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The American Three Percent: The Politics and Economics of Climate Disinformation

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The American Three Percent: The Politics and Economics of Climate Disinformation

Thesis for Environmental Policy, BA

John S. Craig

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Abstract

I investigate the relationship between climate scientists that deny anthropogenic climate change, those supporting their research and perpetuating it, and how it has affected the way that climate policy has been enacted in the United States. For quantitative data, I look at various reports that major climate change skeptics have produced and/or are most cited by skeptic politicians and Think Tanks. I compare this data to that presented in the most recent Intergovernmental Panel on Climate Change report as well as other research that does support anthropogenic climate change. I also use research conducted by Exxon Mobil in the 80s that showed climate projections that acknowledged the harmful effects further fossil fuel use would have on the environment. I use the data presented by climate deniers to show how they have influenced the direction of environmental policy debate and action that has taken place in Congress. From this I explore how these policies have benefited fossil fuel companies and other industries which have provided much of the funding for climate change denying science. I explore where campaign donations from these companies have gone and how those who received money from them have voted concerning environmental issues. Ultimately I make the case that campaign finance reform and more transparency in politics and science are necessary for lasting changes to be made to current environmental politics.

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Introduction: 97%

The planet is only able to sustain weather patterns suitable for modern civilization under certain conditions. One of these conditions is to limit the concentration of carbon dioxide in the atmosphere. Estimates placed this figure at 350 parts per million (ppm). Today the concentration is 404.83ppm.¹

Despite knowing of the problems associated with carbon dependency for decades, little has been done to decrease this dependency by the federal government. Much of the delay in action is the result of the justification which some scientists have provided politicians who question the legitimacy of climate change and what (if any) anthropogenic causes there are for it. The often cited statistic is that 97% of climate scientists agree that anthropogenic climate change is occurring. Though slightly misleading (for reasons this thesis will address), it is generally accurate to state that the consensus among scientists is that climate change is the result of human activity. In spite of this scientific agreement, there is still a large number of Americans who, for mostly economic reasons, are skeptical. Skeptics point to the “3%” of scientists who disagree with the general consensus, as proof that the climate is not changing; at least not in the dire way that environmentalists claim. Disagreement over the fundamental belief in the science has created gridlock in American politics. The result of this gridlock has been dire for the environment, as many species continue to go extinct, the polar ice caps continue to melt, and sea levels are rising at an alarming rate. But who is behind it?

The legal system in the United States has enabled the fossil fuel industry to maintain high profit margins despite all the harmful consequences associated with their products. The fossil fuel industry consistently receives subsidies and tax breaks from the US government. The annual

¹ "Daily CO2." CO2.Earth. March 2016. Accessed April 20, 2016. <https://www.co2.earth/daily-co2>.

cost of these tax breaks to US tax revenue is \$4.7 billion.² The subsidies total \$33 billion a year.³ This is despite the fact that American Fossil Fuel companies have been turning in record profits year after year. This is no accident.

The American fossil fuel industry earns \$257 billion a year (2014). The true revenue may be even higher, but private companies are required to disclose earnings. As such, this sum does not include the revenue from Koch Industries, which estimates put at close to \$115 billion a year (2013).⁴ This enormous cash flow has allowed the industry to give massive donations to political campaigns and politicians. Campaign donations have turned out to be an important investment for the fossil fuel industry, as they have received 10,000% return by way of subsidies.⁵ Though it is difficult to definitively establish that receiving a campaign donation from a company or individual will result in a politician voting a certain way, it is reasonable to assume that donations do carry influential power.

This thesis argues that the desire to maintain economic profits, regardless of the social and environmental cost, has led to major fossil fuel companies corrupting both science and politics. Their contributions have spread doubt amongst voters in the United States, and has allowed politicians, with their own financial incentives, to take over the environmental conversation. The debate over how to address climate change, as a result, has stalled. Instead, it has become a debate over whether there is any proof of climate change and what man's role in it is. In Chapter 1, I will discuss the research that has shown that anthropogenic climate change is

² "United States - Progress Report on Fossil Fuels Subsidies." United States Department of the Treasury. 2015. Accessed March 30, 2016. https://www.treasury.gov/open/Documents/USA_FFSR_progress_report_to_G20_2014_Final.pdf.

³ Makhijani, Shakuntala. "Cashing in on All of the Above: U.S. Fossil Fuel Production Subsidies under Obama - Oil Change International." Oil Change International. July 09, 2014. Accessed March 05, 2016. http://priceofoil.org/content/uploads/2014/07/OCI_US_FF_Subsidies_Final_Screen.pdf

⁴ "Profits for Oil, Gas & Coal Companies Operating in the U.S. and Canada." Oil Change International. May 2015. Accessed May 05, 2016. <http://priceofoil.org/profits-oil-gas-coal-companies-operating-u-s-canada/>.

⁵ Ibid. p 4

occurring and compare it to the research of climate skeptics. In Chapter 2, I will look at the history of climate denial in the United States with a focus on Exxon Mobil, I will show that their research in the 1980s proved anthropogenic climate change was occurring, but they chose to suppress the science and switch funding to climate change deniers. Chapter 3 addresses the economics of climate denial, including where funding for climate skeptic organizations is coming from. In Chapter 4, I will discuss how campaign financing laws have allowed the fossil fuel industry to influence political campaigns. Chapter 5 discusses the impact that climate denial and fossil fuel's influence has had on environmental regulation in the United States. Finally, Chapter 6 presents my recommendations for steps to remove the influence that fossil fuel companies have on the political system. There is no simple answer to combating climate change, and it may be too late to reverse some of the changes that have occurred. It is not too late, however, for changes to the way politics work in the United States. The current system has kept the United States from becoming a world leader in combating climate change.

Chapter 1: The Science of Climate Denial

As long as humans have been studying science, they have also been studying the environment. The first major theory pertaining to the study of climate change was developed in the 1800s. Jean Fourier, a French scientist, developed the Theory of the Greenhouse Effect, which set the framework for future study regarding the temperature of the planet. The greenhouse effect describes the process through which the earth regulates its temperature. The sun releases energy in the form of visible light, ultraviolet light, and infrared light. When these forms of radiation reach the Earth, some is reflected back into space due to the protective function of the atmosphere. What light is able to penetrate the atmosphere is either, absorbed by

plants for photosynthesis or the planet itself, or is reflected back due to the Earth's albedo. Atmospheric greenhouse gases (primarily methane, oxygen, carbon dioxide, and ozone) act as a buffer and trap some of the reflected radiation which warms the planet.

This process occurs naturally, and is vital to life, but as a result of the research of Swedish chemist Svante Arrhenius, changes to this cycle became apparent.⁶ His research noted that burning of fossil fuels and deforestation was leading to an increase in concentrations of atmospheric greenhouse gases. Arrhenius's research came during the 19th century, concurrent with the Industrial Revolution.

The Industrial Revolution marked a period of both dramatic technological growth as well as the beginning of widespread dependence on fossil fuels. Coal became a heat source and spurred the development of the steam engine. Atmospheric carbon increased noticeably during the Industrial Revolution. For this reason, most modern climatologists make their assessments about temperature change by making comparisons to the conditions which existed at the start of the Industrial Revolution.

For 97% of climate scientists, that climate change is the result of human activity is fact. Millions of dollars has been dedicated to decades of methodical research which has established this fact to a scientific certainty. It is indisputable that since the Industrial Revolution, the planet has experienced an unprecedented climb in global temperatures.

The argument against accepting this 97% consensus takes a number of different routes. First is the argument that science, by its own nature, cannot establish a consensus and cannot prove anything definitively. This argument rests upon the notion that because science is built on questioning results, we cannot take any one study (in this case a myriad of studies) and use

⁶ 2012. "Global Environmental Concepts." *Mauritius Country Review* 191-210. *Business Source Complete*, EBSCOhost (accessed March 31, 2016).

them to create legislative policy. To do so would be foolish as we are creating a definitive solution to a problem that cannot be proven to exist.

The second argument, which this paper focuses on, is that there is not a consensus amongst climate scientists on the existence of climate change, or, at the very least, if climate change is occurring, what is its cause. Those who believe in anthropogenic climate change will use the argument that 97% of climate scientists agree that anthropogenic climate change is occurring. Climate deniers begin by arguing that because there are 3% of scientists who do not agree, we must at least listen to their argument. Another point of attack aims at debunking the total of 97%. One particular study, Cook et al. (2013)⁷ has garnered attention for because it is the source of the claim that there is a 97% consensus. What 97% represents is not a poll of all climate scientists. Instead, it is the findings of research which analyzed thousands of peer reviewed papers concerning climate change.

Critics of this study have argued that its tally is fundamentally flawed. In order to produce the 97% number, the authors of the study eliminated papers which it deemed did not offer an opinion about anthropogenic climate change. Pundits, such as Alex Epstein of the Center for Industrial Progress, argue that a true analysis of all the studies explored in the Cook et al. study would yield 1.6% of papers that would support the anthropogenic global warming theory.⁸ Further, Epstein contends that the study is misleading as there is no clear definition of what the 97% believe. He states that it means that these scientists believe in climate change and that

⁷ Cook, John, Dana Nuccitelli, Sarah A. Green, Mark Richardson, Bärbel Winkler, Rob Painting, Robert Way, Peter Jacobs, and Andrew Skuce. "Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature." *Environ. Res. Lett. Environmental Research Letters* 8, no. 2 (May 15, 2013). Accessed March 8, 2016. doi:10.1088/1748-9326/8/2/024024.

⁸ Epstein, Alex. "'97% Of Climate Scientists Agree' Is 100% Wrong." *Forbes*. January 6, 2015. Accessed April 01, 2016. <http://www.forbes.com/sites/alexepstein/2015/01/06/97-of-climate-scientists-agree-is-100-wrong/2/#3bd0f9c926d6>.

humans are at least “50% responsible” for it.⁹ He argues that Cook et al. took liberties with determining which studies reached this 50% threshold, citing a handful of researchers who took issue with how Cook et al. used their studies.

What Epstein ignores is the metrics that Cook et al. used. As stated previously, the authors of this study limited their tally of papers to those which offered an opinion on anthropogenic global warming. Of the over 11,000 studies analyzed, about 36% offered the kind of opinion necessary. This analysis revealed that “Among abstracts expressing a position on AGW [Anthropogenic global warming], 97.1% endorsed the consensus position that humans are causing global warming.”¹⁰

That a person in the position of Alex Epstein would take issue with the Cook et al. study is not surprising. The Center for Industrial Progress is a very conservative think tank with a focus on promoting fossil fuel companies. The group’s website even sells shirts reading “I [Heart] Fossil Fuels.” Epstein himself wrote a book making a case for fossil fuels, and was compensated for it by the fossil fuel industry. Prior to establishing the think tank, he worked at the Ayn Rand Institute, a conservative group that has received significant funding from Koch Industries, a major benefactor of the success of the fossil fuel industry.¹¹

Regardless of the actual consensus number, the science is what is truly important. For decades the top climatologists and environmental scientists from across the globe have been investigating perceived changes to the climate. Perhaps the most well-known is the Intergovernmental Panel on Climate Change (IPCC), which was established by the United Nations in 1988, (a decade after Exxon launched its own study). Since then, the Panel has

⁹ Ibid.

¹⁰ Cook et al. (2013)

¹¹ "Alex Epstein." DeSmogBlog. Accessed March 28, 2016. <http://www.desmogblog.com/alex-epstein>.

produced five reports, all showing the existence of anthropogenic climate change and its various effects, as well as predictions for what the future may hold.

The Intergovernmental Panel on Climate Change was created “to prepare a comprehensive review and recommendations with respect to the state of knowledge of the science of climate change; the social and economic impact of climate change, and possible response strategies and elements for inclusion in a possible future international convention on climate.”¹² The Panel is open to all United Nation members and works to compile data from all submitted studies as well as from original research.

Beyond merely stating that anthropogenic climate change is occurring, the IPCC releases predictions for what the impact on the future’s climate will be. One important measure is sea level rise. According to a 2013 release by the IPCC, from 1091-1990 global mean sea level rise (GMSLR) was about 1.5mm a year and from 1993-2010 it was 3.2mm a year.¹³ Based on their projections, the IPCC report held that sea level rise in the 21st century would exceed that of the 20th. They also predicted that the only way that actual sea level rise would exceed the predicted levels would be if the “marine-based” ice sheets of Western Antarctica were to collapse.¹⁴ The potential for these ice sheets to melt has long been recognized, as highlighted by J.H. Mercer.¹⁵ Sadly, recent research has pointed to this becoming a reality. With new models accounting for the addition of this melting ice, predictions for sea level rise by 2100 have increased to “five or

¹² "IPCC - Intergovernmental Panel on Climate Change." IPCC - Intergovernmental Panel on Climate Change. Accessed April 21, 2016. https://www.ipcc.ch/organization/organization_history.shtml.

¹³ Gregory, Jonathan. Intergovernmental Panel on Climate Change. Issue brief. 2013. Accessed April 19, 2016. https://www.ipcc.ch/pdf/unfccc/cop19/3_gregory13sbsta.pdf.

Summary of Sea Level Rise chapter of the Fifth IPCC Assessment Report - Climate Change 2013: the Physical Science Basis

¹⁴ Ibid.

six feet... [t]hat is roughly twice the increase reported as a plausible worst-case scenario by a United Nations panel just three years ago.”¹⁶

As of 2013, projections showed that in order to avoid the direst consequences of global warming, global average temperature cannot rise more than 2° C.¹⁷ In order to stay below this threshold, the amount of carbon dioxide pumped into the atmosphere cannot exceed 565 gigatons.¹⁸ Currently fossil fuel companies have reserves that would produce 2,795 gigatons of carbon dioxide; five times what the atmosphere can take! This means that fossil fuel companies would have to restrain themselves from using 80% of their reserves (a value to keep in mind for later in this thesis).¹⁹

One of the most controversial papers concerning climate change was published in 1998. Mann et al. (1998) argued that “the 1990s are likely the warmest decade, and 1998 the warmest year, in at least a millennium.”²⁰ This paper introduced the “hockey stick graph” which showed a dramatic increase in global temperatures. Mann et al. used proxies, indicators of temperature from sources such as tree ring growth and ice cores, in order to determine temperatures from centuries ago.²¹ Notably used in Al Gore’s *An Inconvenient Truth*, the paper’s findings and the graph have been a major part of the IPCC reports, of which Mann is a lead author.

¹⁵ Mercer, J. H. "West Antarctic Ice Sheet and CO2 Greenhouse Effect: A Threat of Disaster." *Nature* 271, no. 5643 (January 26, 1978): 321-25. Accessed April 19, 2016. doi:10.1038/271321a0.

¹⁶ Gillis, Justin. "Climate Model Predicts West Antarctic Ice Sheet Could Melt Rapidly." *The New York Times*, March 31, 2016. March 30, 2016. Accessed April 19, 2016. http://www.nytimes.com/2016/03/31/science/global-warming-antarctica-ice-sheet-sea-level-rise.html?smid=fb-nytimes&smtyp=cur&_r=0.

¹⁷ 350org. "Do the Math - The Movie." YouTube. August 13, 2015. Accessed April 21, 2016. <https://www.youtube.com/watch?v=KuCGVwJIRd0>.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Mann, Michael E., Raymond S. Bradley, and Malcolm K. Hughes. "Northern Hemisphere Temperatures during the past Millennium: Inferences, Uncertainties, and Limitations." *Geophys. Res. Lett.* Geophysical Research Letters 26, no. 6 (1999): 759-62. Accessed April 20, 2016. doi:10.1029/1999gl900070.

²¹ "Climate Science Glossary." Skeptical Science. Accessed April 20, 2016. <https://www.skepticalscience.com/broken-hockey-stick.htm>.

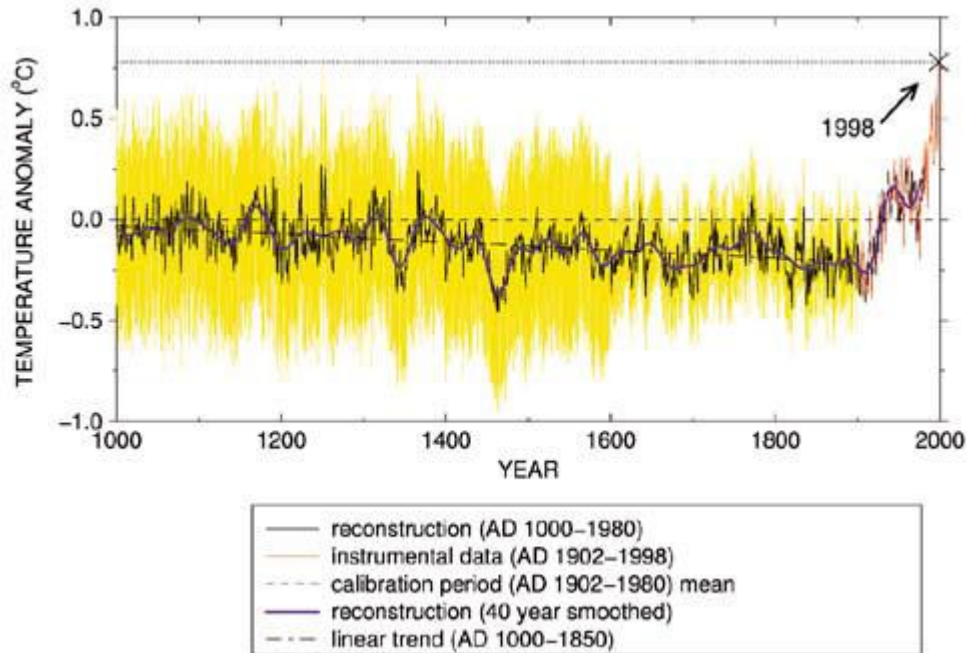


Figure 1 The "Hockey Stick" Graph Mann et al.

On the skeptic side of the argument groups such as the Nongovernmental International Panel on Climate Change (NIPCC) have produced original research of their own arguing against both a consensus on and the very existence of anthropogenic climate change. Like Epstein, the authors of a 2015 book by the NIPCC argue that the 97% consensus mark is flawed. They point to research conducted by nonscientists, and through biased means, as the reason for this number mistakenly being accepted as truth. One particular article they use reviewed the work of Naomi Oreskes (who is not a climate scientist) in 2004. Oreskes was one of the first to argue for the 97% consensus mark. But when Klaus-Martin Schulte repeated her methods in 2008, he argues that only 7% of papers identified climate change as happening and being at least 50% the fault of human activity.²² Idso et al. further argue that not being a climate scientist invalidates Oreskes

²² Idso, Craig D., R. M. Carter, and S. Fred Singer. *Why Scientists Disagree about Global Warming: The NIPCC Report on Scientific Consensus*. Arlington Heights, IL: Published for the Nongovernmental International Panel on Climate Change (NIPCC) by the Heartland Institute, 2015.

ability to evaluate scientific articles. Cook et al. is also rebuked in this book. This time, it was argued that Cook et al.'s review did not actually deal with the content of the papers it reviewed which led to the inclusion of a myriad of papers that had nothing to do with actually studying climate change.²³

Turning their attention to the science of climate change, Idso et al. argues that due to the interdisciplinary nature of climate science, no definitive statement can be made. They present the example that what may appear as an issue to a scientist specializing in one discipline, such as physics, may not be problematic in the eyes of a biologist.²⁴ Further, the NIPCC finds that when looking at temperature change in (as they see it) the short time period of a century, temperatures have indeed risen. This, however, has precedence. The temperature rise of the past century has only been 1.5° C. Using ice cores to determine ancient temperatures reveals that the temperature has fluctuated -2.5° C/+2.5° C over the past 10,000 years.²⁵ They argue that the time scale used for findings is important, and that the Earth has actually been cooling when using a multi-millennia time-scale.

The NIPCC seems to concede that CO₂ levels have increased. However, they contend that this does not mean that climate is or will change, and even suggest that it is better for agriculture if atmospheric CO₂ increases. "The ongoing rise in the air's CO₂ content can be expected to enhance plant productivity, mitigate... one of Earth's worst air pollutants (ozone), and reduce...one of the planet's most powerful greenhouse gases (methane)."²⁶ Concerning the hockey stick graph, the NIPCC turned to the work of McIntyre and McKittrick, a "metal expert"

²³ Ibid. p 17

²⁴ Ibid. p 32

²⁵ Ibid. p 78

²⁶ Idso, Craig D., Sherwood B. Idso, Robert M. Carter, and S. Fred Singer. "Climate Change Reconsidered II: Biological Impacts - Heartland Store." Heartland Store. 2014. Accessed April 20, 2016. <http://store.heartland.org/shop/climate-change-reconsidered-ii-biological-impacts/>.

and economist respectively. McIntyre and McKittrick found that Mann et al. relied heavily on tree ring data from bristlecone pine trees. They contend that these trees, due to their high elevation, will be exposed to more atmospheric carbon than other proxies. Further, because of the additional carbon dioxide currently present, it is natural for these trees to exhibit unnaturally vigorous growth. As a result of this reasoning, McIntyre and McKittrick removed the data from the bristlecone pine trees and used a different proxy. Their results undermine the validity of the hockey stick graph. Their claim is that, in fact, warming during the 15th century exceeded that of the 20th. Further:

“One can disprove the IPCC’s claim by demonstrating that about 1,000 years ago, there was a world-wide Medieval Warm Period (MWP) when global temperatures were equally as high as or higher than they were over the latter part of the twentieth century, despite there being approximately 25 percent less CO₂ in the atmosphere than there is today. This real-world fact conclusively demonstrates there is nothing unnatural about the planet’s current temperature, and that whatever warming occurred during the twentieth century was likely caused by the recurrence of whatever cyclical phenomena created the equal or even greater warmth of the MWP.”²⁷

Assertions by science backed by the fossil fuel industry have provided the “proof” necessary for the industry to take a stand against environmental policy. In the words of former Exxon Mobil CEO Lee Raymond, “It is highly unlikely that the temperature in the middle of the next century will be significantly affected whether the policies are enacted now or 20 years from now” (1997).²⁸

Now, 19 years after Raymond spoke those words, it is abundantly clear that enacting policy in 1997 would have made an enormous difference. CO₂ levels have increased dramatically. With each passing month, new average temperature records are being set. Extreme

²⁷ Ibid. (2014)

²⁸ Banerjee, Neela, Lisa Song, and David Hasemyer. "Exxon's Own Research Confirmed Fossil Fuels' Role in Global Warming Decades Ago." Inside Climate News. Inside Climate News, 16 Sept. 2015. Web. 15 Nov. 2015.

weather is becoming more common, and in areas that are not used to experiencing such phenomena (for example New York and New Jersey with Super Storm Sandy). Untold species are going extinct as a result of temperature and rainfall changes, lowering the planet's biodiversity. Biodiversity, is vital to human survival for many reasons including medical research and environmental management. Sea level is rising across the globe and is threatening human and wildlife populations. In Alaska, sea level rise has led to the first "climate refugees" in the United States. Kivalina, an island occupied by Inuit natives is being abandoned because sea level rise has changed weather patterns, leading to increased flooding and the prediction that the island will be submerged by 2025.²⁹ For those suffering the effects of climate change, there is no debate. In fact (as the next chapter will discuss), Lee Raymond and Exxon Mobil knew that there was no debate about anthropogenic climate change; just an internal debate about the importance of Exxon's bottom-line.

Chapter 2: #ExxonKnew: A history of climate change denial

The first Earth Day was held on April 22, 1970, but in many ways, the environmentalism movement began long before. In 1949, an ecologist and forester, Aldo Leopold, published *Sand County Almanac*. The book recounted his experiences in nature and promoted his revolutionary take on conservation the "Land Ethic." "The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land."³⁰ The land ethic sought to change views of the environment as simply a tool to promote

²⁹ Bond, Anthony. "America's First Climate Change Refugees: Hundreds Forced to Flee Their Alaskan Village before It Disappears Underwater within a Decade." Mail Online. July 16, 2013. Accessed April 22, 2016. <http://www.dailymail.co.uk/news/article-2381218/Kivalina-Americas-climate-change-refugees-Hundreds-forced-flee-Alaskan-village-disappears-underwater-decade.html>.

³⁰ Leopold, Aldo. "The Land Ethic." The Aldo Leopold Foundation. Accessed April 19, 2016. <http://www.aldoleopold.org/AldoLeopold/landethic.shtml>.

*Quote originally from *A Sand County Almanac* by Aldo Leopold (1949)

the economy but rather to see “[t]hat land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.”³¹ Following Leopold, many link the beginning of widespread American environmentalism to the 1962 publication of *Silent Spring* by Rachel Carson. Credited with bringing awareness to problems associated with the chemical dichlorodiphenyltrichloroethane (DDT), Carson’s book discussed the disappearance of biodiversity and linked it to pesticide use. The environmentalist movement first became a major political player in the United States during the 1970s.

As a relatively new political force, both side of the aisle vied for the environmentalist voters. The issue of environmental protection was taken up by both candidates in the 1968 presidential election, won by Richard Nixon, a Republican. Nixon’s party is traditionally associated with neoclassical liberalism, a political theory that argued for a free market and little government intrusion. However, it was President Richard Nixon who established the Environmental Protection Agency in 1970. This was in the wake of the passage of the National Environmental Policy Act (1969) and the Clean Air Act (1963). After the EPA was established, landmark legislation would follow such as a modernized version of the Clean Water Act (1972). Interestingly, environmentalists had, by this time, overwhelmingly thrown their support behind the Democratic Party. Without the pressure of trying to win these voters over, Nixon actually vetoed the updated version of the Clean Water Act in 1972.³²

The Republican Party would eventually take up the fight against environmentalism. When President Ronald Reagan entered the Oval Office, it was after a decisive victory over incumbent Jimmy Carter, a Democrat seen as a friend to the environment. Reagan had run on a

³¹ Ibid.

³² "The Guardian: Origins of the EPA." EPA. February 24, 2016. Accessed April 20, 2016. <https://www.epa.gov/aboutepa/guardian-origins-epa>. Originally published in The Guardian (1992); no original author given

platform of economic recovery and immediately sought to move towards a less regulated marketplace; a policy in line with the Conservative view that regulation held an economy back from true prosperity. Thus he held the classic view that the environment and the economy are always at odds. Pres. Reagan took his decisive victory “as a mandate” for these policies.³³

One manner for achieving a less regulated market was to roll back the power of the EPA. Reagan also moved to fill high level positions in the EPA with members of private industry. Three notable appointments were Rita Lavelle who had been “a public relations officer for Aerojet-General; Kathleen Bennett... a lobbyist for the American Paper Institute; and Robert Perry, EPA general counsel, worked as a lawyer for Exxon Corporation.”³⁴ Positions were not filled unless they passed a vetting process that ensured that the individual shared ideas on the environment and the economy consistent with the Reagan Administration. Reagan’s appointment of Anne Gorsuch, a lawyer with “no management experience,” to be Administrator of the EPA, it can be argued, was a deliberate attempt to breakdown the agency. “The Reagan environmental policy team was distinguished chiefly by its... hostility toward EPA programs they were to administer.”³⁵ Beyond the administrative level, President Reagan severely crippled its enforcement ability. In the name of “economic needs and governmental reform,” the agency’s budget was cut. This led to forced downsizing, which in turn led to “[m]any career officials, especially highly trained and experienced lawyers and other professionals, departed from the agency as morale declined.”³⁶ Reagan’s view towards environmentalism is symbolized best by his decision to have solar panels, installed by President Carter, removed from the White House.

³³ Kraft, Michael E., and Norman J. Vig. 1984. “Environmental Policy in the Reagan Presidency”. *Political Science Quarterly* 99 (3). [Academy of Political Science, Wiley]: 415–39. doi:10.2307/2149941.

³⁴ Ibid. 427

³⁵ Ibid. 427

³⁶ Ibid. 426-427

The 1980's marked a turning point in the environmental movement. Much of the progress that had occurred during the previous two decades came to be undermined. Not only at the governmental level by actions such as those by President Reagan, but from industry and think tanks as well. Fossil fuel companies began to attack the environmental movement. Environmentalists started to be portrayed as dirty, lazy hippies; the antithesis of traditional America. Strikingly, one of the biggest companies promoting climate disinformation, knew all too well that they were lying.

Exxon Mobil is one of the largest and most profitable companies in the world, with Fortune.com ranking it as the fourth most profitable of 2014.³⁷ "Exxon's size and the nature of its business model meant that it functioned as a corporate state within the American state."³⁸ Its executives have always had an influence in Washington, especially during Republican Administrations. When their scientists produced information predicting changes to the planet's climate due to atmospheric carbon increases, the company took steps to not only hide its findings, but to take a large role in the climate change debate; arguing that the science is flawed, and that climate change is not real.

Beginning in 1977 Exxon commissioned scientists to carry out original research on climate change. This was in response to the initial murmur concerning climate change. The National Academy of Sciences (NAS) created a study that compiled as much knowledge on climate change that existed at the time (a spiritual precursor to the IPCC reports). This survey found evidence of climate change, though the science was not too fleshed out at the time. The NAS study acknowledged that this uncertainty allowed for a less than dire response to the findings, but that caution needed to be taken with further use of fossil fuels. Exxon scientists

³⁷ "Global 500." Fortune. 2014. Accessed March 29, 2016.

³⁸ Coll, Steve. *Private Empire: ExxonMobil and American Power*. New York: Penguin Press, 2012. p. 19

were aware of this finding, and, under the direction of company heads, sought to project how much longer they could base their business upon the production and distribution of fossil fuel based energy.

Initially Exxon saw the results of their research as an opportunity. Harold Weinberg, a manager at Exxon Research stated, “This may be the kind of opportunity that we are looking for to have Exxon technology, management and leadership resources put into the context of a project aimed at benefitting mankind.”³⁹ As part of their research, Exxon investigated how much carbon dioxide the ocean could sequester by outfitting an old oil tanker with state of the art equipment.

Initially, Exxon was very transparent about its research. Studies were published in peer reviewed science journals and presented findings at conferences. The research coming out of Exxon was actually on the forefront of climate science. This “prompt[ed] government and industry to seek [Exxon’s] input on the issue” of carbon dioxide.⁴⁰

How much did Exxon know? Their scientists openly noted that climate change as the result of carbon dioxide use was real and that their business practices played a role. According to an internal memo from 1979, Exxon scientist Steve Knisley made predictions for the decades ahead. In one scenario, he assumed that no legal limitations on CO₂ emissions were passed, as well as limited usage of alternative green energy sources. He concluded that “noticeable temperature changes would occur around 2010 as the concentration [of CO₂] reaches 400ppm.”⁴¹ He also predicted that “the fossil fuel industry might need to leave 80 percent of its recoverable reserves in the ground to avoid doubling CO₂ concentrations.”⁴² Knisley could not definitively

³⁹ Banerjee et al.

⁴⁰ Ibid.

⁴¹ "Controlling Atmospheric CO₂." W. L. Ferrall and Steve Knisely to R.L. Hirsch. October 16, 1979. Accessed April 20, 2016. http://insideclimatenews.org/sites/default/files/documents/CO2_and_Fuel_Use_Projections.pdf. p. 7 This is an internal memorandum from the Exxon Engineering Petroleum Department that contains the results of a study conducted by Steve Knisley

⁴² Banerjee et al. (2015)

predict what climate change would mean for the world; acknowledging that some areas may be made better off by a changing climate, while others would suffer.⁴³

As it turns out, Knisley was not far off in his predictions. The main difference in reality compared to his prediction was that alternative energy has been emphasized, especially over the past few years. Regardless, atmospheric CO₂ concentrations reached 400ppm at the Poles in 2012, and the first month with an average of 400ppm was March 2015.⁴⁴ As previously noted, today it is recognized that 80% of carbon fuel reserves must remain unused, as stated by the IPCC.⁴⁵

Executives, however, were wary of the implications climate change would have on their business. Exxon did not inform regulators that their research on climate change was impacting business decisions. When oil prices began to fall in the 1980s Exxon's approach to climate change took a dramatic turn. In order to keep profits up, Exxon had to layoff large numbers of employees, many of whom had been part of their groundbreaking research into climate change. In 1982 their tanker research also halted, as government funding dried up. In the wake of these layoffs and shuttering of studies, Exxon began a campaign of climate disinformation, under the direction of Lee Raymond.

In recent months, the company has found itself under investigation by the Attorney Generals of New York, California, and Massachusetts (as of 03/29/2016). These investigations stem from the research conducted by Exxon scientists mentioned in the previous chapter. What

⁴³ "Controlling Atmospheric CO₂" (1979) 4

⁴⁴ "Greenhouse Gas Benchmark Reached." Office of Oceanic and Atmospheric Research. May 6, 2015. Accessed April 20, 2016.
<http://research.noaa.gov/News/NewsArchive/LatestNews/TabId/684/ArtMID/1768/ArticleID/11153/Greenhouse-gas-benchmark-reached-.aspx>.

⁴⁵ Banerjee et al. (2015)

these officials are trying to determine is whether the suppression of climate science constitutes a deliberate attempt to defraud investors.

The argument is that by suppressing the results of their climate research, investors were not given full information held by the company that could impact long term profits. Essentially, that the investor may have been entitled to know that climate change could be bad for business. But what Exxon did goes far beyond hiding critical information from investors. They actively suppressed cutting edge science in order to ensure that their bottom line would remain intact. Exxon willingly hid knowledge that could have helped governments take actions to curb the impending threat of climate change and its potentially irreversible effects. As one of their scientists, James Black, stated in 1978: “Present thinking holds that man has a time window of five to ten years before the need for hard decisions regarding changes in energy strategies might become critical.”⁴⁶

Over the past few decades numerous scientists, think tanks, and organizations have come out questioning the validity of climate science, as discussed in the last chapter. The vast majority of climate disinformation is being produced through organizations with distinct conservative leanings. For example, the NIPCC reports are published by the Heartland Institute, one of the biggest conservative think tanks in the country. The Heartland Institute, despite claiming that the findings of the NIPCC do not necessarily reflect their viewpoints, generates revenue from sales of the reports, and online access to the reports is through the Heartland Institute’s website. Much of the funding for this research has come from companies like Exxon and Koch Industries.

⁴⁶ Banerjee et al. (2015)

Chapter 3: The Economics of Suppressing Environmental Regulation

Why is climate change and the response to it such a polarizing issue in the United States? The simple answer is money. Acknowledging that climate change is anthropogenic in origin, and poses a threat to human survival, forces one to acknowledgment that the status quo cannot work. Currently the status quo is: dependent upon fossil fuels, which release harmful carbon based greenhouse gases; chemical production, which creates toxins in their production process as well as their waste products; and reliance on pesticides and fertilizers for massive farming ventures. There are billions of dollars invested in these and other industries which profit while offloading the pollution costs onto the general population. When people start demanding a transition to clean energy, and sustainable food production free of chemicals, these industries stand to lose.

Fossil fuel and chemical companies are not the only ones making money off of climate disinformation. The very groups creating, releasing, and promoting this information are realizing great profits themselves. A 2012 study examined 91 “climate change counter-movement (CCCM),” financially backed by 140 organizations, from 2003-2010. Financial information revealed that these groups made over \$900 million dollars.⁴⁷ Two of the largest funders of CCCM groups are Koch Industries (and by extrapolation the Koch Brothers) and Exxon Mobil. “But since 2008, they are no longer making publicly traceable contributions to CCCM organizations.”⁴⁸ It can be reasonably inferred that they are still contributing money and leadership to the climate disinformation movement.

As Figure 1 notes, the largest individual donor is a Donor Trust/Donor Capital Fund. These foundations receive money from outside donors and then redistribute the money in the form of grants to other groups. This is done at the direction of the donor. These funds do not

⁴⁷ Brulle, Robert J. "Institutionalizing Delay: Foundation Funding and the Creation of U.S. Climate Change Counter-movement Organizations." *Climatic Change* 122, no. 4 (2013): 681-94. doi:10.1007/s10584-013-1018-7.

⁴⁸ *Ibid.* p 13

release the names of their donors and there is no cap in donation amounts. So people like the Koch Brothers can give as much as they want towards climate denial, and remain anonymous. As Brulle, concedes, this makes it difficult to determine if groups like Koch Industries or Exxon Mobil are still donating to climate disinformation. He notes that one Koch funded organization has a history of donating to Donors Trusts, beginning in 2008, which corresponds with when Koch Industries started to roll back publicly traceable funding. Further, when both companies started reducing funding, the funding provided by Donor Trust/Donor Capital Funds dramatically increased.⁴⁹

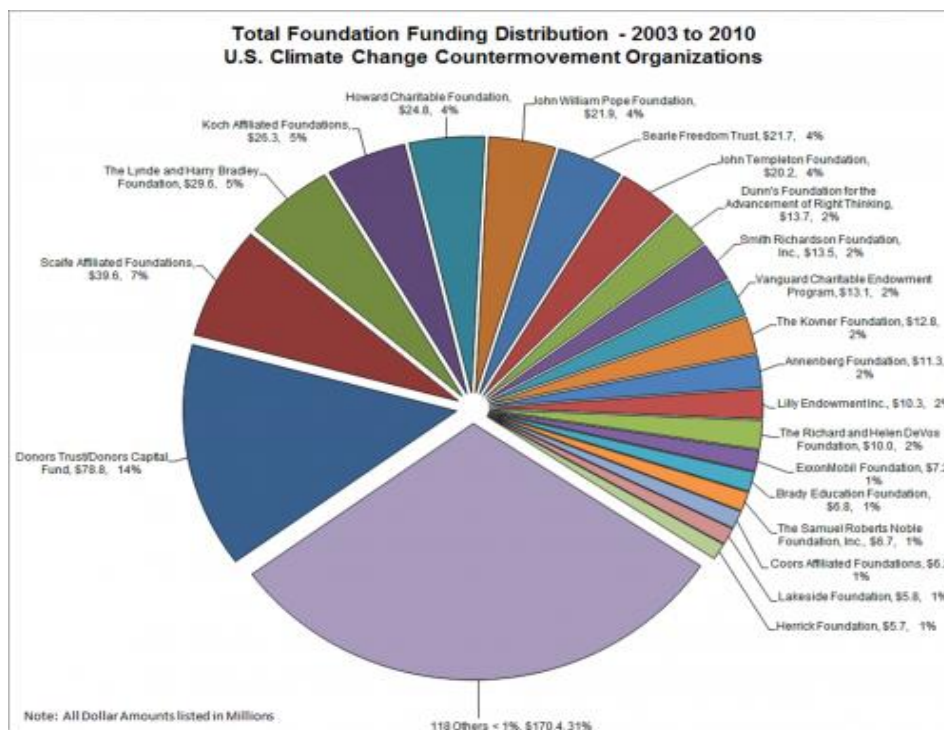


Figure 2: Total Foundation Funding Distribution Graph 2003-2010. Source: Phys.org <http://phys.org/news/2013-12-koch-brothers-reveals-funders-climate.html>

When companies make business decisions the resulting negative externalities (i.e. chemical runoff from fracking) that arise are provided to them at no cost. The worst negative externalities are pollutants. All human activity may result in the production of pollution, from

⁴⁹ Ibid. p 10.

driving cars to breathing. When it comes to industry, pollution is released on a massive scale. Currently, the United States has very little regulation concerning how much pollution companies can release. No price point or value has been assigned to fouling air, water, or land. The burden of proving the contamination has occurred is left to underfunded government agencies. As mentioned previously, some industries have been exempted from laws aimed at providing such restrictions. This has allowed industry to avoid paying the true cost associated with their business. When factoring external costs of coal use, such as health and environmental costs, “conservatively doubles to triples the price of coal per kWh of electricity generated.”⁵⁰ Everything comes at a cost, and the corporations producing pollution are not the ones paying the price. It is the people who have to breathe the polluted air and those whose homes are being ravaged by the effects of climate change. The cost of these negative externalities is not just a present day issue, but one that will have to be addressed in the future as well.

One of the economic issues with climate change is that it offers short term incentives to pollute, as the negative externalities associated with pollution have long term economic effects. Fossil fuel companies are turning in record profits, despite oil prices falling internationally, as demand remains high. As countries continue to develop, demand for fossil fuels will continue to rise as it is currently the cheapest form of energy. Though the effects of the pollution it causes are starting to be felt, the true effects will only be appreciated in the long term. At that point, the world economy will also start to feel the effects of climate change. By mid-century, global GDP

⁵⁰ Epstein, Paul R., Jonathan J. Buonocore, Kevin Eckerle, Michael Hendryx, Benjamin M. Stout Iii, Richard Heinberg, Richard W. Clapp, Beverly May, Nancy L. Reinhart, Melissa M. Ahern, Samir K. Doshi, and Leslie Glustrom. "Full Cost Accounting for the Life Cycle of Coal." *Annals of the New York Academy of Sciences* 1219, no. 1 (2011): 73-98. Accessed April 21, 2016. doi:10.1111/j.1749-6632.2010.05890.x. p. 93

is projected to fall by 3%.⁵¹ This number rises to 5.8% by the end of the century if carbon emissions continue to rise.⁵²

The exact effects of climate change cannot be precisely predicted in specific areas. This uncertainty is one of the platforms that the climate denial movement stands upon; arguing that some projections have areas becoming more agriculturally productive. Though this may be true, the positive impacts in such areas is very limited. Most projections have global GDP and food yields (crops and meat) declining. By 2060, the world GDP accounted for by agriculture may drop as much as 0.9%.⁵³ It was determined that, in the United States, every agricultural product analyzed in the OECD study will decrease in yield. A reduction in agricultural productivity is predicted almost universally across the globe.

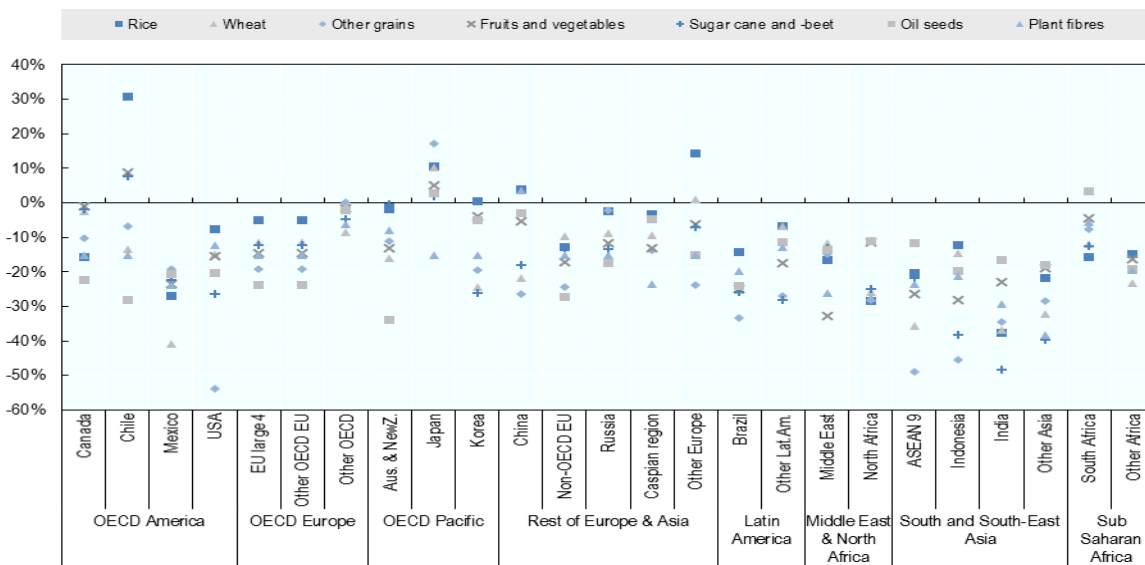


Figure 3 Impacts of climate change on crop yields in the central projection: Percentage change in yields in 2050 relative to current climate

Source: IMPACT model, based on the AgMIP study (Von Lampe et al. 2014).

⁵¹ "The Economic Consequences of Climate Change | OECD READ Edition." OECD ILibrary. 2015. Accessed January 21, 2016. http://www.keepeek.com/Digital-Asset-Management/oecd/environment/the-economic-consequences-of-climate-change_9789264235410-en#page13.

⁵² Ibid. p 79

⁵³ Ibid. p. 14

Climate change has the unique ability of having an effect across all facets of life. As the EPA highlights in a 2014 report, multiple sectors will face extensive damage. Infrastructure may be compromised as roads and bridges suffer structural damage due to changes in temperature and precipitation patterns. The demand for electricity will increase in order to maintain cool temperatures in buildings as the Earth's temperature rises. Electricity producing plants may also see effects as "elevated temperatures diminish thermal power plant efficiency and capacity" and some plants may face risks from environmental factors such as sea level rise.⁵⁴ Each sector analyzed has significant economic consequences that it will face if climate mitigation techniques are not put in place.

Mitigation efforts will not be enough to avoid all the economic consequences of climate change, but they can do a lot to reduce them. In the United States, the damage from sea level rise through 2100 is estimated to be \$5 trillion. However, "when cost-effective adaptation along the coast is [accounted for], the estimated damages are reduced to \$810 billion."⁵⁵ In addition to helping reduce the economic cost of climate change, greenhouse gas mitigation programs will also save lives. According to the same EPA study, these programs will have an impact on air quality, which may prevent 57,000 deaths in 2100, and extreme temperature, which may prevent 12,000 deaths.⁵⁶

One area that holds promise for moving away from fossil fuel dependence is in the developing world. Many of the least developed countries do not have extensive infrastructure to transport energy, with as many as 1.3 billion people lacking access to electricity worldwide.⁵⁷ As infrastructure is developed in these nations, building it in a manner that not only supports but

⁵⁴ EPA. 2015. *Climate Change in the United States: Benefits of Global Action*. United States Environmental Protection Agency, Office of Atmospheric Programs, EPA 430-R-15-001. P 47

⁵⁵ *Ibid.* P 7

⁵⁶ *Ibid.* P 10

⁵⁷ "Oxford Energy." *Energy in Developing Countries*. N.p., 2016. Web. 05 May 2016.

emphasizes dependence on clean energy, is vital. Sustainability for All, an organization partnered with the United Nations and the World Bank established three goals in order to achieve global sustainable energy: “One is to ensure universal access to modern energy services. The second is to double the global rate of improvement in energy efficiency. And the third is to double the share of renewable energy in the global energy mix.”⁵⁸ The intended target date to reach these goals is 2030. However, the current rate at which the necessary changes are occurring is far below the rate needed to reach the 2030 target.⁵⁹ This is concerning since the demand for energy from developing nations is only growing and is becoming the majority of the energy demanded worldwide; 65% by 2040.⁶⁰

Chapter 4: Campaign Financing: Where are campaign donations for climate denying candidates coming from?

Political campaigns, especially those for major offices are very expensive. In 2012, spending on TV ads for federal races alone totaled \$3.8 billion.⁶¹ (Kurtzleben 2015) Some politicians are able to finance much of their campaign themselves, but most turn to outside donations to keep them afloat. However, campaign donations open the door to corruption. The United States has established limits on how much money someone can donate to a political campaign. Campaign donation limits are a logical step to prevent corruption in government, specifically the ability for a person with a special interest to buy a politicians vote.

⁵⁸ Sustainable Energy for All 2015: Progress Toward Sustainable Energy. Washington DC: World Bank, 2015. Accessed May 5, 2016. doi:10.1596/978-1-4648-0690-2. p. X

⁵⁹ Ibid. p. X

⁶⁰ Woody, Todd. "Here's Why Developing Countries Will Consume 65% of the World's Energy by 2040." The Atlantic. December 3, 2013. Accessed May 05, 2016. <http://www.theatlantic.com/technology/archive/2013/12/heres-why-developing-countries-will-consume-65-of-the-worlds-energy-by-2040/282006/>.

⁶¹ Kurtzleben, Danielle. "2016 Campaigns Will Spend \$4.4 Billion On TV Ads, But Why?" NPR. August 19, 2015. Accessed March 30, 2016. <http://www.npr.org/sections/itsallpolitics/2015/08/19/432759311/2016-campaign-tv-ad-spending>.

The limits set by the Federal Election Commission (FEC) for the 2016 election cycle are \$2700 for an individual. Political Action Committees (PACs) are also limited to \$2700 per candidate for an election, unless they meet certain qualifications, which include donating to five or more candidates, at which point the limit is increased to \$5000. Individuals are able to donate up to \$5000 to a PAC.⁶² Candidates are required to file reports with the FEC naming all individuals and PACs that have donated to their campaign.

In 2010 the United States Supreme Court released a landmark decision that altered the political landscape. In *Citizens United vs. the Federal Election Commission*, the Supreme Court removed regulation limiting nonprofits and corporations from running political advertisements within a certain period prior to an election. Further, previous campaign laws restricted employers from influencing employee votes. Employers and Unions were only allowed to inform workers about policy issues and where candidates stood on the issues, but could not express direct backing for any candidate.⁶³ This ruling, as well as a few subsequent rulings, opened the door for the creation of Super PACs. Super PACs are able to take unlimited funds from individuals, corporations, unions, etc. and use them to run political advertisements, send political mailings, and other campaign related jobs, as long as they are collaborating with a specific campaign. Super PACs must disclose who their donors are. Additionally, the protection provided to workers from being coerced to vote for a particular candidate is gone. "Absent statutory protection, federal law provides no redress for employees who suffer termination or other adverse

⁶² "Contributions." Brochure. February 2015. Accessed April 01, 2016.
<http://www.fec.gov/pages/brochures/contrib.shtml#Chart>.

⁶³ "Citizens United At Work: How The Landmark Decision Legalized Political Coercion In The Workplace." *Harvard Law Review* 128, no. 2 (December 2014): 669-690. *Business Source Complete*, EBSCOhost (accessed May 5, 2016).

action as a consequence of their unwillingness to participate in their employers' political activities."⁶⁴

The fossil fuel industry is just one of many taking advantage of these new campaign financing laws. As of April 1st, in the 2016 Presidential Election fossil fuel companies, or wealthy donors with ties to such companies, have donated over \$100 million to Republican candidates and PACs supporting them. Super PACs supporting Governor Jeb Bush had spent \$30.6 million before his campaign folded. Senator Ted Cruz's PACS have received \$25.6 million and has almost \$700,000 in direct contributions (meaning money his campaign can decide what to do with).⁶⁵ This represents 57% of the money spent by PACs supporting Ted Cruz.⁶⁶

Though fossil fuel companies do donate to campaigns on both sides of the aisle, the clear emphasis is on Republican campaigns. Of the seven most fossil fuel funded non-candidate Super PACs, according to a study by Greenpeace, only one supports a traditionally Democratic position. The American Unity PAC supports and fights for LGBT rights, but is still considered a Republican Super PAC as it has spent money attacking the likes of Senator Ed Markey (D-MA), a leader in the environmental movement as well as the fight against building the Keystone XL pipeline.⁶⁷ The other six include PACs supporting Republican campaigns for both the House of Representatives and the Senate and one that fights against taxes.⁶⁸

Companies also seek to influence the votes of politicians through lobbying. In order to be considered a certified lobbyist, a person must meet certain qualifications. These qualification

⁶⁴ Ibid., p 674

⁶⁵ Boren, Zachary Davies. "Revealed: The Fossil Fuel Tycoons Trying to Buy the US Election." Energydesk Greenpeace. March 03, 2016. Accessed April 01, 2016. <http://energydesk.greenpeace.org/2016/03/03/fossil-fuel-tycoons-trying-to-buy-us-election/>.

⁶⁶ Geiling, Natasha. "More Than Half Of Ted Cruz's Super PAC Money Comes From Fossil Fuel Sources." ThinkProgress. March 07, 2016. Accessed April 01, 2016. <http://thinkprogress.org/climate/2016/03/07/3757233/presidential-candidates-fossil-fuels/>.

⁶⁷ "American Unity PAC." Opensecret. April 1, 2016. Accessed April 01, 2016.

<http://www.opensecrets.org/outsidespending/recips.php?cmte=C00523589>.

⁶⁸ Boren (2016)

standards change from state to state, but are fixed at the federal level as: “a lobbyist is defined by the law as someone who earns at least \$3,000 over three months from lobbying activities, has more than one contact he is seeking to influence, and spends more than 20 percent of his time lobbying for a single client over a three-month period.”⁶⁹ Lobbyists cannot give money to politicians in order to influence voting, as this constitutes bribery, but they can spend it on producing materials and media arguing for their position on legislation. They can, however, “indirectly bribe” candidates which “is most often found in the campaign contribution.”⁷⁰

Lobbying represents an unfair system of influence upon government, which tips in favor of large corporations. The average voter does not have the time, money, or access to technical information that lobbyists have. Many lobbyists were once employees for Congressmen/women or were members of Congress themselves. This revolving door keeps the same people in positions of power and influence even when the public decides that their time is over. Further, the friendships that they have built lead to undue influence. A Senator is more likely to listen to information provided by a former colleague, now employed by Koch Industries, than a concerned college student from his/her home state, writing strongly worded letters about stopping oil subsidies. There is also increased opportunity for corruption. The access lobbyists have to elected officials gives them an opportunity to offer bribes. And when these bribe offers are coming from companies with nearly unlimited resources, one can only hope that the politician has the strength to say no.⁷¹

⁶⁹ Murse, Tom. "What Do Lobbyists Do?" About.com News & Issues. December 4, 2014. Accessed April 25, 2016. <http://uspolitics.about.com/od/Money-In-Politics/a/What-Do-Lobbyists-Do.htm>.

⁷⁰ Hrebenar, Ronald J., and Bryson B. Morgan. *Lobbying in America: A Reference Handbook (Contemporary World Issues)*. ABC-CLIO Interactive, 2009. p 30

⁷¹ I am not saying that there is bribery or corruption being caused by the fossil fuel industry or by those with interest in climate disinformation. I am merely suggesting that lobbying opens the door to that possibility for any industry.

Chapter 5: What Could Have Been: Congressional Climate Denial and Foreign Climate Policy

To see the effect that fossil fuel companies are having on American politics, one must only look as far as the 2016 Republican Primary Race. Before a single ballot was cast, five of the major candidates had openly expressed dissent for the scientific consensus. Included in these five are GOP front runners Donald Trump and Senator Ted Cruz. Beyond these candidates who flat-out deny the existence of climate change, no Republican has said that the United States must act to mitigate climate change without ensuring that there is no negative impact on the economy first.⁷² There has also been a noticeable lack of attention paid to climate issues during televised debates. If brought up at all, environmental issues tend to be an afterthought following long debates about ISIS or who Donald Trump has insulted this time.

When Americans are polled about their belief in anthropogenic climate change, there is a large gap between Democrats and Republicans. According to a 2014 Pew Research Center study, 71% of Democrats believe in anthropogenic climate change, while only 23% of Republicans believe.⁷³ How has one party been able to turn the debate from addressing fossil fuel consumption and combating climate change, to whether or not climate change even exists? Simply put, there is no consensus amongst the American voting public regarding climate change. According to that same study, only 50% of American adults believe climate change is occurring and it is due in large part to human activity. This is compared to 23% who say current climate change is a natural process and 25% who say there is “no solid evidence that the Earth is getting

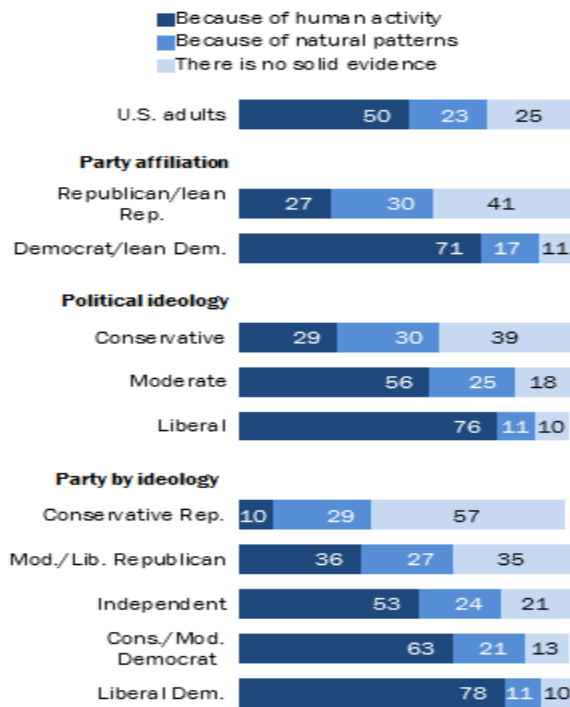
⁷² Koch, Wendy. "Voter's Guide: How the Candidates Compare on Climate and Energy." National Geographic. January 29, 2016. Accessed March 01, 2016. <http://news.nationalgeographic.com/energy/2016/01/voters-guide-how-the-candidates-compare-on-climate-and-other-issues/>.

⁷³ Funk, Cary, and Lee Rainie. "Chapter 2: Climate Change and Energy Issues." Pew Research Center Internet Science Tech RSS. July 01, 2015. Accessed May 09, 2016. <http://www.pewinternet.org/2015/07/01/chapter-2-climate-change-and-energy-issues/>.

warmer.”⁷⁴ Though the percent of those who believe in anthropogenic climate change increased from 2009 by 1%, those who feel that there is no evidence of warming also increased by 14%. Without such a demand for action, the debate can be dominated by those looking to stall progress. Additionally, arguments against decreasing fossil fuel consumption tend to be consistent with Republicans positions. From the imposition of taxes, to increasing government regulation and control of the energy market, the call to environmentalism does not offer much appeal for traditional, small government Republicans.

Views on Climate Change Differ by Party and Ideology

% of U.S. adults saying the Earth is getting warmer because of human activity/because of natural patterns in Earth's environment/or that there is no solid evidence that Earth is getting warmer



Survey of U.S. adults Aug. 15-25, 2014. Q20F1. "Don't know" responses not shown.

PEW RESEARCH CENTER

Figure 4 Belief in Climate Change based on Party
 Source: Pew Research Center, July 1, 2015, "Americans, Politics and Science Issues."

⁷⁴ Ibid.

Fueling the widening gap is the media portrayals of climate change. Of note are two news outlets owned by Conservative billionaire Rupert Murdoch, Fox News Channel and *The Wall Street Journal*. Despite public statements from Murdoch about the realities of climate change, a 2012 study by the Union of Concerned Scientists revealed that these two outlets consistently report inaccuracies about climate change. From February 2012 to July 2012, there was a 93% rate of misleading citations regarding climate change during Fox News primetime shows.⁷⁵ (“Citations deemed to be misleading questioned either the reality of climate change or the fact that recent climate change is largely due to human activities, or they advanced other arguments that dismissed established climate science.”)⁷⁶ Over a one year period there was an 81% rate of misleading information in the Opinions section of *The Wall Street Journal*.⁷⁷ An internal memo from Bill Sammon, a Vice President at Fox News, stated “we should refrain from asserting that the planet has warmed (or cooled) in any given period without IMMEDIATELY pointing out that such theories are based upon data that critics have called into question.”⁷⁸

What has all the money that the fossil fuel industry pumped into the political system gotten them? As noted in the introduction of this thesis, the amount of money they receive in subsidies represents a substantial return on their investments. “In 2011-12, oil, gas, and coal companies spent \$329 million in campaign finance contributions and lobbying expenditures and received \$33 billion in federal subsidies over the same two years – a more than 10,000 percent

⁷⁵ Huertas, Aaron, and Dena Adler. *Is News Corp. Failing Science? Representations of Climate Science on Fox News Channel and in the Wall Street Journal Opinion Pages*. Publication. September 2012. Accessed May 10, 2016. http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/Is-News-Corp-Failing-Science.pdf. p VII

⁷⁶ Ibid. p 3

⁷⁷ Ibid. p VII

⁷⁸ Romm, Joe. "Foxgate: Leaked Email Reveals Fox News Boss Bill Sammon Ordered Staff to Cast Doubt on Climate Science." ThinkProgress Foxgate Leaked Email Reveals Fox News Boss Bill Sammon Ordered Staff to Cast Doubt on Climate Science Comments. December 15, 2010. Accessed May 10, 2016. <http://thinkprogress.org/climate/2010/12/15/207201/leaked-email-fox-news-sammon-cast-doubt-on-climate-science/>.

return on investment.”⁷⁹ Subsidies range in manner and target practices. One practice that is subsidized is exploration for new fossil fuel deposits. The American tax payers are providing money to fossil fuel companies to continue their dangerous practices and make it cheaper to extract reserves which already dwarf the amount the planet can safely absorb. Some states give subsidies in addition to what these companies already receive from the federal government. In order to end these subsidies, Congress or state governments must affirmatively pass a law rescinding them. At the current moment, there are no plans to eliminate any of the subsidies currently in place.⁸⁰

Politicians looking to fight for environmental policy are finding resistance from their colleagues. Within both branches of Congress, there are committees whose job it is to investigate, write and advise on policies in various sectors. One such committee is the Senate Committee on the Environment and Public Works. The current chairman, Senator James Inhofe (R-OK) is one of the most outspoken climate skeptics in Congress. After becoming chair of this committee, Sen. Inhofe proclaimed that “man-made global warming is the greatest hoax ever perpetrated on the American people.”⁸¹ He looked to this quote as the inspiration for a title when he literally wrote the book on climate denial, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*. In his book, Sen. Inhofe argues that global warming is a conspiracy by those who wish to profit off fear and expensive changes to the US’s infrastructure. He also appeals to peoples’ view of true American values, by arguing that environmentalism is an attempt to create “global socialism” and that the UN is pushing an environmentalist agenda in

⁷⁹ Makhijani p 4

⁸⁰ "United States - Progress Report on Fossil Fuels Subsidies." p 10

⁸¹ Inhofe, James M. *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future*. Washington DC: WND Books, 2012.

order to take American wealth and redistribute it to the rest of the world.⁸² Sen. Inhofe bases his rejection of the climate change consensus on the same science promoted by groups such as the Heartland Institute. He claims that the planet is not warming at an unprecedented rate, and that science has been wrong before about dramatic climate predictions (in the 1970s many media outlets reported that climate scientists were predicting an impending ice age) so there is no need to take this current hysteria seriously.⁸³ It is hard to imagine a committee led by such a staunch climate opponent creating any lasting policy that would protect the environment.

In 2005, The Energy Policy Act was passed which exempted the natural gas industry from a number of environmental regulations; one of the major exemptions was from the Safe Drinking Water Act. The exemption “excludes the use of frac[k]ing fluid from the SWDA. That section provides the chemical composition of frac fluid does not need to be disclosed to the EPA.”⁸⁴ The exemptions came after an EPA study found that there was no harm posed by fracking fluids to drinking water. This exemption became known as the “Halliburton Loophole” after one of the largest natural gas and services companies in the country. Halliburton, coincidentally, patented the technology behind hydraulic fracturing in the 1940s; but this is not why the exemption was nicknamed as such.⁸⁵ Then Vice President Dick Cheney (R-WY), a supporter of the bill, was CEO of Halliburton prior to joining the Republican ticket in 2000. Further, according to a former EPA employee turned whistleblower Weston Wilson, the seven

⁸² Ibid. p. 25-26

⁸³ Ibid.

⁸⁴ Smith, Brian J. "Fracing the Environment: An Examination of the Effects and Regulation of Hydraulic Fracturing." *Tex. Wesleyan L. Rev.* 18 (2011): 141-142

⁸⁵ "The Halliburton Loophole." EARTHWORKS. Accessed April 26, 2016.
https://www.earthworksaction.org/issues/detail/inadequate_regulation_of_hydraulic_fracturing#.Vx74KEfL99j.

member panel put together to conduct the EPA study had five “current or former employees of the oil and gas industry, including a representative from Halliburton.”⁸⁶

Fossil fuel companies are not limiting their political influence to Washington DC. States such as Arizona and Oklahoma have introduced laws establishing a surcharge for individuals and business owners who install solar panels or wind turbines on their property. In Oklahoma, representatives from Energy Companies in favor of Senate Bill 1456, “said the surcharge is needed to recover some of the infrastructure costs to send excess electricity safely from distributed generation back to the grid. The representatives said utilities need the new surcharge to prevent customers who can’t afford the installation costs of distributed generation from subsidizing customers who have the systems installed.”⁸⁷

What this bill actually represents is an attempt to deter individuals from trying to free themselves from fossil fuel dependency. One of the benefits to home solar panels and wind turbines is that excess energy that they produced is sent back to the home energy providing company. As a result, home owners with renewable energy sources can lower their energy bills, by “selling” this excess energy back. By applying a monthly fee to installing and using clean energy sources, governments remove the potential savings associated with this technology, thus removing the incentive to move from fossil fuels. Such laws only serve to keep consumers dependent on fossil fuels.

The United States views itself as a world leader in many sectors, but due to the interference in environmental policy’s progress at the hands of the fossil fuel industry, it lags far

⁸⁶ Wilson, Weston. "Exclusive: EPA Whistle-Blower Warns EPA Must Not Buckle to Industry Pressure and Greenwash Fracking Yet Again." ThinkProgress Exclusive EPA WhistleBlower Warns EPA Must Not Buckle to Industry Pressure and Greenwash Fracking Yet Again Comments. October 11, 2011. Accessed April 26, 2016. <http://thinkprogress.org/climate/2011/10/11/340411/epa-whistle-blower-industry-pressure-greenwash-fracking-again/>.

⁸⁷ Monies, Paul. "Oklahoma House Passes Solar Surcharge Bill." NewsOK.com. April 15, 2014. Accessed March 30, 2016. <http://newsok.com/oklahoma-house-passes-solar-surcharge-bill/article/3955378>.

behind the rest of the world. The United States had seen two consecutive years of decline in CO₂ emissions for the first time in decades, from 2010 to 2011.⁸⁸ However, only 9.8% of the energy produced in the United States is from a renewable source, and of the 9.8%, 23% is produced by burning wood which releases harmful carbon based gases as well as reduced the planet's ability to absorb excess carbon.⁸⁹ Meanwhile the United States is the world's second largest CO₂ producer in the world, behind China. In fact, at 5.3 billion tons, the United States produces more tons of CO₂ than all the member nations of the European Union (28 total countries).⁹⁰ The United States also emits the most CO₂ per capita of the most developed nations. At 16 tons per person, this is two times more than China.⁹¹

European countries are at the forefront of the green energy movement. Germany produces 26% of its energy from renewable energy. Denmark, in 2014, set the world record for energy produced via wind power with 39.1% of its energy being produce from wind.⁹² As a continent, Europe also outspends the United States on green energy. In 2015, Europe spent \$48.8 billion on renewable energy, compared to \$44.1 billion by the United States. Interestingly, this represented a 21% decline in spending from 2014 for Europe while it was a 19% increase for the United States.⁹³ Though these countries do not have the same establishment of fossil fuel companies as the United States, they have been embracing the realities of climate change for far longer than the United States.

⁸⁸Rogers, Simon, and Lisa Evans. "World Carbon Dioxide Emissions Data by Country: China Speeds Ahead of the Rest." *The Guardian*. January 31, 2011. Accessed April 25, 2016.

<http://www.theguardian.com/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2>.

⁸⁹ "Renewable Energy - IER." IER. Accessed April 01, 2016.

<http://instituteeforenergyresearch.org/topics/encyclopedia/renewable-energy/>.

⁹⁰ Olivier JGJ et al. (2015), *Trends in global CO₂ emissions; 2015 Report*, The Hague: PBL Netherlands Environmental Assessment Agency; Ispra: European Commission, Joint Research Centre p 29

⁹¹ *Ibid.* p 31

⁹² Smith, Tierney. "5 Countries Leading the Way Toward 100% Renewable Energy." *EcoWatch*. January 09, 2015. Accessed April 01, 2016. <http://ecowatch.com/2015/01/09/countries-leading-way-renewable-energy/>.

⁹³ *Frankfurt School*. Publication. United Nations Environment Programme/ Bloomberg New Energy Finance, 2016. Web. 31 Mar. 2016.

The United States has also removed itself from historic climate agreements, with the Kyoto Protocol as the most notable. This agreement sought to have countries reduced their carbon emissions 5% from 1990s levels. The reduction in emissions was to be met during a time period which only began once 55 nations had ratified the agreement.⁹⁴ The United States pulled out of discussions on the treaty in 2001, under the direction of President George Bush and with the backing of the Senate which voted to not sign the treaty.⁹⁵ President Bush felt that the United States could not take on the reduction in emissions the treaty called for without hurting its economy. Further, he objected to the United States and other developed nations having to take the lead on emission reduction, while developing nations, such as China, were exempted.⁹⁶ In 2011 Canada abandoned the treaty, citing the absences of the United States and China as reasons why “Kyoto’s goals [were] unworkable... and that a new pact [was] needed to address emissions.”⁹⁷

The time for debating anthropogenic climate change has passed. As the science presented by organizations like the IPCC shows, the planet is already experiencing irreversible changes as the result of climate change. Coral reefs around the world are bleaching and dying as the result of ocean acidification. Ocean acidification is, in part, a result of the amount of carbon humans are pumping into the atmosphere. When rain falls it reacts with carbon dioxide molecules which creates carbonic acid, which, in large quantities, breaks down the shells of mollusks, killing them and leads to bleaching of coral, which may eventually kill the coral.⁹⁸ Australia’s Great Barrier Reef, perhaps the most famous coral reef in the world now has 93% of its coral that has

⁹⁴ "Kyoto Protocol." United Nations Framework Convention on Climate Change. 2014. Accessed April 26, 2016. http://unfccc.int/kyoto_protocol/items/2830.php.

⁹⁵ Reynolds, Paul. "Kyoto: Why Did the US Pull Out?" BBC News. March 30, 2001. Accessed April 26, 2016. <http://news.bbc.co.uk/2/hi/americas/1248757.stm>.

⁹⁶ Ibid.

⁹⁷ "Kyoto Protocol Fast Facts." CNN. March 30, 2016. Accessed April 26, 2016. <http://www.cnn.com/2013/07/26/world/kyoto-protocol-fast-facts/>.

⁹⁸ Kolbert, Elizabeth. *The Sixth Extinction: An Unnatural History*. New York: Henry Holt, 2014.

experienced some amount of bleaching.⁹⁹ Though the total amount of coral that will die as a result of bleaching is unknown, in the Great Barrier Reef “Professor Andrew Baird, from the Centre of Excellence for Coral Reef Studies... ‘We’re already measuring close to 50 per cent mortality of bleached corals.’”¹⁰⁰ This is not a problem that will go away. The more carbon released, the faster this problem will occur.

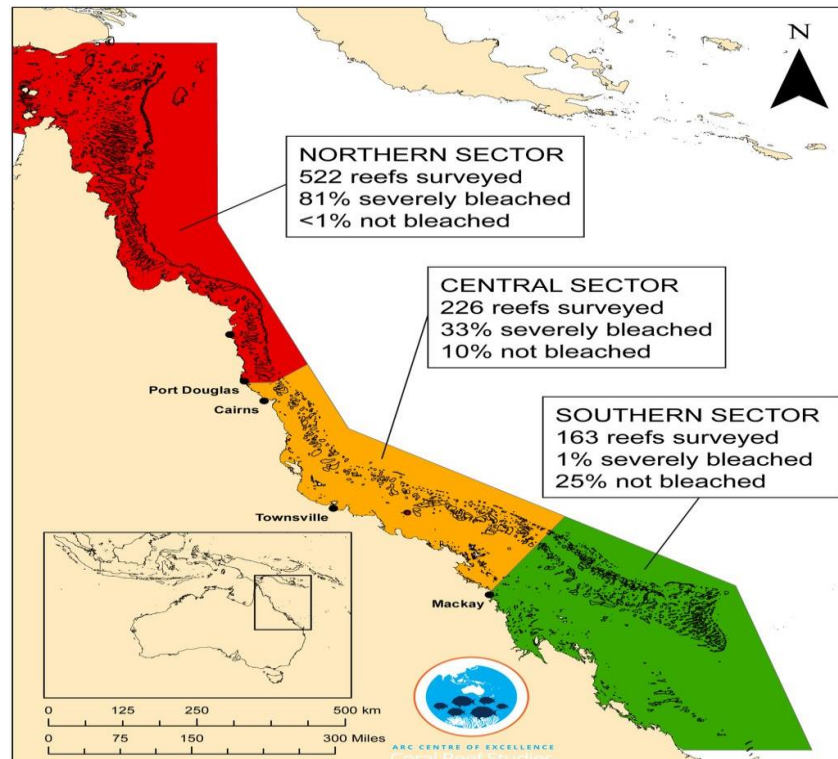


Figure 5. Map of Bleaching in Great Barrier Reef
Source: *The Sydney Morning Herald*

The plight of coral reefs and mollusks is just one example of climate change in action. Further, despite being part of Australia, the United States can take lessons from what is occurring to the Great Barrier Reef. Pollution does not stay in the area where it is released, the jet streams and ocean currents carry pollutants throughout the world. Warming due to the greenhouse effect

⁹⁹ Arup, Tom. "The Great Barrier Reef: 93% Hit by Coral Bleaching, Surveys Reveal." *The Sydney Morning Herald*. April 20, 2016. Accessed April 20, 2016. <http://www.smh.com.au/environment/the-great-barrier-reef--93-hit-by-coral-bleaching-surveys-reveal-20160419-go6jw>.

¹⁰⁰ *Ibid.*

will not be felt worst in the United States because we are the world's largest carbon producer; the planet will bear the burden of our actions.

Chapter 6: Conclusion: Campaign Reform and Transparency

Companies have funded and promoted science which has failed in its attempt to prove that the consensus view of anthropogenic climate change is wrong. These companies, such as Exxon Mobil, have gone as far as to suppress their own research. Rather than recognizing that there is a problem and looking to be a part of the long term solution, and developing green energy, these companies wanted to protect short-term earnings. The money they earned from defrauding the public, poisoning the air and water, and even altering earthquake patterns, has then been funneled into a political system that allows them to continue such harmful work. The Republican Party has continued to support tax breaks and subsidies for fossil fuel companies, while attempts to develop alternative energy faces significant opposition.

This thesis has shown that there is an influence on environmental policy from the fossil fuel industry. Its money has corrupted science, which has created a platform for those who do not want to see regulatory policy changes to protect the planet. Sen. James Inhofe can go on Fox News to speak to the American people, and point to studies, paid for by conservative and fossil fuel interests, that say there is no such thing as anthropogenic climate change and that everything that the planet is experiencing is part of the natural order.

In order for climate action to actually take place, there need to be systematic changes to the influence that corporations are allowed to impose upon politicians and the legislative process. The *Citizens United* ruling opened the door for unlimited political influence. Though it is not in direct campaign contributions, allowing PACs to buy television and radio advertisements, as well

as to run phone banks for political issues allows an unfair amount of influence over the electorate. Democracy means one person, one vote. Allowing corporations to use unlimited funds to produce political advertisement is the functional equivalent of allowing unlimited direct contributions to individual campaigns. Campaigns live and die with the money they receive. The de facto campaign donations through Super PACs allow private companies to influence the outcome of elections and public opinion towards legislative issues and ballot questions. The larger a company, the more it can donate and the fossil fuel industry is at the top of the earnings list.

Not every company uses the *Citizens United* ruling to push harmful agendas for the sake of profits. But even philanthropic organizations should not have unchecked influence upon politics; it corrupts the system and removes the power from the people. Unfortunately, to overturn *Citizens United*, a new case concerning campaign financing would have to reach the Supreme Court and the Court would have to rule against precedent. In the alternative, an Amendment to the Constitution overturning the decision must be ratified. To solve this problem, states must follow the lead of states and cities like Maine and Seattle. “Maine offers a public grant to candidates who raise a qualifying number of \$5 donations and then agree to abstain from further private fund-raising... Seattle voters approved... provid[ing] every voter with four \$25 “democracy vouchers,” to be distributed as they wish among candidates who agree to abide by spending limits.”¹⁰¹

Transparency is needed in the media and science in order for people to make informed decisions about climate change. If Mr. Smith is reading a paper that says climate change is a hoax, having the knowledge that the paper was funded by, and makes money for, The Heartland

¹⁰¹ Cole, David. "How to Overturn Citizens United." The Atlantic. April 2016. Accessed April 26, 2016. <http://www.theatlantic.com/magazine/archive/2016/04/how-to-reverse-citizens-united/471504/>.

Institute may make him less inclined to simply accept the conclusions of the author because he has Ph.D. at the end of his name. Further, when climate science is reported on the news, knowing the sponsors of the broadcast and the news network will help reveal bias. Transparency works both ways, environmental groups would be held to the same standards which can only boost their credibility. Anytime an exaggerated article or story is published which makes a claim about the dangers of climate change, and is then ultimately found to be untrue, it hurts the environmental movement. Transparency would help keep the conversation about facts and getting the truth out to the public. Super PACs and shell companies made for the sole purpose of creating donor anonymity made transparency very hard.

There must be accountability for companies, scientists, and media outlets who knowingly present climate disinformation as fact. In the investigations into Exxon Mobil, many are drawing comparisons to 2006, when a federal judge ruled against Big Tobacco. That case originated when “the Clinton administration, accused the tobacco industry of racketeering as part of a coordinated plan to deceive the public about the negative health effects of smoking.”¹⁰² Though the severity of the charges and punishments were eventually rolled back, the Federal Government still filed a civil RICO (Racketeer Influenced and Corrupt Organization Act) lawsuit. The Judge ultimately decided that the extensive campaign to manipulate consumers, as well as research and findings which showed the harmful effects of smoking, made Bid Tobacco a Racketeering enterprise. Some, such as Senator Sheldon Whitehouse (D-RI), are calling for similar RICO investigations into Exxon Mobil and other major fossil fuel companies. In an opinion piece for the Washington Post, he points to Brulle’s findings of a system designed to promote climate denial as well as to

¹⁰² "Judge: Tobacco Industry Engaged in Racketeering." CNNMoney. August 18, 2006. Accessed May 09, 2016. http://money.cnn.com/2006/08/17/news/companies/tobacco_ruling/.

hide fossil fuels involvement in such activity. Senator Whitehouse even argues that the scientists who create the bad studies should be held accountable.¹⁰³

Were RICO investigations and trials to occur regarding the fossil fuel industry, it may serve as a good deterrent to further attempts to create disinformation and distrust in climate science. It would be a violation of a person's right to free speech if scientists were to be prosecuted for publishing work that dissents from the anthropogenic climate change consensus; as it would be to prosecute someone producing ads claiming climate change is a hoax. But if it can be shown that such speech was a deliberate attempt to prevent the general public from knowing the truth about climate change in order to turn a profit, then there is precedent to stop them through the courts. Scientists and members of the media must hold each other accountable for their work. They cannot sit by and watch some tarnish the respectable work that others have done.

Climate change is a world problem, and world leaders are speaking out; a cue that the United States needs to follow. With his encyclical *Laudato si'*, Pope Francis spoke to the largest religious group in the world and declared that it was their duty to protect the planet, and that "no one looking for quick and easy profit is truly interested in [ecosystem] preservation."¹⁰⁴ Pope Francis is one of many world leaders taking steps towards combating climate change, and calling for policy change. On April 22, 2016, 175 countries and the European Union signed the Paris Agreement. This UN Treaty outlines plans to help the world limit temperature rise by 2° C. These plans include moving away from greenhouse gas emissions and developing removal techniques,

¹⁰³ Whitehouse, Sheldon. "The Fossil-fuel Industry's Campaign to Mislead the American People." Washington Post. May 29, 2015. Accessed May 09, 2016. https://www.washingtonpost.com/opinions/the-fossil-fuel-industrys-campaign-to-mislead-the-american-people/2015/05/29/04a2c448-0574-11e5-8bda-c7b4e9a8f7ac_story.html.

¹⁰⁴ Francis, *Laudato si'* [Encyclical Letter On Care for our Common Home] Sec. 36, accessed June 23, 2015, http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

with an understanding that this process will take longer for developing countries. In order for the treaty to go into effect 55 of the signing countries must adopt it. As of May 10, 2016 only 17 have adopted the treaty. The United States is not one of them.

If the United States is serious about taking steps to protect the planet's future, adopting the Paris Agreement would be a great first step. Internally, passing of laws such as a carbon tax or cap and trade are necessities. Cap and trade involves setting limits for how much pollution a company may release. If a company does not pollute up to the allowed level, it can sell the excess pollution limit to larger companies. This creates an economic incentive to develop cleaner means of production, as companies do not want to pay their competition for the right to pollute. A carbon tax would involve deciding on the social cost of carbon pollution and then charging a tax, equal to this value, to companies whose carbon pollution exceeds a certain amount. Some countries have adopted these practices with success, but the United States has not, with the last bill concerning cap and trade failing to pass in 2009.¹⁰⁵ Not only would a carbon tax have an innovative and greening effect, it would also have economic benefits. "\$16/ton of CO2 that rose at 4 percent over inflation per year 'would raise more than \$1.1 trillion in the first 10 years and more than \$2.7 trillion over a 20-year period.'"¹⁰⁶

Similarly, the United States needs to take steps to remove the subsidies and tax breaks available to the fossil fuel industry. If the argument is that the subsidies create jobs and stimulate the economy, than transitioning them to the clean energy industry should have the same effect. The clean energy industry is not as established as the fossil fuel industry, which could mean that

¹⁰⁵ Dews, Fred. "9 Things You Should Know about the Carbon Tax." The Brookings Institution. May 04, 2016. Accessed May 10, 2016. <http://www.brookings.edu/blogs/brookings-now/posts/2016/05/9-things-you-should-know-about-a-carbon-tax>.

¹⁰⁶ Ibid.

the benefits associated with funding clean energy would surpass the economic benefits of subsidies for the fossil fuel industry.

The United States has many political obstacles to overcome first. Florida, Governor Rick Scott (R) has placed a ban on the use of the terms “global warming” and “climate change” by Department of Environmental protection officials “in any official communications, emails, or reports.”¹⁰⁷ Gov. Scott is a climate skeptic. The voting population needs to take a stand against politicians who ignore the realities of climate change. Contamination of drinking water from seawater infiltration of aquifers due to sea level rise, for example, which South Florida is currently experiencing.¹⁰⁸ When the people start demanding change, the government has no choice but to listen.

Climate change is a multifaceted problem with a global impact. Fossil fuels have not only been a catalyst for climate change, but the revenue made from their extraction has prevented a dialogue from developing to fight climate change. Dishonesty and doubt has been sown amongst the public, all in the name of money. Once steps are taken to fix the political system that has rewarded greed, a true attempt can be made to developed economic policy to prevent the catastrophic potential of climate change.

¹⁰⁷ Korten, Tristram. "In Florida, Officials Ban Term 'climate Change'" Miami Herald. March 8, 2015. Accessed May 10, 2016. <http://www.miamiherald.com/news/state/florida/article12983720.html>.

¹⁰⁸ Patel, Neel V. "Rising Sea Levels Are Already Making Miami's Floods Worse." Wired.com. February 17, 2015. Accessed May 10, 2016. <http://www.wired.com/2015/02/rising-sea-levels-already-making-miamis-floods-worse/>.

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