disasters in Context*, CLIMATE.GOV (Feb. 7, 2019), <https://www.climate.gov/news-features/blogs/beyond-data/2018s-billion-dollar-disasters-context>.

57. *Id.*

58. “Coral reefs are created in shallow tropical waters by millions of tiny animals called corals. Each coral makes a skeleton for itself, and over time, these skeletons build up to create coral reefs, which provide habitat for lots of fish and other ocean creatures.” *Plants, Animals, and Ecosystems*, EPA: A STUDENT’S GUIDE TO GLOBAL CLIMATE CHANGE <https://archive.epa.gov/climatechange/kids/impacts/effects/ecosystems.html> (last updated May 9, 2017).

59. Pierre-Louis, *supra* note 48.

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each year.⁶⁰ Thus, a food shortage may be in our future, especially for people in areas who rely heavily on fish as a part of their regular diet.⁶¹

The melting Antarctic ice shelf is another major contributor to the rising sea levels, and the increasing average global temperatures further exacerbate the ice shelf's melting.⁶² Antarctica's ice shelf stores 60% of the world's freshwater.⁶³ As the ice shelf melts, the water stored in the shelf spills out into the ocean causing the water to rise even more.⁶⁴

A record increase in greenhouse gases in our atmosphere causes the global temperatures to rise.⁶⁵ Various organizations reported it is "extremely likely"⁶⁶ this increase in greenhouse gases results from

60. *Id.* "Warmer water has already caused coral bleaching (a type of damage to corals) in many parts of the world." *Plants, Animals, and Ecosystems*, *supra* note 57. Coral bleaching occurs when the coral is put under stress by a drastic increase in light or temperature and they "expel the symbiotic algae living in their tissues, causing them to turn completely white." *What is coral bleaching?*, NAT'L OCEAN SERV.: OCEAN FACTS, https://oceanservice.noaa.gov/facts/coral_bleach.html (last visited Jan. 24, 2020).

61. Pierre-Louis, *supra* note 48.

62. *See* Whitney Clavin, J.D. Harrington & Marie-Jose Vinas Garcia, *Warming ocean causing most Antarctic ice shelf loss*, NASA: GLOBAL CLIMATE CHANGE (June 12, 2013), <https://climate.nasa.gov/news/937/warming-ocean-causing-most-antarctic-ice-shelf-mass-loss/>.

63. *Id.*

64. *Id.*

65. "Greenhouse gases occur naturally and are essential to the survival of humans and millions of other living things, by keeping some of the sun's warmth from reflecting back into space and making Earth livable. But after more than a century and a half of industrialization, deforestation, and large scale agriculture, quantities of greenhouse gases in the atmosphere have risen to record levels not seen in three million years." *Climate Change*, U.N.: GLOBAL ISSUES, <https://www.un.org/en/sections/issues-depth/climate-change/> (last visited Jan. 24, 2020).

66. The Intergovernmental Panel on Climate Change ("IPCC") defined "extremely likely," as a probability between 95% and 100%. Further, the US fourth national climate assessment determined human responsibility was between 93% to 123% for the period of 1951 to 2010. The reason human contribution may be over 100% is because the earth would have naturally cooled itself off over the past 50 years, but human activity impeded that cooling. Zeke Hausfather, Analysis, *Why scientists think 100% of global warming is due to humans*, CARBONBRIEF: GLOBAL

human activities such as deforestation and the extraction of non-renewable fossil fuels that are burned for energy.⁶⁷ Studies show even if the emissions of greenhouse gases miraculously stopped, it would take thousands of years for the Earth's surface temperature to return to what it was before the industrial era.⁶⁸ Nonetheless, if each nation took active steps to reduce emissions or remove carbon from the atmosphere, the rate of warming would decrease.⁶⁹

C. What Can the United States Government Do?

Now, at the dawn of this new decade, climate change is hard to deny. And yet, despite the abundance of evidence, 36% of Americans still do not believe in climate change.⁷⁰ This means, with roughly 330 million people living in the United States,⁷¹ 118,800,000 Americans, doubt the available evidence.⁷² Although Americans who do not believe in climate change are in the minority, convincing this small but impactful group to transition away from fossil fuels and engage in eco-friendly behaviors will be difficult.⁷³

TEMPERATURE (Dec. 13, 2017, 4:59 PM), <https://www.carbonbrief.org/analysis-why-scientists-think-100-of-global-warming-is-due-to-humans>.

67. *Understanding the Climate System*, *supra* note 17.

68. *Id.*

69. *Id.*

70. See Mathew Ballew, Abel Gustafson, Parrish Bergquist, Matthew Goldberg, Seth Rosenthal, John Kotcher, Edward Maibach & Anthony Leiserowitz, Climate Note, *Americans Underestimate How Many Others in the U.S. Think Global Warming is Happening*, YALE: CLIMATE COMMUNICATION (July 2, 2019), <https://climatecommunication.yale.edu/publications/americans-underestimate-how-many-others-in-the-u-s-think-global-warming-is-happening/>.

71. *U.S. and World Population Clock*, U.S. CENSUS, <https://www.census.gov/popclock/> (last visited Sept. 3, 2020).

72. Cary Funk & Brian Kennedy, *How Americans see climate change and the environment in 7 charts*, PEW RESEARCH CTR. (Apr. 21, 2020), <https://www.pewresearch.org/fact-tank/2020/04/21/how-americans-see-climate-change-and-the-environment-in-7-charts/>.

73. A survey conducted by “Purdue University found that 47% of climatologists challenge the idea that humans are primarily responsible for climate change and instead believe that climate change is caused by an equal combination of humans and the environment (37%), mostly by the environment (5%), or that there’s not enough information to say (5%).” Additionally, there is evidence that rising levels of CO₂ does not “necessarily” cause global warming, which is the core thesis

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To effectively combat climate change, the U.S. government must take an active role in persuading the citizens to shift away from fossil fuels to renewable energy. The next section will elaborate on current tax policies at the federal and state levels, and whether those policies are effectively accomplishing the goal of incentivizing a shift away from fossil fuels.

II. CURRENT TAX POLICIES

The idea taxes influence behavior is not new. In fact, influencing public behavior is one of the main objectives of many tax policies.⁷⁴ For example, the recent Film Credit Model is a tax policy implemented to incentivize certain behaviors, expand the industry, and generate revenue.⁷⁵ This section will explore the benefits and drawbacks of policies proposed or implemented to fix the gas tax, save the environment, or both, and will explore the Film Credit Model as a successful framework from which policymakers can build. The section will also discuss other similar policies states have implemented over the years.

of “human-caused climate change.” *Is Human Activity Primarily Responsible for Global Climate Change?*, PROCON.ORG <https://climatechange.procon.org/> (last updated Apr. 1, 2020). Further, a 2010 report revealed that out of 11,944 peer-reviewed studies, “66.4% of the studies had no stated position on [anthropogenic global warming],” and only sixty-five of those papers explicitly stated human activities are the primary cause of global warming. *1350+ Peer-Reviewed Papers Supporting Skeptic Arguments Against ACC/AGW Alarmism*, POPULAR TECHNOLOGY (Feb. 12, 2014), <http://www.populartechnology.net/2009/10/peer-reviewed-papers-supporting.html>.

74. Other goods inducing harmful behaviors are taxed in this way such as cigarettes, alcohol, and sugary drinks. *See, e.g.*, Janelle Cammenga, *How High Are Cigarette Taxes in Your State?*, TAX FOUND. (Apr. 10, 2019), <https://taxfoundation.org/2019-state-cigarette-tax-rankings/>; Janelle Cammenga, *How High Are Spirits Taxes in Your State?*, TAX FOUND. (June 19, 2019), <https://taxfoundation.org/state-distilled-spirits-taxes-2019/>; Dan Charles, *Soda Taxes Work, Studies Suggest – But Maybe Not As Well As Hoped*, NPR (Feb. 21, 2019, 5:59 PM), <https://www.npr.org/sections/thesalt/2019/02/21/696709717/u-s-soda-taxes-work-studies-suggest-but-maybe-not-as-well-as-hoped>.

75. *See Film Tax Credits*, TAX FOUND., <https://taxfoundation.org/business-taxes/business-expenditures-credits-and-deductions/film-tax-credits/> (last visited June 10, 2020); Mac Taylor, *California’s First Film Tax Credit Program*, LEGIS. ANALYST OFF. (Sept. 29, 2016), <https://lao.ca.gov/Publications/Report/3502>. *See infra* Section II.C.

A. Gas Tax Alternatives

1. Oregon's Vehicle-Miles-Traveled Fee

As for the gas tax, there are ways to repair the damage done. One option is Oregon's vehicle-miles-traveled fee (VMT fee).⁷⁶ VMT fees are based on the distance driven.⁷⁷ Drivers use onboard vehicle devices to track the distance traveled through GPS and other similar technology.⁷⁸ In 2013, Oregon "passed a law allowing up to 5,000 residents to pay [the fee] in place of a gas tax."⁷⁹ Participants pay 1.8 cents per mile and receive a credit for fuel tax paid at the pump.⁸⁰ Unfortunately, the Oregon solution is failing because not enough citizens are participating in the program.⁸¹ Without public participation, the state cannot generate revenue to fund road maintenance.⁸²

As of June 30, 2019, only 611 passenger vehicle owners participated in the voluntary program, falling short of the 5,000 resident goal.⁸³ Michelle Godfrey with the Oregon Department of Transportation explained, "People who stand to pay the most tax [and

76. Michael J.P. Hazel, Rachel Jacobson, Sarah C. Judkins & Benjamin Hanna, *Natural Gas Industry's Infrastructure Risks and Opportunities*, 19 PRATT'S ENERGY L. REP. 4.02 (LexisNexis A.S. Pratt, 2020) (suggesting a "vehicle-miles-traveled" fee along with increasing the gas tax as a way to generate revenue).

77. *Vehicle-miles Traveled (VMT) Fees*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN., https://www.fhwa.dot.gov/ipd/tolling_and_pricing/defined/vmt.aspx (last visited May 3, 2020).

78. *Id.*

79. Chokshi, *supra* note 24.

80. *How does OReGO work?*, OReGO, <http://www.myorego.org/how-it-works/> (last visited Aug. 23, 2020).

81. James Drew, *Pay per mile for using the roads? Oregon can teach Washington a few things*, NEWS TRIB., <https://www.thenewstribune.com/news/local/article233435497.html> (last updated Aug. 13, 2019, 08:55 AM).

82. *See id.*; see also Joe Cortright, *An idea whose time has passed: The VMT Fee*, CITY OBSERVATORY: COMMENT. (Jan. 30, 2018), http://cityobservatory.org/vmt_fee_out_of_date/ (explaining a better system should reflect "the impact on the environment, wear and tear on the roadway, and the cost of congestion, not just how far a vehicle is driven.")

83. Drew, *supra* note 79.

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thus generate the most money] are not going to sign up.”⁸⁴ A successful tax program cannot be achieved unless it is mandatory.⁸⁵ Godfrey further expounded residents need to be “educated about transportation funding,” and every mile puts wear and tear on the roads.⁸⁶

2. Dan Sichel and N. Gregory Mankiw – A Pigouvian Policy

Another option is to raise the federal gas tax or “tie [it] to inflation or some other variable that changes with fluctuating expenses as 12 states ha[ve] done.”⁸⁷ If the federal fuel tax is raised by a penny, it “would raise between \$1.5 and \$1.7 billion in revenue per year for the Highway Trust Fund.”⁸⁸ If the fuel tax is raised five cents a year over the next five years for a total of a twenty-five cent increase, the tax will raise \$394 billion over the next ten years.⁸⁹

84. After failing to attract the intended 5,000 volunteers, Oregon eliminated the cap and has taken steps to incentivize participants such as “waiving registration fee increases for electric vehicle owners if they begin to pay per mile.” *Id.*

85. *Id.*

86. *Id.*

87. Chokshi, *supra* note 24. There is no doubt that an increased cost, brought about by high gas taxes, decreases the amount of a product consumed. Zoe Zender, *The Danger of the Gas Tax: To People, Businesses, and Even to the Environment*, 20 ILL. BUS. L.J. 30, 31 (2015) (citing Justin Marion & Erich Muehlegger, *Fuel Tax and Supply Conditions*, 95 J. OF PUB. ECON. 1202-12 (Oct. 2011)).

88. Sichel, *supra* note 30. Dan Sichel is a Professor of Economics at Wellesley College who specializes in macroeconomics, long-run growth, and technology. *About Dan Sichel*, WELLESLEY COLLEGE, <https://www.wellesley.edu/albright/about/faculty/dan-sichel> (last visited Apr. 10, 2020). Before Wellesley, he worked mostly with “the Federal Reserve Board, though [he] also worked at the U.S Treasury and the Brookings Institution. At the Fed, [he] was part of the senior management team providing analytic support to the Chair, other members of the Federal Reserve Board, and the Federal Open Market Committee. [Sichel] worked on a range of macroeconomic issues, including helping to guide the Fed’s forecast and analysis of the U.S. economy.” *Dan Sichel*, WELLESLEY COLLEGE, <https://www.wellesley.edu/economics/faculty/sicheld> (last visited Apr. 10, 2020). Before Sichel began working for the Federal Reserve Board he “received a bachelor’s degree in economics and a master’s degree in public policy from the University of Michigan,” and “a Ph.D. in Economics at Princeton University.” *Id.*

89. Sichel, *supra* note 30.

In light of the current state of climate change, Americans must reconsider their dependence on gasoline and other fossil fuels. Dan Sichel argues raising the gas tax would counteract the negative externalities of “both the environmental costs of pollution that contribute to adverse-health outcomes and climate change, as well as congested roadways.”⁹⁰ An increase in the cost of a gallon of gas may encourage Americans to drive less, purchase more energy-efficient cars, or take advantage of carpooling and public transportation.⁹¹

Nevertheless, Sichel’s suggested policy arguably fails to account for the impact of the decreased consumption of gas. First, if fewer people consume gas due to price increases,⁹² then the tax will only generate as much revenue as it did before the tax was raised. That is unless the gas tax is raised enough to account for this change in gas consumption.

Second, the gas tax puts a burden on lower-income individuals and forces them “out of the market” because, under the proposed system, they will not be able to afford gasoline.⁹³ Sichel argues, “[A] higher cost for gasoline should result in less demand for petroleum and more demand for alternative forms of transportation.”⁹⁴ The problem is, currently, there are few affordable fuel alternatives.⁹⁵ The

90. *Id.*

91. *Id.*

92. “There is no doubt that an increased cost, brought about by high gas taxes, decreases the amount of a product consumed. Basic economics would say that no matter the size of the increased cost, it forces some purchasers out of the market. However, even if the goal of decreasing gasoline consumption has been accomplished, it is likely causing adverse effects beyond merely costing fuel users more money. Akash Chougule, the Deputy Director of Policy for Americans for Prosperity, contends that an ‘important thing to remember about the gas tax is that increasing it would hit lower- and middle-income families hardest.’” Zender, *supra* note 85.

93. *Id.*

93. *Id.*

94. Blackmon, *supra* note 25 (explaining that even a fiscally conservative American should support this tax as “one federal-level tax that actually needs raising”).

95. “Families still need gasoline to power their vehicles, to get to work and to school, even if the cost increases. For those at lower income levels, the raised cost of gas due to a gas tax means that they spend more money on gasoline as a proportion of their income than do those of higher income. In other words, the gas tax imposes

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demand may increase but without the necessary supply. Many cities in the United States have insufficient or nonexistent public transportation systems.⁹⁶ Hybrid and electric vehicles are expensive to own and maintain.⁹⁷ Thus, the gas tax is ineffective because lower- and middle-income families will have to pay the higher gas prices and be further disadvantaged in the process.⁹⁸ Whereas, those who can afford to pay the tax will likely continue to use gasoline and drive less fuel-efficient cars, especially the 36% of Americans who do not believe in climate change.

Therefore, the ideal tax policy needs to account for this inequality, push companies to invest in more affordable fossil fuel alternatives and convince even those who do not believe in climate change that installing solar panels on their home or buying an electric vehicle will benefit them either way.

a heavier burden on lower income individuals. It saps up a larger proportion of income of those that least can afford it.” Zender, *supra* note 85.

96. Aaron Gordon, *Why the US Sucks at Building Public Transit*, VICE (Mar. 9, 2020), https://www.vice.com/en_us/article/884kvk/why-the-us-sucks-at-building-public-transit (“Nearly all Americans, including those in cities, face a dire choice: spend thousands of dollars a year owning a car and sitting in traffic, or sacrifice hours every day on ramshackle public transit getting where they need to go.”); Jonathan English, *Why Did America Give Up on Mass Transit? (Don’t Blame Cars.)*, BLOOMBERG CITYLAB (Aug. 31, 2018), <https://www.bloomberg.com/news/features/2018-08-31/why-is-american-mass-transit-so-bad-it-s-a-long-story> (“Once cars arrived, nearly every U.S. transit agency slashed service to cut costs, instead of improving service to stay competitive. This drove even more riders away, producing a vicious cycle that led to the point where today, few Americans with a viable alternative ride buses or trains.”).

97. “The average sticker price on an electric car is \$19,000 higher than an average gasoline-powered vehicle.” Brian Palmer, *Electric vs. Gas: Is It Cheaper to Drive an EV?*, NAT. RESOURCE DEF. COUNCIL (July 31, 2020), <https://www.nrdc.org/stories/electric-vs-gas-it-cheaper-drive-ev>. The U.S. Department of Energy’s National Renewable Energy Laboratory (NREL) released a study breaking down the lifetime fuel costs of battery-powered electric vehicles compared with internal combustion engine cars. *Id.* The state with the best results is Washington, where individuals could save as much as \$14,480 over 15 years. The state with the worst results was Hawaii, where individuals could only save \$2,494 over 15 years. *Id.* However, to actualize this savings over time, individuals need to have the means to overcome the initial higher sticker price.

98. Zender, *supra* note 85.

Another proponent for increasing the gas tax is N. Gregory Mankiw.⁹⁹ He explains, in general, economists believe the price of gas in the United States is too low.¹⁰⁰ The United States has a significantly lower fuel tax per gallon than comparative economies.¹⁰¹ The problem, he states, is a matter of education.¹⁰² A majority of Americans are against creating a tax on driving.¹⁰³ Political leaders also oppose taxation because they want to appease voters and win to return for another term.¹⁰⁴ Economists, who do not have to appease the public, largely agree in the need to increase energy taxes.¹⁰⁵

Mankiw determined the key to fixing the problem is to convince the public increasing the gas tax will result in the best outcome for everyone.¹⁰⁶ People will continue to emit too much unless a policy limits the emission of carbon.¹⁰⁷ A Pigouvian policy¹⁰⁸ influences the behavior of individuals and corporations as to “how much to drive, what kind of car to buy, how much electricity to use, what kind of electric power plant to build, and so on.”¹⁰⁹

According to Mankiw, the real debate is the appropriate size of the tax.¹¹⁰ Ideally, the tax should equal the external cost of carbon emission, but there is little consensus on the amount of that cost.¹¹¹ The answer depends on how dollars today are traded off against dollars in the future: “[T]he issue of global warming involves taking

99. Mankiw, *supra* note 7.

100. *Id.* at 14.

101. On average, Americans pay fifty cents per gallon after federal and state taxes are factored in, while “people in many European counties pay over \$3 in taxes per gallon of gasoline.” Sichel, *supra* note 30.

102. Mankiw, *supra* note 7, at 15.

103. *See id.*

104. This is why Speaker of the House Nancy Pelosi was against raising gas prices, stating that it will place burdens on “American families and businesses.” *Id.*

105. *Id.* at 14-15 (explaining 65% of the American Economic Association, and 54% in a poll of business economists done by the Wall Street Journal in 2007, believe the tax should be raised).

106. *See id.* at 15.

107. *Id.*

108. Fleischer, *supra* note 8, at 1674.

109. Mankiw, *supra* note 7, at 16.

110. *Id.*

111. *Id.*

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costly actions today to avoid adverse outcomes that will occur far in the future. Economists have not yet figured out the best way to calibrate that tradeoff.”¹¹²

Mankiw compares his Pigouvian policy to the alternatives. One option is to put the responsibility on car manufacturers to “increase the fuel efficiency of the cars they sell.”¹¹³ He argues enhancing fuel efficiency will increase, not reduce, energy consumption.¹¹⁴ Increased driving will defeat the purpose of the gas tax because it will increase congestion on roads, which will cause roads to deteriorate more rapidly, thus requiring more repairs and further depleting the revenue created by the gas.¹¹⁵

This problem highlights a flaw with the gas tax in the modern world. If the ultimate objective is to save the planet, then promoting an increased gas tax may only counteract that goal. It will disincentivize investment in electric vehicles (EVs) and other fuel-efficient alternatives. Instead of shifting away from oil, the condition and safety of our roads will depend upon oil. However, the road to the brightest future only stems from a shift away from oil.

112. *Id.* at 17.

113. *Id.*

114. *See id.*

115. *See id.* Marlon Boarnet, chair of the department of urban planning at the University of Southern California, believes raising the gas prices will not lead to less driving, decreased traffic fatalities, and an increase in transit use. In a study evaluating the effects of gas prices on driving behavior, Boarnet found that for every 10% gas price increase, the amount of vehicle miles traveled dropped by about 1%. The increase by itself will not reduce driving in the near future, especially because it is common to see larger increases “on a weekly basis based on market forces alone.” Boarnet concludes that “in general all drivers have been becoming less sensitive to increases in gas prices over time as incomes have risen and transportation costs make up a decreasing share of our budgets.”

Meghan McCarty Carino, *Proposed increase in gas tax likely won't lead to less driving*, 89.3 KPCC: BUS. & ECON. (Apr. 5, 2017), <https://www.scpr.org/news/2017/04/05/70524/proposed-increase-in-gas-tax-likely-won-t-lead-to/>.

3. Carbon Tax

Another policy recently debated is a carbon tax: a “tax levied on firms that produce carbon dioxide (CO₂) through their operations.”¹¹⁶ This tax is essentially a broader version of the gas tax, with the specific purpose of reducing the use of high-carbon fuels that harm the environment instead of raising revenue for the construction and maintenance of roads.¹¹⁷

Economists argue a carbon tax is one of the most effective and efficient policies.¹¹⁸ Increasing the tax on carbon “would raise costs for industry and households, resulting in lower profits, wages, and consumption.”¹¹⁹ The tax will also “make it difficult for U.S. companies to compete with foreign rivals.”¹²⁰ These increased costs will specifically impact carbon-intensive industries and “regions that depend heavily on carbon-intensive fuels, particularly coal.”¹²¹

Unfortunately, taxpayers overwhelmingly oppose the implementation of a carbon tax.¹²² Australia experimented with a carbon tax, and after it backfired, the tax was repealed.¹²³ The tax increased energy bills, cut jobs, and required the government “to create heaps of new bureaucracy, rebates, free carbon credits and red

116. Peter Bondarenko, *Carbon Tax*, ENCYCLOPEDIA BRITANNICA (Nov. 23, 2015), <https://www.britannica.com/topic/carbon-tax>.

117. *See supra* Section II for an explanation of the harmful effects of CO₂ and other greenhouse gases.

118. Gary M. Lucas, Jr., *Voter Psychology and the Carbon Tax*, 90 TEMP. L. REV. 1, 2 (2017).

119. *Key Elements of the U.S. Tax System*, TAX POL’Y CTR., <https://www.taxpolicycenter.org/briefing-book/what-carbon-tax> (last Updated May 2020).

120. H. Sterling Burnett, *Why a carbon tax does not work*, WASH. TIMES (Feb. 6, 2018), <https://www.washingtontimes.com/news/2018/feb/6/a-carbon-tax-wont-help-the-climate-and-it-will-hur/>.

121. *Key Elements of the U.S. Tax System*, *supra* note 112.

122. Lucas, *supra* note 111, at 4.

123. *Canada Should Learn From Australia’s Failed Carbon Tax Experiment*, ATLAS NETWORK (Jan. 17, 2017), <https://www.atlasnetwork.org/news/article/canada-should-learn-from-australias-failed-carbon-tax-experiment>.

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tape just to deal with the fallout from the tax [and] it did virtually nothing to impact global climate change.”¹²⁴

Like the gas tax, a carbon tax could effectively generate revenue.¹²⁵ A tax of \$25 that increases 2% above inflation, could raise \$1 trillion over its first decade.¹²⁶ This revenue could offset the negative externalities of the tax, such as “reduce Social Security contributions from low-income households, or compensate workers in carbon-intensive industries.”¹²⁷ This revenue could also be used to fund the transition away from fossil fuels, invest in green energy, and create new jobs.¹²⁸

The United States’ dependence on oil has consequences spanning broader than only the environment.¹²⁹ Many issues with the gas tax carry over to the carbon tax. Raising the gas tax or implementing a carbon tax that disincentivizes the use of fossil fuels is a step in the right direction, but this tax alone will not do enough to make a significant impact or lead taxpayers to shift away from fossil fuels. This shift is crucial to repair the damage done.

B. Existing Tax Cuts and Incentives for Renewable Energy Businesses

1. Section 179D Deductions

Internal Revenue Code (IRC) 179D,¹³⁰ which has been in effect since January 1, 2006,¹³¹ “primarily enables building owners to claim

124. *Id.*

125. *Key Elements of the U.S. Tax System*, *supra* note 112.

126. *Id.*

127. *Id.*

128. *Id.*

129. *See infra* Section III.

130. 26 U.S.C.S. § 179D (LexisNexis 2020); *179D Commercial Buildings Energy-Efficiency Tax Deduction*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction> (last visited Aug. 26, 2020).

131. *See* Jennifer C. Bernardini of the Office of Associate Chief Counsel (Passthroughs & Special Industries), Notice 2006-52, *Deduction for Energy Efficient Commercial Buildings*, IRS at 2, <https://www.irs.gov/pub/irs-drop/n-06-52.pdf> (last visited Apr. 10, 2020).

a tax deduction for installing qualifying systems and buildings.”¹³² The person primarily responsible for the system’s design may also claim the deduction “if the system or building is installed on federal, state, or local government property.”¹³³ These “deductions are taken in the year in which systems and buildings [have been] placed in service.”¹³⁴ Under the current code, these systems and buildings must be placed in service by December 31, 2020.¹³⁵ The promotion of this tax credit will ideally lead more taxpayers to invest in making their properties more eco-friendly.

2. Section 45L – Energy Efficient Home Credit¹³⁶

IRC 45L, which also became effective in 2006, “offers \$2,000 per dwelling unit to developments with energy consumption levels significantly less than certain national energy standards.”¹³⁷ Homebuilders and multifamily developers benefit from the credit, and they may claim it retroactively if they are unaware of it at the time of construction.¹³⁸

3. Section 48 Investment Tax Credit¹³⁹

IRC Section 48 was enacted in 1978 and “has been substantially modified over time.”¹⁴⁰ The credit applies to investments in renewable

132. *179D Commercial Buildings Energy-Efficiency Tax Deduction*, ENERGY.GOV: ENERGY EFFICIENCY & RENEWABLE ENERGY <https://www.energy.gov/eere/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction> (last visited Feb. 21, 2020).

133. *Id.*

134. *Id.*

135. *Id.* (If the owner installs “(1) interior lighting; (2) building envelope, or (3) heating, cooling, ventilation, or hot water systems that reduce the building’s total energy and power cost by 50% or more in comparison to building meeting minimum requirements” will get a tax deduction of \$1.80 per square foot. If the same systems partially qualify will receive a deduction up to \$0.60 per square foot.)

136. 26 U.S.C.A. § 45L (Westlaw through Pub. L. No. 116-158).

137. *What is the 45L Tax Credit?*, KBKG, <https://www.kbkg.com/45l> (last visited Feb. 21, 2020).

138. *Id.*

139. 26 U.S.C.A. § 48 (Westlaw through Pub. L. No. 116-158).

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energy.¹⁴¹ The credit's amount "is determined as a percentage of the taxpayer's basis in eligible property (generally, the cost of acquiring or constructing eligible property)."¹⁴² To claim this credit, the property must be placed in service on or before December 31, 2023, except for a credit in solar energy, which is then reduced to 10%.¹⁴³

4. Solar Investment Tax Credit (ITC)

Since ITC's enactment in 2006, "the U.S. solar industry has grown by more than 10,000%- creating hundreds of thousands of jobs and investing billions of dollars in the U.S. economy in the process."¹⁴⁴ The annual average of solar growth since 2006 has been 52%.¹⁴⁵

As of January 1, 2020,¹⁴⁶ Section 25D offers a 26% residential credit, while Section 48 provides the 26% credit to commercial entities and may apply "to both customer-sited commercial solar systems and large-scale utility solar farms."¹⁴⁷ Both credits dropped 4% at the start of the new year.¹⁴⁸ In 2015, Congress passed an extension of the ITC requiring the credit to drop to 22% in 2021, further, the commercial credit to drop to 10% in 2022, and eventually eliminate residential credit altogether.¹⁴⁹

However, not only should Congress continue the extension, but it should also possibly increase the credit. "Solar energy still only

140. Molly F. Sherlock, *The Energy Credit: An Investment Tax Credit for Renewable Energy*, CONGRESSIONAL RESEARCH SERV., <https://fas.org/sgp/crs/misc/IF10479.pdf> (last updated Nov. 2, 2018).

141. *Id.*

142. *Id.*

143. *Id.*

144. *Solar Investment Tax Credit (ITC)*, SOLAR ENERGY INDUSTRIES ASS'N., <https://www.seia.org/initiatives/solar-investment-tax-credit-itc> (last visited Feb. 21, 2020).

145. *Id.*

146. *Residential ITC Phasedown*, SOLAR ENERGY INDUSTRIES ASS'N., <https://www.seia.org/research-resources/residential-itc-phasedown> (last visited Aug. 26, 2020).

147. *Solar Investment Tax Credit (ITC)*, *supra* note 137.

148. *See id.*

149. *Id.*

represents 2.5% of energy production in the United States.”¹⁵⁰ With the help of tax credits that percentage can continue to grow.

5. *Electric Vehicle Tax Incentive*

Taxpayers who purchase all-electric or plug-in vehicles “in or after 2010 may be eligible for a federal income tax credit of up to \$7,500.”¹⁵¹ Further state or local incentives may also apply. California, for example, has over twenty different incentives for alternative fuel vehicles.¹⁵²

The Clean Vehicle Rebate Project (CVRP) provides a first-served rebate¹⁵³ to individuals, business owners, and government entities in California who purchase or lease “light-duty zero emission vehicles and plug-in hybrid electric vehicles (PHEVs) the California Air Resources Board (ARB) has approved or certified.”¹⁵⁴ The amount of the rebate hinges on the type of vehicle: “The rebates are for up to \$4,500 for fuel cell electric vehicles (FCEVs), \$2,000 for battery electric vehicles, \$1,000 for PHEVs, and \$750 for zero emission motorcycles.”¹⁵⁵ Further, rebate eligibility depends on gross annual income.¹⁵⁶ Rebates increase by \$2,500 for individuals with household

150. *Id.*

151. *Federal Tax Credits for All-Electric and Plug-in Hybrid Vehicles*, U.S. DEP’T OF ENERGY: FUEL ECONOMY, <https://www.fueleconomy.gov/feg/taxevb.shtml> (last updated Aug. 21, 2020).

152. *California Laws and Incentives*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., https://afdc.energy.gov/laws/state_summary?state=CA (last updated Oct. 2019).

153. “Generally speaking, tax credits only offset tax balances due – meaning if you have low income and owe nothing in tax, you get no benefit from a credit. Whereas tax rebates are paid to a taxpayer regardless whether a tax is payable.” Chris Farrell, *Tax credit and tax rebate*, MARKETPLACE: ASK MONEY (Mar. 5, 2009), <https://www.marketplace.org/2009/03/05/tax-credit-and-tax-rebate/>.

154. *Plug-In Hybrid and Zero Emission Light-Duty Vehicle Rebates*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/8161> (last visited Feb. 21, 2020).

155. *Id.*

156. *Id.* (If the individual’s gross income is above \$150,000 for single filers, \$204,000 for head-of-household filers, and \$300,000 for joint filers, then the individual is only eligible for rebates for FCEVs).

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incomes less than or equal to 300% of the federal poverty level.¹⁵⁷ Other options include: (1) The Clean Vehicle Rebate Project (CVRP);¹⁵⁸ (2) the Clean Transportation Program;¹⁵⁹ (3) the Carl Moyer Memorial Air Quality Standards Attainment Program;¹⁶⁰ and (4) a collection of county specific rebates, incentives, and grants.¹⁶¹

157. *Id.*

158. “[E]ligible state and local public entities for the purchase of qualified light-duty fleet vehicles. The rebates are for up to \$3,500 for plug-in hybrid electric vehicles, \$4,500 for battery electric vehicles, and \$7,000 for fuel-cell electric vehicles the California Air Resources Board (ARB) has certified. Rebates are available on a first-come, first-served basis. . . . Public fleets located in disadvantaged communities are eligible for increased incentives. Funding is only available for qualified fleets located in disadvantaged communities (verified October 2019).” *Plug-In Hybrid and Zero Emission Light-Duty Public Fleet Rebates*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/11578> (last visited Feb. 21, 2020).

159. “The California Energy Commission (CEC) administers the Clean Transportation Program (Program) to provide financial incentives for businesses, vehicle and technology manufacturers, workforce training partners, fleet owners, consumers, and academic institutions with the goal of developing and deploying alternative and renewable fuels and advanced transportation technologies.” *Alternative Fuel and Vehicle Incentives*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/6307> (last visited Feb. 21, 2020).

160. “[P]rovides incentives to cover the incremental cost of purchasing engines and equipment that are cleaner than required by law. Eligible projects include heavy-duty fleet modernization, light-duty vehicle replacements and retrofits, idle reduction technology, off-road vehicle and equipment purchases, and alternative fuel and electric vehicle infrastructure projects.” *Emission Reduction Grants*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/6131> (last visited Feb. 21, 2020).

161. *See Electric Vehicle Supply Equipment (EVSE) Rebate – Southern California*, U.S. DEP’T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/12043> (last visited Feb. 21, 2020) (“The Southern California Incentive Project (SCIP), funded by the California Energy Commission as part of the California Electric Vehicle Infrastructure Project (CALeVIP), offers rebates of up to \$70,000 per direct current (DC) fast charger for installations at new sites and 75% of total project costs, up to \$40,000, per DC fast charger for installations at replacement or make-ready sites. Installations in disadvantaged communities are eligible for rebates for 80% of the total project cost, up to \$80,000, per DC fast charger, regardless of installation site type.”). “The Sacramento Emergency Clean Air and Transportation (SECAT) Program provides grants to offset the costs of zero-emission heavy-duty vehicles that reduce on-road emissions within the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba in California. Eligible projects include the purchase of battery electric or hydrogen fuel

C. *The Film Tax Credit Model*

Georgia's film tax credit system can serve as an example of how tax credits may stimulate local economies and encourage certain industries to expand. In the last decade, Georgia has quickly become a popular location for the American entertainment industry.¹⁶² Other

cell trucks, buses, and shuttles. Other advanced technology implementation projects may also qualify." *Vehicle Emission Reduction Grants – Sacramento*, U.S. DEP'T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/6004> (last visited Feb. 21, 2020). "The San Joaquin Valley Air Pollution Control District and the South Coast Air Quality Management District administer the Enhanced Fleet Modernization Program (EFMP) Pilot Retire and Replace program, providing incentives to replace a vehicle eligible for retirement with a more fuel-efficient vehicle. Used vehicles must be no more than eight years old and applicants must live in the San Joaquin Valley or South Coast air basins. Eligible replacement vehicles must meet a minimum fuel economy average by model year or average at least 35 miles per gallon (mpg). Alternative fuel vehicles are also eligible, including plug-in hybrid electric vehicles (PHEV) and zero emission vehicles (ZEVs). Funding for alternative transportation mobility options, such as public transportation or car sharing, is also available in lieu of purchasing another vehicle. The incentive amounts vary by income level as compared to the Federal Poverty Level (FPL) and replacement vehicle type." *Voluntary Vehicle Retirement Incentives – San Joaquin Valley and South Coast*, U.S. DEP'T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/11613> (last visited Feb. 21, 2020). "The San Luis Obispo County Air Pollution Control District (SLOAPCD) administers the Clean Air Fund, to provide grants for qualified air quality improvement projects located in San Luis Obispo County. SLOAPCD funds projects to significantly reduce emissions impacts or support innovative air pollution reduction technologies, including the purchase of alternative fuel school buses or alternative fuel infrastructure development." *Air Quality Improvement Program Funding – San Luis Obispo County*, U.S. DEP'T OF ENERGY: ALTERNATIVE FUELS DATA CTR., <https://afdc.energy.gov/laws/12310> (last visited Feb. 21, 2020).

162. Editorial, Opinion, *State's film tax credit needs tweaks but not tossing*, GAINESVILLE TIMES (Jan. 25, 2020, 2:56 PM), <https://www.gainesvilletimes.com/opinion/editorial/opinion-states-film-tax-credit-needs-tweaks-not-tossing/> [hereinafter *State's film tax credit*]. Most significantly *Avengers: Endgame*, the highest grossing film in history, was filmed in Georgia. Derek Diemer, *Fighting giants: using standard form contracts to protect the industry outsider*, INFO. & COMM. TECH. L. 14 (Sept. 25, 2019). Part of the appeal is Georgia's diverse landscape: "Atlanta's ultra-modern downtown to rolling hills in the north and flat farmland in the south, as well as a wealth of swamps, anywhere USA suburbs and folksy small towns." On top of the variety of filming locations, Georgia offers "an extra 10% on top of its base 20% tax credit for qualified in-state spending." Todd Longwell, *Georgia's Production Incentives Seal the Deal for Hollywood*, VARIETY: FILM (Oct. 26, 2018, 10:15 AM),

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states offer higher credits than Georgia, but Georgia does not require a list of qualifications and restrictions;¹⁶³ Georgia only requires the filmmakers to put the “Filmed in Georgia” peach logo into their film.¹⁶⁴ Georgia’s incentives also have no cap or “sunset,”¹⁶⁵ so there is no competition between filmmakers to get their project running, and the incentive will not disappear “unless the law is repealed by the state.”¹⁶⁶

The rising Georgia Film and TV industry “has created more than 92,000 jobs paying close to \$4.6 billion in wages.”¹⁶⁷ Furthermore, in 2018, Georgia hosted 455 projects causing \$2.7 billion in direct in-state spending “and an overall economic impact of \$9.5 billion.”¹⁶⁸ These numbers reflect a 4,000% increase compared to 2007, “the year before the state’s tax credit was increased from 9% to 30%.”¹⁶⁹

Despite these economic benefits, a state audit revealed some issues with the Georgia tax policy.¹⁷⁰ Specifically, although the tax credit “has created and maintained tens of thousands of jobs in Georgia,” there is no guarantee these jobs will last long-term.¹⁷¹ Second, a lack of oversight has ‘create[d] an environment ideal for fraud.’¹⁷²

<https://variety.com/2018/film/features/georgias-production-incentives-seal-the-deal-for-hollywood-1202990450/>.

163. Longwell, *supra* note 155 (Other states offering film tax credits require stricter qualifications and restrictions preventing more filmmakers from taking advantage of the tax credit. Whereas Georgia offers a less restrictive program that has contributed to the state’s popularity.).

164. *Id.*

165. A “sunset” is the date the statute expires unless “the legislature enacting it reauthorizes or sufficiently amends the statute.” Stephen Michael Sheppard, *Sunset Provision (Repealer Clause or Sunset Clause)*, WOLTERS KLUWER BOUVIER L. DICTIONARY DESK ED. (2012).

166. Longwell, *supra* note 155.

167. *Id.*

168. *Id.*

169. *Id.*

170. Associated Press, Audit, *Georgia Film Program Lacks Oversight, Ideal For Fraud*, WABE: NEWS (Jan. 13, 2020), <https://www.wabe.org/audit-georgia-film-program-lacks-oversight-ideal-for-fraud/>.

171. *Id.*

172. *Id.*

Georgia's lack of qualifications and requirements attracted businesses, but it also led to "millions of dollars in ineligible expenditures by film companies, including payments to workers or contractors for work that was done outside [of] Georgia."¹⁷³ Therefore, under the current system, the tax credits have been misapplied, causing taxes not to be collected, and thus leading to an undetermined amount of lost revenue.¹⁷⁴

The lost revenue and flaws in the system discovered by this audit do not outweigh the benefits and potential of the Georgia film and TV tax credits. Beyond the creation of unprecedented film and TV-related jobs, local colleges and schools have created "programs to prepare young people for careers in production work; sound stages and studios have been built and continue to be planned."¹⁷⁵ Alternatively, the state uses tax credits to persuade businesses to invest in Georgia. There are tax credits "for job creation, educational opportunities for employees, employer-sponsored child-care, development of low-income housing, economic development efforts and the purchase of low emission vehicles."¹⁷⁶

Going forward, Georgia may serve as a model example of what to do right, as well as a lesson on how to improve tax incentive programs. Kevin Klowden, with the Milken Institute, emphasizes the "need to invest in and build up the local workforce."¹⁷⁷ The states benefiting the most are those that incentivized investment in permanent infrastructures such as production facilities.¹⁷⁸ Klowden points to New York and New Mexico as states that have been successful.¹⁷⁹

However, not everyone agrees. The USC Price School of Public Policy's Professor Michael Thom argues, "'a successful [] and [] profitable industry,'" like the United States entertainment industry,

173. *Id.*

174. *State's film tax credit*, *supra* note 155.

175. *Id.*

176. *Id.*

177. Gene Maddaus, *Film Tax Incentives Are a Giant Waste of Money*, New Study Finds, VARIETY: BIZ (Aug. 18, 2016, 10:47 AM), <https://variety.com/2016/biz/news/film-tax-incentives-waste-of-money-study-1201840189/>.

178. *Id.*

179. *Id.*

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“shouldn’t need [such] a subsidy.”¹⁸⁰ Valued at \$717 billion, the United States entertainment industry, also known as Hollywood, is the world’s largest entertainment industry.¹⁸¹ In existence for a century, and through all its ups and downs, it appears Hollywood is here to stay.

The renewable energy industry does not have the reputation or track record of Hollywood. A producer is incentivized to film her movie in a state that allows cutting costs and maximizing profits. Those are clear, immediate benefits causing the producer to act. Conversely, the true benefits of investment in renewable energy will not be seen until years in the future, if and when the United States successfully shifts from the widespread use of fossil fuels to renewable energy. For these reasons, renewable energy may need the support of a subsidy to help fund the industry and give American citizens instantaneous benefits in the form of tax breaks to incentivize this necessary shift.

Although some experts have deemed film tax incentives a failure,¹⁸² or ineffective,¹⁸³ that does not mean the “experiment” cannot serve as an example or guide for drafting a green energy tax policy. As Georgia proved, tax credits can work. If states learn from their mistakes and the mistakes of others, state lawmakers can tweak state tax policies and boost their economies. Detroit, like many other cities in the United States, desperately needs a new industry to help create jobs and boost the local economy. The green energy industry, fueled by tax credits and incentives, and using the successes and failures of state Film and TV tax credits as a guide, could become that industry.

180. *Id.*

181. *The Media and Entertainment Industry in the United States*, SELECTUSA: MEDIA AND ENT. SPOTLIGHT, <https://www.selectusa.gov/media-entertainment-industry-united-states> (last visited Feb. 21, 2020); Benjamin Hale, *The History of Hollywood: The Film Industry Exposed*, HIST. COOPERATIVE: ENT. (Nov. 12, 2014), <https://historycooperative.org/the-history-of-the-hollywood-movie-industry/>.

182. *State’s film tax credit*, *supra* note 155.

183. *Id.*; *Georgia Film Program Lacks Oversight, Ideal For Fraud*, *supra* note 163.

III. OUR ONLY HOPE

It will take more than just one type of tax or incentive to successfully kick the United States' oil addiction and save our environment. The policy will require a bundle of taxes and incentives that both prevent the continued use of fossil fuels and incentivize a shift toward eco-friendly behavior.

A. *The Necessary Components of a Successful Tax Policy*

As the gas tax's origins prove, laws and policies do not manifest out of thin air at the federal level.¹⁸⁴ They are tested at the state level, and once they are proven effective, the federal government adopts a version of the law or policy. Therefore, state-level governments must implement successful tax policies to gain the federal lawmakers' attention.¹⁸⁵ Peer pressure led many states to invest in film tax credits.¹⁸⁶ Strategically, this same peer pressure could be used to endorse a green energy tax policy. If enough states successfully adopt such policies, then many other states will hopefully follow, thus, attracting the federal government's attention.

In 1990, the gas tax derailed because the tax revenue was no longer put toward its intended purpose—to fix our roads—but was used to reduce the deficit.¹⁸⁷ This repurposing had not been done “since Dwight Eisenhower made the gas tax the fiscal foundation of his new interstate highway system.”¹⁸⁸ Americans accepted this tax

184. The gas tax was first implemented in Oregon, where it proved successful, and was eventually adopted by the federal government. Waxman, *supra* note 19.

185. *How Laws Are Made and How to Research Them*, USA.GOV, <https://www.usa.gov/how-laws-are-made> (last visited June 10, 2020); Enactment of a Law, CONGRESS.GOV, <https://www.congress.gov/help/learn-about-the-legislative-process/enactment-of-a-law> (last visited Sept. 9, 2020); *Adoption Law: United States*, LIBR. OF CONGRESS (May 2013), <https://www.loc.gov/law/help/adoption-law/unitedstates.php>; Kathryn Reynolds & Kriti Ramakrishnan, *Evidence-Based Policymaking at the State Level*, EVIDENCE-BASED POLICYMAKING COLLABORATIVE (October 2018), https://www.urban.org/sites/default/files/publication/99293/evidence-based_policymaking_at_the_state_level.pdf.

186. Maddaus, *supra* note 170.

187. Thorndike, *The Federal Gas Tax Is Old – And Broken*, *supra* note 27.

188. *Id.*

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because the tax itself “was neither onerous, nor obvious,” but the purpose of the tax was known as a tool necessary for the construction of public roads.¹⁸⁹ Thus, if Americans will accept a tax, it must have a clear, transparent purpose, benefitting everyone.

Moreover, the U.S. government can and should ensure that reducing carbon emissions will not hurt the U.S. economy, but will stimulate it. Forcing the transition through tax policy or law may cause the 31% of Americans who deny climate change to feel disdain for the government. Whereas tax incentives will encourage Americans to make the switch to renewable energy whether they believe in climate change or not. Everyone wants to save money, and if “going green” will save people money, they are more likely to make the switch.

B. The Gas Tax Replacement – A Bundle of Policies

The current flawed and broken federal gas tax left the United States without funding for roads and contributed to American dependence on fossil fuels. Thus, there is a need to generate revenue in new ways. To achieve this, a bundle of taxes and incentives should be implemented to encourage a shift away from fossil fuels. But, in the meantime, the U.S. government should continue taxing fossil fuels to generate the necessary revenue to fund the maintenance of roads and educate Americans regarding why these taxes are essential.

Modeled after the Georgia film tax credits, the first credit in the bundle would be a renewable energy business tax credit. The Georgia policy is one of the most successful in the nation; nevertheless, it has room to improve. States have gained substantial success from the film tax credits when they provided incentives “in permanent infrastructures, like production facilities.”¹⁹⁰ Thus, a successful renewable energy business tax credit will also provide incentives for permanent infrastructures like solar farms, wind farms, or other infrastructures generating or manufacturing renewable energy and electric vehicles. This permanent infrastructure will create jobs and help struggling cities like Detroit. It will also be useful for states negatively impacted by a shift away from fossil fuels.

189. *Id.*

190. Maddaus, *supra* note 170.

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views the issue of climate change from a political perspective instead of an ethical perspective.¹⁹⁷

In 2016, “Trump ran on a campaign of climate denial” that proved successful.¹⁹⁸ Pinion emphasizes that Americans do not see climate change as an issue. Thus, Trump does not see it as an issue because he, like any strategic politician, adjusts his position to get the most votes.¹⁹⁹ Accordingly, Democrats may have to refrain from pushing climate change policy to beat Trump.²⁰⁰

Despite this, with the unexpected COVID-19 pandemic, the world is about to enter a period of immense change in the post-COVID-19 era. The virus has already “crashed economies and broken health-care systems, filled hospitals and emptied public spaces[.] It has disrupted modern society on a scale that most living people have never witnessed.”²⁰¹ In sum, the virus proved the experts’ predictions were accurate, and the United States was not prepared for this inevitable pandemic.²⁰²

It is hard to predict what the world will look like at the other end of this pandemic, but one thing is clear—it will be drastically different.²⁰³ One way to protect Americans in the long term is to start

197. *Id.*

198. Emily Holden, *Republicans are making noises on climate action. Some say it’s just greenwashing*, GUARDIAN: CLIMATE CHANGE (Mar. 2, 2020, 02:00 PM), <https://www.theguardian.com/environment/2020/mar/02/greenwashing-house-republicans-climate-legislation>.

199. Cheung, *supra* note 189.

200. *Id.*

201. Ed Yong, Story, *How the Pandemic Will End*, ATLANTIC: HEALTH (Mar. 25, 2020), <https://www.theatlantic.com/health/archive/2020/03/how-will-coronavirus-end/608719/>.

202. “In recent years, hundreds of health experts have written books, white papers, and op-eds warning of the possibility. Bill Gates has been telling anyone who would listen, including the 18 million viewers of his TED Talk. In 2018, [Ed Yong] wrote a story for *The Atlantic* arguing that America was not ready for the pandemic that would eventually come. In October, the Johns Hopkins Center for Health Security war-gamed what might happen if a new coronavirus swept the globe. And then one did. Hypotheticals became reality. ‘What if?’ became ‘Now what?’” *Id.*

203. With the 2020 presidential election approaching, one of those changes could be a shift toward an administration better equipped to protect the American public. Especially as the lack of trust in Trump rises as a result of his administration’s insufficient response to the pandemic. Chris Riotta, *Trump’s*

implementing policies stimulating the economy and shifting away from fossil fuels to renewable energy. Significantly, now Republicans are “acknowledging the problem and stepping forward with proposals and recognizing that the politics of this has changed.”²⁰⁴ To succeed, Democrats and Republicans need to work together to implement policies that a majority of Americans will support while simultaneously reducing or reversing the effects of the climate change.

CONCLUSION

Climate change is one of the most imperative existential issues of our generation: “from shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and

approval rating sliding as criticism mounts over White House response to coronavirus, INDEP. (Apr. 8, 2020, 10:05 PM), <https://www.independent.co.uk/news/world/americas/trump-approval-rating-drop-coronavirus-response-covid-19-tests-a9456466.html>; Quint Forgey, Poll, *Majority of Americans now disapprove of Trump’s coronavirus response*, POLITICO (Apr. 3, 2020, 9:25 AM), <https://www.politico.com/news/2020/04/03/poll-majority-of-americans-now-disapprove-of-trumps-coronavirus-response-162854>; Domenico Montanaro, Poll, *Americans Don’t Trust What They’re Hearing From Trump On Coronavirus*, NAT’L PUBLIC RADIO (Mar. 17, 2020, 5:02 AM), <https://www.npr.org/2020/03/17/816680033/poll-americans-dont-trust-what-they-re-hearing-from-trump-on-coronavirus>; Jonathan Allen, *Americans don’t know what to do about coronavirus. Neither does the president.*, NBC: NEWS (Mar. 25, 2020, 12:03 PM), <https://www.nbcnews.com/politics/white-house/americans-don-t-know-what-do-about-coronavirus-neither-does-n1168696>. However, Trump’s ratings have risen as his administration has implemented these “socialist policies.” Joey Garrison, Analysis, *Trump’s approval rating is rising amid the coronavirus crisis. What could it mean for November?*, USA TODAY: ELECTIONS <https://www.usatoday.com/story/news/politics/elections/2020/03/29/coronavirus-what-could-trumps-jump-approval-rating-mean-november/5078347002/> (last updated Mar. 30, 2020, 12:27 PM); Yelena Dzhanova, *Trump approval rating rises as he responds to the coronavirus outbreak*, CNBC: POL. <https://www.cnbc.com/2020/03/24/trump-approval-rating-rises-amid-response-to-coronavirus.html> (last updated Mar. 25, 2020, 11:57 AM). There are a number of possibilities for this rise. It could be the implementation of Sander’s proposed policies, or it could be a result of the misinformation being released by the Trump administration.

204. Bruce Westerman, an Arkansas Republican proposed a trees bill, intended to promote logging while curbing carbon emissions. Holden, *supra* note 191.

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unprecedented in scale.”²⁰⁵ Tax policies could and should be weaponized to help cities like Detroit while counteracting our detrimental carbon footprint.

To effectively combat climate change, the U.S. government must take an active role in persuading its citizens to shift away from fossil fuels to renewable energy. First, the gas tax should serve as an example of what to avoid, and the substituting policy must keep pace with the changing economic circumstances. Second, education will be a necessary tool to convince the public that the United States, as a nation, needs to start actively implementing eco-friendly behaviors. Third, effective tax policy needs to have a clear and transparent purpose that benefits everyone, so that well-informed American citizens will happily participate as they did with the original gas tax. Fourth, the tax cannot be a voluntary program like Oregon’s vehicle-miles-traveled fee but must be mandatory like the original gas tax. Finally, the tax policy needs to benefit even those who do not believe in climate change by offering incentives to start renewable energy businesses, invest in green technology, or engage in environmentally friendly behaviors.

If this bundle of policies is implemented in the post-COVID-19 era, it could help stimulate the renewable energy industry. It will create jobs and put many Americans, who were displaced as a result of either the declining domestic automotive and coal industry, or COVID-19, or the necessary shift away from fossil fuels, back to work. Life as we know it is about to change, but that change can be positive if citizens are proactive and work together as a nation.

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205. *Climate Change*, U.N.: GLOBAL ISSUES, <https://www.un.org/en/sections/issues-depth/climate-change/> (last visited Feb. 23, 2020).

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