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HOW GOOD INTENTIONS BACKFIRE: FAILURES AND NEGATIVE  
CONSEQUENCES OF FEDERAL ENVIRONMENTAL POLICIES

by

Jordan K. Lofthouse

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Economics

Approved:

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Logan, Utah

2016

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## ABSTRACT

How Good Intentions Backfire: Failures and Negative  
Consequences of Federal Environmental Policies

by

Jordan K. Lofthouse, Master of Science

Utah State University, 2016

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Department: Economics and Finance

For the past 50 years, Americans have turned to the federal government to solve pressing environmental problems like air and water pollution and climate change. Major environmental policies have helped improve environmental quality to varying degrees, but these policies also have resulted in negative consequences, such as high costs, inefficiency, violations of property rights, or environmental degradation. By applying public choice theory to the evolution of federal environmental policies, we can understand how negative consequences have arisen from seemingly good intentions.

Public choice theory rejects the romantic notion that government officials work solely for the public good. Legislators and bureaucrats are rationally self-interested individuals who try to make themselves better off, like all people. Because legislators are interested in reelection and maximizing their power, they respond to special interest groups and lobbyists who can benefit them. Legislators often codify special benefits for certain companies or industries within environmental legislation and choose winners and losers, regardless of the economic or environmental outcomes. Environmental policies

distort markets, altering the price signals that communicate what people value and imposing higher costs on taxpayers and consumers.

Legislators often write environmental laws vaguely, giving bureaucrats wide discretion on how to implement the laws. Bureaucrats often write environmental regulations quickly and without scientific evidence or limited economic considerations, making many of the regulations costly and ineffective in many cases. The number of regulations also grows each year, raising compliance costs while the marginal benefit of these regulations continues to decline.

Major federal environmental policies have had negative consequences, but experts have debated whether these outcomes were or were not intentional. Key politicians and bureaucrats may want to keep the current flawed laws in place because either they or their friends benefit from the status quo. Regardless of the intentionality or unintentionality of these negative consequences, large-scale federal environmental policies have provided decades of evidence that even the most nobly intended laws have significant drawbacks of which the public should be aware.

(104 pages)

## PUBLIC ABSTRACT

## How Good Intentions Backfire:

## Failures and Negative Consequences of Federal Environmental Policies

Jordan K. Lofthouse

This thesis is meant to dispel the myths that surround federal environmental policies. The research object of this project is to show that the formation of environmental policies is not altruistic, and the outcomes of these policies often have negative side effects that policymakers and the general public should recognize.

During my time as an undergraduate, I studied environmental geography, which also included environmental policies. We would research environmental problems, but the solution to these problems always seemed to be another government policy. I began to wonder why environmental problems never seemed to actually get better. Once I began my master's program in economics, I learned about economic ways of thinking and public choice theory, which explained why government policies fail. This thesis is meant to merge my undergraduate education with the knowledge from my master's program.

Collective decision-making is a messy, complex process and can lead to policies that backfire. Government policies do not magically solve environmental problems, and they can come with real economic and environmental costs. Understanding the process of how environmental laws are formed and implemented clarifies why undesirable outcomes result. The realities of environmental policies show that even the best intentions do not yield good outcomes.

## ACKNOWLEDGMENTS

I would like to thank everyone at Strata Policy and the Mercatus Center for making this thesis possible. My wonderful team members at Strata have helped me research and draft the contents of thesis after months of hard work. I also want to thank my committee members, Drs. Bill Shughart, Randy Simmons, Ryan Yonk, and Chris Fawson, for helping me learn to think economically. I also want to thank my family and Troy Olsen for supporting me through my education.

Jordan K. Lofthouse

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## THE RISE OF FEDERAL ENVIRONMENTAL POLICIES

Since the beginning of the environmental movement in the 1960s, many Americans have developed an almost religious fervor regarding environmental quality and climate change. Countless special interest groups have sought to take advantage of the power and resources of the federal government to solve environmental problems. Average Americans see government policies and regulations as relatively uncontroversial means of addressing environmental degradation without considering the hidden costs and negative consequences that can accompany far-reaching laws. This project seeks to understand the process by which negative consequences emerge from federal environmental policies. I examine the legislative and bureaucratic forces that transform good intentions into policies that are often ineffective, inefficient, and contradictory to their original goals.

In the 1960s, Americans' environmental consciousness began to blossom thanks to a series of highly publicized environmental disasters and rising economic prosperity that increased the demand for a “clean” environment. One of the most important catalysts for the environmental movement was Rachel Carson's 1962 book *Silent Spring*, which highlighted the dangers of the pesticide DDT.<sup>1</sup> In 1969, the Cuyahoga River in Cleveland, Ohio, caught fire and the incident was reported across the United States as an environmental tragedy, even though the same river had experienced larger fires several times in previous years without drawing much public attention.<sup>2</sup> From the 1960s and into the 1970s, American homes were bombarded with other stories of alarming

environmental disasters, like the Love Canal toxic waste scandal, the Santa Barbara oil spill, and the Three Mile Island nuclear disaster.<sup>3</sup>

During that same period, the demographics and economics of the United States were changing, and people could afford to pay attention to environmental quality more closely than they had before. As average Americans became wealthier and more educated, they had more money and free time to devote to environmental consciousness. Environmental quality was steadily improving over the course of the 1960s and 1970s without federal policies, but environmental alarmism overshadowed the actual gains in environmental quality. Environmentalism became a mainstream concern in American households, and policymakers began to formulate policies to respond to their constituents' calls for environmental protection. At the federal level, politicians and bureaucrats worked to enact policies and regulations meant to help preserve the environment, or at least give the perception that they were helping. Manufacturing in the United States also began to decline during this time as the economy transitioned to more service-based industries. Some of this decline, however, can be explained by the rising cost of complying with U.S. environmental laws. Despite many heavy-polluting industries moving offshore, many Americans perceived that environmental quality was deteriorating and required federal intervention.<sup>4</sup>

After passing landmark environmental laws in the 1960s and 1970s, policymakers have given little attention to the cost-effectiveness, efficiency, or overall environmental benefit from them. Some of the most far-reaching federal environmental laws dating from that era include the Clean Air Act, the Clean Water Act, the Wilderness Act, and the National Environmental Policy Act. These policies have distorted markets and imposed

costs on taxpayers in return for uncertain benefits. This thesis uses a public choice framework to examine how and why these federal environmental policies were formed and the negative consequences that have arisen from them.

## PUBLIC CHOICE THEORY

Public choice theory is a field of political economy that explains why and how governments fail. Government failure is a parallel to market failure in standard economics. All people pursue activities that benefit them net of costs, and public choice asserts that officials in the public sector are self-interested like those in the private sector. In other words, government officials act the same in the private sphere as they do in the public sphere.<sup>5</sup> When forming environmental regulations, policymakers do not always make regulations based on altruistic intentions or pure environmental benevolence. They make environmental policies strategically for their own advantage. When politicians' incentives align, environmental laws can benefit environmental quality, but politicians may have other goals that impose harm on the economy or the environment. Because policymakers are not all-knowing or benevolent, government failures result.

Individuals are utility maximizers, meaning they work to achieve the maximum amount of benefits from their choices net of costs. Those in government are no different in that regard. Politicians want to be reelected, and so they strategically pursue policies that will increase their chances of remaining in office. Seeking reelection leads to policies with dispersed costs and concentrated benefits, as special interest groups reap the benefit, but the cost of policies is spread throughout the entire population.<sup>6</sup>

Public choice theory uses "methodological individualism," which asserts that individuals, not groups, have preferences and make choices. Individuals work together as groups to make policies because collective action requires agreement with others before political goals can be attained. Congress is a group of rational actors that pursue their parochial interests, not a group of benevolent actors that unite exclusively for the public good. A legislator's self-interest may help to further the well-being of society, but it may also hinder societal well-being.<sup>7</sup>

At the most basic level, regular citizens advocate for government-enacted regulations to ensure their own health, safety, and justice because they are self-interested and rational. Despite what the general public wants from regulations, special interest groups tend to dominate the policy process. Special interest groups are composed of rationally self-interested individuals who seek regulations as a tool to get what they want under the guise of public benefit. Specific industries or companies benefit from lobbying and rent-seeking for special government privileges. Environmental protection policies and regulations are not exempt from the foibles of the political process. They are formed the same way as any other regulation that allows certain interests or industries to benefit at the expense of others. When politicians, bureaucrats, and special interests work to maximize their own self-interest, environmental policies can have negative consequences and unseen costs that burden taxpayers and the environment.

## INSTITUTIONAL FRAMEWORKS FOR MAKING POLICIES

### Constitutions and Decision Rules

In the simplest terms, constitutions serve as the "rules of the game" for how legislators and bureaucrats make decisions and how much power they can have. One of the main functions of constitutions is to establish a contract between the government and the people being ruled and establish a government's legitimacy through the rule of law. Constitutions authorize the collective decision-making process, such as majority rule or unanimous consent. Constitutions also set up the framework for how interest groups interact with legislators and bureaucrats and dictate how politicians and bureaucrats can choose winners and losers.

Because constitutions are the foundation for all political institutions, public choice scholars study constitutional formation. The role of formal constitutions has evolved over time as political philosophers have viewed governments differently. In *The Prince*, one of the foundational works of political philosophy, Machiavelli asserted that rule of law is derived from force and the legitimacy of government came from the divine right of kings.<sup>8</sup> Thomas Hobbes, a seventeenth-century English philosopher, believed that human nature is violent, and so people willingly give up their absolute liberty to a sovereign to protect themselves from others' violent natures.<sup>9</sup> John Locke, a seventeenth-century English philosopher after Hobbes, argued that people form social contracts with a government in which they give up some rights to ensure their protection. Locke said that people retain the right to withdraw their loyalty if the government violates the contract.<sup>10</sup>

The writers of the Declaration of Independence and the U.S. Constitution relied on Locke's theory that government's legitimacy comes from the consent of the governed.

The U.S. Constitution set up a winner-takes-all voting system that was meant to reflect the will of the majority while also protecting the rights of the minority. The voting system, however, is flawed because it allows minorities to easily capture the legislative process for their own gain at the expense of the majority. Politicians have little incentive to be responsive to the public's general needs because doing so does not guarantee them campaign finances or reelection. Special interest groups are minorities that can disproportionately exert their influence on elected officials because these groups are powerful voting blocs that can contribute money and other forms of political support to political parties and candidates. Even though a majority of people may prefer one outcome to another, the majority's preference may not be as intense as the minority's, so the minority will exert a greater influence on elected officials. Elected officials then pursue policies with the least amount of cost to the general public but the greatest benefits allocated to their supporters. Thus, elected officials often legislate on behalf of special interest groups, rather than the general good. Although the Founding Fathers intended elections to serve as a check on politicians, the U.S. voting system has allowed the will of the minority to be more powerful than the will of the majority in many cases.

Decision by majority rule is also problematic because voting outcomes do not necessarily reflect a single, unambiguous aggregation of individual preferences. In many cases, if a group of three or more people must choose among three or more options, a majority may be opposed to every one of them; majority rule may therefore be indecisive.<sup>11</sup> Economist Kenneth Arrow, a forefather of public choice theory, taught that

no voting rule (other than dictatorship) reliably translates individual preferences into a unique group preference.<sup>12</sup> Because of this phenomenon, a collective decision in a group can be impossible or subject to manipulation. Agenda setters who decide the order of voting, such as the Speaker of the House, can manipulate outcomes simply by changing the order of what is being voted on. People who vote insincerely, that is, cast votes for lesser ranked alternatives to avoid an even worse outcome, can also manipulate the outcomes of the voting process. Different rules for aggregating individual preferences can yield different winners, so the “general will” does not exist in any meaningful sense.

### Separate Branches of Government

The U.S. Constitution contains institutional checks on government power to ensure that one branch of government does not become tyrannical. The Founding Fathers also codified rights within the Bill of Rights to create a strong institutional framework to limit government’s ability to take away liberty. These checks and balances are not failsafe, and loopholes have allowed the erosion of personal liberty and the expansion of governmental authority.

The division of power among the three branches was meant to limit government power, but over the course of U.S. history, all branches of government have grown in size and scope. One phenomenon that the Founding Fathers may not have foreseen was the emergence of a bureaucratic state. Bureaucracies are given large leeway on how to enforce laws. Congress usually writes laws in abstract terms and then allows the government agencies to implement laws by writing rules and regulations. Regulators have unparalleled power to enact policies because they are not elected and have little



accountability for their actions, especially in the environmental sector. The Environmental Protection Agency has nearly unlimited power concerning environmental regulation, and the policies enacted vary differently from state to state as the bureaucrats decide which parts of the law to strongly enforce and which parts can be given more leeway.

There are only four checks on bureaucratic actions: congressional oversight committees, the amount allocated to agencies in the budget, the chief executive's power to appoint agency heads with the advice and consent of the Senate, and people who sue regulators. Congressional oversight committees are constrained in their effective oversight because of the imbalance of information that passes from the agency to the committee. Congressmen can also incur large time costs to effectively oversee bureaucracies, and congressmen often have limited time because they devote scarce resources to reelection and drafting legislation. As rationally self-interested actors, bureaucrats in regulatory agencies are incentivized to show that they need larger and larger budgets each year. Because legislators do not accurately know how much money bureaucrats actually need to fulfill their responsibilities, legislators often increase budgets each year with few questions. Bureaucrats formulate regulations to maximize their budgets and secure their jobs, so they rarely cut costs and often provide services beyond what society demands.<sup>13</sup> The most effective check on bureaucratic behavior is prosecution against agencies' conduct. This check, however, is costly for individuals to pursue and usually means a class-action suit, which is difficult to organize.

## Property Rights

The U.S. Constitution and the Bill of Rights protect property rights because the Founding Fathers believed that that was the chief role of government.<sup>14</sup> Property rights are the foundation of mutually beneficial exchange, which allows markets to flourish.<sup>15</sup> Owning private property incentivizes people to create value. When property rights do not exist or are not enforced, "the tragedy of the commons" may materialize. The tragedy of the commons occurs when people have unlimited access to a scarce resource and that resource is depleted. Rational people try to maximize their own well-being as quickly as possible and do not take into account the costs imposed on other users. In the simplest terms, when everyone owns something, no one particular person has the incentive to take care of it. For example, the Native Americans often over-consumed bison in the West because each tribe was incentivized to kill the bison for their tribe faster than the other tribes could.<sup>16</sup>

Property rights counteract the tragedy of the commons by incentivizing people to cultivate and manage their property for maximum future returns. For example, the invention of barbed wire on the Great Plains solved an overgrazing problem by establishing property rights. Ranchers allowed vast herds of cattle to overgraze the Great Plains and eat farmers' crops. Farmers could do little to keep the herds out of their farmland, so they used barbed wire to solve the problem of trespass. Voluntary action solved the overgrazing of cattle by creating clear, enforceable property lines.<sup>17</sup>

Governments are a common and powerful way to enforce property rights, but they are not the only way. Less formal systems exist where people voluntarily cooperate to establish enforced property rights. As Robert Ellickson asserts, "law is not central to the

maintenance of social order" in many cases.<sup>18</sup> Especially in the United States, knowing the contents of every law is very costly for people in the general population. The legal system has such high costs for resolving disputes that many people simply ignore the law and resort to informal and more efficient ways to resolve disputes. For example, Ellickson found that residents in rural Shasta County, California, resolve disputes over cattle trespassing and property boundaries informally without having to engage in the costly legal process. Social interactions function as the mechanism for property rights enforcement, rather than the actual legal system.<sup>19</sup>

### Concentrated Benefits and Dispersed Costs

Government-granted privileges benefit certain interest groups who are able to capture policymakers at the expense of everyone else. Despite being seemingly unfair, this preferential treatment remains in effect because the benefits are concentrated on a small group, but the costs are dispersed over a much larger population. Through concentrated benefits and dispersed costs, preferential treatment is able to last for decades, even though the policies may cause net social harm.

Mancur Olson, an economist at the University of Maryland, College Park, provided the foundational theories for concentrated benefits and dispersed costs in his book *The Logic of Collective Action*. Special interest groups want the government to give them preferential treatment so that they can make the most profit, but it seems that a large coalition of people would fight back against special privileges that increases profits for one small group at the expense of everyone else, as well as increasing prices and reducing efficiency for the majority of people. Coalitions of people rarely fight against government

privilege simply because the costs outweigh the benefits. It is irrational for a person to spend time, money, and resources to fight government-granted privilege because the cost of that privilege to a single person is small. People involved in special interests, however, have every incentive to continue lobbying for privileges because the rewards they reap are great. When the benefits are concentrated in the hands of a few and the costs are dispersed among the whole population, special interests will continue to seek privileges that allow them to benefit and the rest of the population will not fight back because it is too costly to do so.<sup>20</sup>

George Stigler found patterns similar to Olson. Stigler gives an example of "group X." Group X wants a certain government policy that will benefit its members. Group X will only harm non-X people a small amount because the government will force all non-X people to give up only a little. Because the amount of harm to non-X people is relatively small, it does not make economic sense for non-X people to discover that they are being taken advantage of and then work to get the policy removed. The current political system is designed to help express the preferences of majorities and the strongly felt preferences of minorities. The system disregards majorities or minorities that have small stakes in policy outcomes.<sup>21</sup>

The political process alters how costs and benefits from government policies are spread among the population, so legislators shift government policies away from ones that will give the most efficient outcomes. Weingast, Shepsle, and Johnsen found that government policies and projects are larger than circumstances may warrant otherwise because the people who benefit bear only a small fraction of the cost burden.<sup>22</sup> A government policy's costs are paid for from a "common pool," so each beneficiary will

want to consume more from the common pool as the share of the costs is smaller for each political constituency.<sup>23</sup> The policies or projects grow larger and become less efficient as people demand more and pay less.

## LEGISLATURES

### Interventionism

Legislators claim that they should use the force of the government to solve market failures. For the past 50 years, policymakers have considered environmental problems as market failures and have justified government intervention as the solution. Even when environmental issues are not market failures, many government officials assert that it is the government's responsibility to resolve environmental issues. Public choice theorists, however, argue that government intervention can be more harmful than allowing the market to find a solution.

Governments can intervene in the market only by force or the threat of force.<sup>24</sup> As Ludwig Von Mises stated:

“It is important to remember that government interference always means either violent action or the threat of such action ... taxes are paid because the taxpayers are afraid of offering resistance to the tax gatherers. ... Government is in the last resort the employment of armed men, of policemen, gendarmes, soldiers, prison guards, and hangmen. The essential feature of government is the enforcement of its decrees by beating, killing, and imprisoning. Those who are asking for more government interference are asking ultimately for more compulsion and less freedom.”<sup>25</sup>

The market cannot be regulated to force people to become less self-interested or more altruistic. Rather, intervention in a market simply puts the pressure on the producers of a good who are responding to consumers' expressed preferences. To truly change

society's environmental behaviors, producers and consumers must change their behaviors. Producers and consumers change their behavior only when it is beneficial for them. Government's interference precludes the market from finding better approaches to environmental problems and can generate perverse incentives.

### Seeking Government Policies: "Bootleggers and Baptists"

People in both the private and the public spheres are utility maximizers and, as such, they try to make themselves better off. In the public sphere, actors can pursue that goal by approaching legislators to draft and pass laws they prefer. Bruce Yandle, an economist from Clemson University and George Mason University's Mercatus Center, developed the "Bootleggers and Baptists" theory to explain how special interests capture the legislative process for their own benefit. Yandle developed the theory in the early 1980s when he was the Executive Director of the Federal Trade Commission. As he served in that post, he attempted to explain the nature of regulations and the kind of support that brings regulation about. Yandle found that most special interests pushing new rules or strengthening old ones are comprised of two distinct sub-groups, which Yandle has termed "bootleggers" and "Baptists." "Baptists" are people who advocate for a government regulation for a moral or safety reason, like Baptists in the South used to advocate outlawing the sale of liquor on Sundays. "Bootleggers" advocate for government regulations for more narrow-minded reasons. Bootleggers, like Baptists, wanted regulations to limit Sunday liquor sales, but bootleggers want the law simply because they could profit by selling more liquor in a restricted market.

In this theory, "Baptists" do the majority of lobbying while the "bootleggers" benefit at their expense. Because Baptists are motivated by religious and moral concerns, they make sure that the law is obeyed. The bootleggers can profit because the Baptists enforce legal liquor stores' cartel-like agreement not to sell alcohol on Sundays. Within a Baptist-bootlegger coalition, Yandle has found that regulations are durable insofar as the Baptists and the bootleggers have a common objective.<sup>26</sup>

Like any special interest, the environmental movement comprises a Baptist-bootlegger element. Environmentalists are the "Baptists" in this scenario because they argue that environmental concerns are health, safety, and moral issues that necessitate government intervention. Other groups can free-ride on environmentalists' lobbying so that they too can receive government favors and privileges. Sometimes "bootleggers" masquerade as "Baptists," especially in environmental causes. Some companies or industries use a mask of environmentalism to reap economic benefits from favorable government policies. These "bootlegger" groups and industries overstate their green credentials, public spiritedness, or cost-effectiveness to claim a "moral high ground" that will persuade policymakers to give them privileges and persuade the public to urge the creation of supportive policies. While policymakers and the public are distracted by environmental rhetoric, many industries can benefit financially from direct government handouts and restricted competition.<sup>27</sup> Larger polluters often seek out strict "command-and-control" regulations that mandate specific technologies for reducing emissions. These regulations raise compliance costs industry-wide and benefit the large producers who can spread those costs over larger volumes of output. This process means that these

types of environmental regulation can produce intra-industry wealth transfers from small firms to larger ones.

In more concrete terms, environmental "Baptists" are joining forces with some low-carbon energy companies. The environmentalist groups want to restrict carbon emissions and institute cap-and-trade legislation because they believe that carbon emissions will cause economic and environmental harm to themselves and others; thus, they have a moral argument for requiring government regulations. Low-carbon energy companies are the "bootleggers" because limits on carbon emissions would allow them to make more profit in a restricted energy market. In particular, the nuclear industry, natural gas industry, and other renewable energy industries all favor restricted carbon emissions and cap-and-trade policies because these policies limit competition from the coal industry, which is the largest electricity producing fuel in the United States. Limiting competition from their biggest competitor supplies a strong financial incentive for these low-carbon energy industries to favor these environmental policies. Brokerage firms are another "bootlegger" in this scenario because cap-and-trade legislation will allow the brokerage firms to manage the sales of the new permits and certificates in a cap-and-trade system. A mandatory government regime that allows buyers and sellers to trade permits and licenses requires the services of brokers to operate smoothly. "Cap-and-trade" policies thus will increase the demand for brokerage services and make the owners of the firms that supply them wealthier.<sup>28</sup>

The recent initiatives in California to legalize the sale of marijuana are another blatant example of the bootleggers and Baptist theory. The "Baptists" are people who oppose marijuana on moral grounds and want to keep it illegal because of its potential



harms to health and safety. The "bootleggers" in this case are current marijuana farmers in northern California, particularly Humboldt County, who were growing marijuana outside the law, and could make large profits without paying taxes. Another faction of "bootleggers" is business owners in northern California. Many business owners support the illegal marijuana growers because the illegal marijuana industry stimulates the local economy. If marijuana were legalized, not only would the illegal marijuana growers lose market share, the local businesses would be harmed because one of their community's major sources of income would shrink. In recent years, many people who opposed the legalization of marijuana for moral reasons have become much less vocal in their opposition. Yandle asserts that when the "Baptists" become less vocal, the "bootleggers" lose a key coalition partner. In other words, for regulations to endure, both the "Baptist" and "bootlegger" factions must be very active and vocal; otherwise the regulations likely will be phased out.<sup>29</sup>

#### Case Study: Clean Air Act of 1970

The lobbying process leading to passage of the Clean Air Act of 1970 (CAA) is a prime example of a Bootlegger-Baptist relationship. Environmentalists, as the "Baptists," supported stricter regulations on the burning of fossil fuels and damaging air quality. Coal companies from the eastern United States, as the "bootleggers," also supported the CAA because the legislation would reduce competition and increase profits.

Coal from the western United States contains less sulfur than eastern coal, making the western coal cleaner. The CAA required power plants to install scrubbers regardless of how much pollution a power plant produced. Eastern coal was less expensive and

became the dominant coal in the market, so eastern coal companies supported the CAA as a way to increase their profits at the expense of western coal companies.<sup>30</sup> Eastern coal companies used the moral arguments of the environmentalists to create a policy that distorted the market in their favor.

Section 111 of the Clean Air Act clearly exemplifies a “bootleggers and Baptists” coalition to achieve different objectives through the same regulation. Section 111 exempted existing stationary sources of pollution from the same CAA requirements as new stationary sources of pollution. Environmentalists supported the CAA to clean the air and prevent further damage to the environment. Industrialists, looking to limit new competitors, also supported the CAA because they would be protected as existing stationary sources under Section 111. Labor unions wanted to avoid power plants and other polluters from relocating to right-to-work states in the South and West. Additionally, the politicians involved were looking to appear more environmentally friendly for the next round of elections. With all groups working together in an effort to promote their own self-serving causes and interests, the CAA had enough support to become law.

#### Favor Trading, Political Competition, and Lame Duck Sessions

Environmental laws are rarely born out of pure environmental concern. Through a system of favor trading, political competition, and lame duck sessions, legislators pass environmental laws that are meant to benefit themselves more than they are meant to benefit the environment. Favor trading is one of the most common ways legislators pass their favorite laws. Lawmakers work to maximize support from their constituency, as

well as powerful special interests to boost campaign contributions and sway voters. Legislators often vote for privileges to benefit other constituencies or special interests unrelated to them because they can vote-trade with other legislators. Legislators may strike a deal with one another to support each other's pet projects in a swap. In *The Calculus of Consent*, Buchanan and Tullock describe this phenomenon, which is often called logrolling.<sup>31</sup>

For example, an Idaho congressman would likely vote for special privileges for the potato industry or an Iowa congressman would likely vote for special privileges for the corn industry. By helping powerful special interests in their districts or states, legislators can gain support and money, which will lead to a higher chance for reelection. An Idaho congressman may make a deal with an Iowa congressman to vote for corn subsidies if the Iowa congressman votes for potato subsidies. By favor trading, the two politicians help themselves by helping other congressmen with their pet projects.

In contrast to favor-trading, opposing politicians may support similar policies when they are competing against each other to capture the same constituency. Policies are passed more easily when a Democrat and a Republican running for the same office want to appeal to the same subset of the voters. Especially with environmental policy, opposing candidates may support similar policies to appear more “green” than the other to capture as many votes as possible. When both parties want to appear more environmentally conscious, environmental laws are passed more quickly and with less opposition.

Congress and the president may use a lame duck session to pass even larger, more controversial laws because defeated members do not have to worry about facing the

voters again. Lame duck sessions allow congressmen to pass laws they support that may have been politically unviable before an election. In essence, lame duck sessions allow congressman to pass whatever laws they want with minimal repercussions because the next election is as far away as possible.

#### Case Study: The Passage of the Clean Air Act

The 1970 CAA was not the result of altruistic environmental concern. The CAA came about because rival politicians were seeking to appear more environmentally friendly to increase their chances on Election Day. Senator Edmund Muskie from Maine was considered to be one of the most likely candidates for the Democratic nomination in the 1972 presidential election. Muskie presented himself as an environmental candidate and refuted consumer activist Ralph Nader's claims that he was “a pawn of the Maine pulp and paper industry.”<sup>32</sup> Muskie sponsored the Senate bill that eventually became the Clean Air Act.

President Richard Nixon, seeking reelection in 1972, endorsed a similar bill in the House of Representatives. With the support of these two influential politicians, the CAA passed the Senate by a unanimous vote and the House by a vote of 374-1.<sup>33</sup> Nixon also reorganized various components of the federal government to form the Environmental Protection Agency (EPA).<sup>34</sup> Nixon used these efforts largely to appear more environmentally conscious for reelection.

The lead lobbyist for the United Steelworkers, Jack Sheehan, led a group of lobbyists to petition for a provision in the CAA that would prevent companies from moving to states that already met the CAA's air quality standards. Neither Democrats nor

Republicans wanted to appear to be the cause of industrial job losses, so they included the provision in the law.<sup>35</sup> This provision became Section 111 of the CAA, which favors existing stationary sources of pollution at the expense new stationary sources.

#### Case Study: The Passage of CERCLA

Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as a hurried response to the 1980 election. Under the Carter Administration, Congress and the executive branch had worked together to form new environmental regulations that were meant to improve environmental quality nationwide. Environmental scandals, such as the Love Canal toxic waste incident, prompted Congress to support a bill for toxic waste clean-up, but no bills were successful in the early part of 1980. In November 1980, Ronald Reagan was elected president, and many members of Congress feared that the Reagan Administration would undo many of the environmental regulations that the Carter Administration had put into place.<sup>36</sup> Congress responded to those fears by quickly pushing through the CERCLA bill during a post-election lame duck session. Lame duck President Jimmy Carter signed the bill into law on December 11, 1980.<sup>37,38</sup>

Many people saw CERCLA as the solution for the various contaminated sites around the country because it addressed the problem of "legacy pollution" by forcing liable parties to clean up abandoned toxic waste sites.<sup>39,40</sup> Because CERCLA was rushed through Congress so quickly, many of its provisions were not fully understood or subject to debate. The lack of clarity from the hastily written law resulted in numerous court cases that sought to rescue the law from its unclear wording. The first case that tried to

clarify the law was a 1983 case, *Ohio ex rel. Brown v. Georgeoff*.<sup>41</sup> Federal District Court Judge David Dowd Jr. stated that “CERCLA was rushed through a lame duck session of Congress” and noted that it “might not have received adequate drafting.”<sup>42</sup> Because the law was written so quickly, more than forty drafting errors were identified in it after it was passed.<sup>43</sup>

#### Case Study: The Passage of the Clean Water Act

The push for federal water-quality control under the 1972 Clean Water Act (CWA) resulted from public figures claiming that pollution was increasing when it actually was improving. Misinformed public outcry pressured federal lawmakers to appease voters by passing the CWA. Congress became impatient with the pace of state-led action under the 1965 Amendments and took control of water pollution issues with the CWA in an effort to please an increasingly agitated electorate.

Environmental groups, such as the Environmental Defense Fund (EDF), the Environmental Law Institute, Friends of the Earth, and the National Resources Defense Fund, were influential in mobilizing public support for federal water pollution control.<sup>44</sup> Rachel Carson's *Silent Spring* also drew public attention to the fact that pesticide runoff carried serious health risks, increasing public agitation over water pollution issues.<sup>45</sup> Ralph Nader, Barry Commoner, and the Club of Rome helped convince the public that water pollution was becoming worse and that federal control was necessary.<sup>46</sup> Despite having no evidence to verify these claims, it became an “uncontested truth” that water quality in the United States was deteriorating.<sup>47</sup> As rationally self-interested actors, environmental activists like Nader and Commoner based their livelihoods on public

alarm concerning the environment. Environmental activists have a vital stake in portraying environmental issues in frightening terms that demand immediate action.<sup>48</sup> Without public panic over environmental conditions, environmental activists are less likely to obtain notoriety and funding.

After the passage of the CWA, a 1974 National Water Quality Inventory report presented evidence that the water quality of many waterways was improving before the 1972 CWA took effect. According to this study, between 1963 and 1974, twenty of twenty-eight pollutants had declined in over half of the sampled waterways.<sup>49</sup> As the public became more involved in the environmental movement, the amount of pollutants fell even before the federal government took charge of regulation.<sup>50</sup>

A recent study by professors at Iowa State University and Yale University calculated trends in the national water quality of rivers that are swimmable and fishable. The results confirm that water quality was improving prior to the passage of the 1972 CWA. Water pollution was declining faster before the 1972 Amendments passed and slowed soon after its passage. The reduced rate of improvement after the 1972 CWA could be attributed to various factors, but it may largely be due to heightened public awareness and state/local control under 1965 Amendments to the Clean Water Act. The 1971 National Water Commission Report showed that all fifty states prepared and submitted standards concerning the quality of interstate waterways in compliance with the 1965 CWA and were engaged in implementing regulations to achieve those standards.<sup>51</sup> Forty-seven of the fifty states already were regulating the largest point source polluters with permit programs and a national median of eighty-eight percent of polluters in the industrial field were regulated through permitting processes.<sup>52</sup> All of this action

was planned and enforced by state and local government action, not federal. Water quality clearly was improving prior to the 1972 CWA and the narrative that federal control was necessary to improve American waterways was a misrepresentation of the facts.

Democratic Senator Edmund Muskie, sponsor and chief architect of the 1972 CWA, had substantial political incentives to promote the law. Muskie, the former governor of Maine, was a prominent environmentalist in his home state. Muskie advocated for more government regulation as an attempt to preserve Maine's natural resources and boost economic growth.<sup>53</sup> Muskie became Maine's first Democrat to be popularly elected to the U.S. Senate.<sup>54</sup> During his first term in Congress, Muskie became the chairman of the Special Air and Water Pollution Subcommittee<sup>55</sup> and used this position to hold hearings throughout the country to, in his own words, “stir up public interest” concerning water pollution and after “a lot of hard work over two years, we got momentum started for the [new, national environmental] legislation.”<sup>56</sup>

As early as 1963, Muskie sought federal control over water quality and worked to build a national constituency. Muskie’s pollution agenda was necessary for his political career. His platform contained economic revitalization through natural resources conservation. As a self-interested politician, he helped nationalize the problem of water pollution to benefit his home state of Maine.

In 1972, Muskie was one of the most prominent Democratic presidential candidates to run against Republican incumbent Richard Nixon.<sup>57</sup> Muskie’s push for federal water pollution control coincided with his attempt to establish a national profile for his White House bid. Muskie introduced the 1972 Amendments to the CWA on



October 28, 1971,<sup>58</sup> when he had been informally “running [for president] for more than a year.”<sup>59</sup> During the latter part of 1971, Muskie visited 34 of the 50 states and spent over \$1 million in preparation for his presidential run. He entered the race officially on January 4, 1972, just months after introducing the 1972 CWA.<sup>60</sup> Widespread public concern over the environment and pollution gave Muskie political incentives to prominently nationalize the issue. The Clean Water Act of 1972 removed state and local control because federal control became a powerful political tool for election.

### Government Tools to Grant Privilege

#### Legislators Picking Winners and Losers

Legislators have many tools to extend special privileges to certain industries, firms, or political pressure groups, and these special privileges benefit both the legislator and the winners he chooses. Matthew Mitchell, Senior Research Fellow at the Mercatus Center at George Mason University, describes many of the ways that special interests can benefit from government policies in "The Pathology of Privilege." Lawmakers and bureaucrats routinely choose winners and losers from a variety of special interests, both rivals and coalition members. Environmental policymaking is no different. Mitchell describes the perverse side-effect of this special treatment: "Whatever its guise, government-granted privilege is an extraordinarily destructive force. It misdirects resources, impedes genuine economic progress, breeds corruption, and undermines the legitimacy of both the government and the private sector."<sup>61</sup>

Most special interests have strong lobbying arms that compete for preferential treatment from politicians and bureaucrats. Because government officials can grant

certain types of favors to certain companies or industries, many of these interests spend time, money, and resources trying to gain the favor of regulators who can increase their economic gains while at the same time hamstringing their rivals. Some of these forms of government-granted privilege include corporate bailouts, subsidies, price and entry regulations, tax credits, contrived monopolies, non-competitive bids, loan guarantees, and trade protections.<sup>62</sup> Because industries can help themselves to rents by capturing the favor of politicians and bureaucrats, they spend large amounts of money lobbying and contributing to campaign war chests as means of persuasion. Policymakers are rationally self-interested in reelection and retaining their jobs, so they respond to these forms of persuasion. Politicians are rarely experts in the energy production or environmental science, so they are prone to support interests that lobby and financially support them in return. Politicians also want to promote interests that are economically beneficial to their constituents to increase their chances of reelection.<sup>63</sup>

Once policymakers have extended privileges to certain interests, society as a whole bears extra costs. Policies that favor certain industries restrict competition in the market, which leads to higher prices and lower quality goods and services. Time, money, and resources are also wasted when industries seek government favors for themselves. Those resources could have been put to a better social use by engaging in research to find more efficient, cost-effective, or reliable products and services.<sup>64</sup>

Another problem with privilege is that it can induce cronyism. Regulators, whether they are politicians or bureaucrats, can give preferential treatment to their friends and allies at the expense of taxpayers and other interests. Cronyism becomes especially harmful because of the "revolving door" between the public and private sectors. The term

"revolving door" refers to the tendency of former politicians and bureaucrats to receive jobs in the industries they once oversaw as government officials. On the other hand, the revolving door includes people who worked in industries that receive jobs in regulatory agencies as politicians or bureaucrats. In other words, industry insiders can create policies for their former colleagues.<sup>65</sup>

Government-sanctioned privileges are detrimental to society because this preferential treatment generally causes prices to go up, quality to go down, and innovation to stagnate. In other words, when the government uses its monopoly of force to distort markets, people are limited in how they engage in mutually beneficial exchange, which restricts how much progress individuals and society can achieve. In the most blatant form, government-sanctioned preferential treatment makes rich, well-connected people even richer while everyone else bears the cost.<sup>66</sup>

George Stigler, an economist at the University of Chicago and a recipient of the Nobel Prize in Economics, explored the economic effects of government policies in a 1971 journal article titled "The Theory of Economic Regulation." Stigler finds that special interest can use the political process to benefit themselves through narrowly targeted policies or regulations. Stigler asserts that government officials use the government's power to forcibly take money from or allocate money to selectively help or hurt certain industries. Although some industries seek out regulations specific for their own benefit, other industries may have detrimental policies forced upon them. Stigler states, however, that regulations generally are acquired by industries because decision-makers in those industries ensure that regulations are crafted in a certain way to benefit them.<sup>67</sup>

Government favoritism often causes a net economic loss. When a specific industry or interest receives preferential treatment from the government, the benefit to the single industry or interest will be less than the total damage to the rest of the community. This economic loss is similar to deadweight loss that is caused by a monopoly in an industry.<sup>68</sup>

Even though special interests vie for preferential treatment, Gordon Tullock, one of the founding figures of the public choice field, observed that the special benefits of government-granted privilege often are short-lived, or "transitional." Tullock asserted that modern governments work to actively grant special privileges to politically influential people. These privileges, however, do not lead to long-term profitability for the interests or industries that they are meant to benefit. Even if government regulations are clearly meant to give preferential treatment to a particular special interest, the benefits run out quickly. In Tullock's words, special privileges "do not seem to do much good" because rents are capitalized into asset prices or into the market value of a regulated firm when it is sold to new owners.

When the government establishes special privileges for a group of people, the late-comers will not benefit as much as the original beneficiaries. After the government creates a regulation that restricts market entry or creates a monopoly, the incumbent firms in the industry are able to profit while the rest of society suffers a deadweight loss from the lack of competition. Over time, the value of the monopoly profits is taken into account by the industry as a whole, so new entrants into the restricted markets make only normal profits under the regulatory regime. The regulations persist even though the people in the regulatory market no longer make the monopoly profits because removing

the regulation would flood the market with competition, making the incumbents in the market far less profitable. Unfortunately, everyone in the protected industry will be harmed if the privilege were taken away, which is why government privileges last far longer than the reasons why the privileges were originally enacted.<sup>69</sup>

#### Effects of Subsidies, Loan Guarantees, and Restricted Market Entry

Some of the most destructive forms of privilege are subsidies, loan guarantees, and restricted market entry. Environmental laws often contain provisions that provide subsidies and loan guarantees for certain industries or energy sources. In nearly every industry, environmental laws restrict market entry to some degree by erecting costly barriers for new entrants to overcome.

Subsidies are one of the most blatant forms of government-granted privilege, and laws like the Energy Policy Act (EPAAct) of 2005 contain billions of dollars of subsidies for nearly every energy industry. Overall, the agricultural industry receives the largest amount of subsidization from the federal government, but the EPAAct greatly expanded the amount of subsidies directed at the energy industry. For example, the energy industry received over \$14 billion in direct subsidies in 2010 originating in the EPAAct and other federal policies.<sup>70</sup>

Subsidies distort market supply and demand and alter price signals that convey information about what people value. In an unfettered free market, buyers and sellers interact with one another to make each other better off. The seller has something that the buyer wants, and the buyer has something that the seller wants. When the two engage in trade, they both benefit. If one of the parties to this transaction was not made better off,

than that party would not participate in the trade. Voluntary exchange is mutually beneficial to those who participate, which is one of the core tenets of economics. Nationwide and worldwide economies are extremely complex when taken as a whole, but they are simply large collections of mutually beneficial trades. Competitive markets are more likely to produce better outcomes for buyers and sellers alike. More competitive markets tend to emerge in three cases: first, when property rights are well-defined; second, when the costs of negotiating the terms of trade are small relative to expected gains; and third, when barriers to entering or exiting an industry are minimal.<sup>71</sup>

Government policies that provide special privileges to certain industries or companies can lower the benefits from exchange. Government policies that distort normal market processes can also lower economic growth and harm the private sector overall while certain favored industries profit.<sup>72</sup>

Some companies and industries received more indirect financial support through loan guarantees or subsidies given to energy customers. Under the EPAct's Title XVII, Sections 1702 and 1705 allow the Energy Department to make loan guarantees to specific energy companies.<sup>73,74</sup> One of the worst outcomes from the loan guarantee program happened with an energy company called Solyndra. In 2009, federal government granted Solyndra \$535 million in loan guarantees. Under the loan guarantee program, the company would have to repay back its debt if it was financially successful. If the company was not financially successful, the taxpayers would absorb the losses. Two years after Solyndra received the loan guarantee, it filed for bankruptcy and fired its 1,100 employees. Taxpayers were stuck with the cost of the loan. Solyndra is only one of

dozens of companies that have used the loan guarantee program to shield themselves from uncertainty at the taxpayers' expense.<sup>75</sup>

By creating additional regulations, government policies restrict market entry to industry newcomers. These market restrictions limit the competitiveness of markets and interfere with the voluntary processes of mutually beneficial trade. For example, the Federal Energy Regulatory Commission (FERC) has several policy goals under the EPAct. Most importantly, the EPAct strengthens FERC's ability to regulate the energy industry. FERC asserts that "effective regulation is necessary to protect the consumer from exploitation and assure fair competition."<sup>76</sup> Although regulations may be well intended to protect consumers, regulations nearly always undermine competitive markets. Regulations are imposed specifically to limit markets to the firms that the regulators prefer. Sometimes the regulators' preferred firms make consumers better off, but often regulations can make consumers worse off by restricting who can enter markets.

When government policies and regulations restrict market entry, competitive pressures are lessened. Competition in markets tends to push price closer to the marginal cost of production. In a perfectly competitive market, any one company must take the price determined in that market as given; otherwise customers will go elsewhere and the company will go out of business. With restricted entry and less competition, companies can earn higher-than-normal profits because they can limit output below the competitive level and set their prices higher.<sup>77</sup>

Under restricted markets, consumers still benefit from exchange, but the size of the benefit is smaller than it would have been if entry and exit had truly been free. Potential competitors who did not receive government privileges miss out on the benefits

from exchange with willing buyers. The gains that privileged companies receive are smaller than the overall losses that consumers and potential competitors bear. Therefore, society is worse off under restricted market entry than under competitive markets.<sup>78</sup>

One of the negative consequences of providing subsidies, loan guarantees, and restricted market entry is that privileged companies will lobby politicians to continue their privileges. This process of seeking after government favors is called "rent seeking." Many companies are eager to invest time and money into rent seeking to gain or maintain special privileges. These companies can persuade policymakers several ways. First, they often donate to political campaigns and political action committees. Second, they advertise and campaign for public policies that benefit them. Third, they engage heavily in lobbying to persuade policymakers.<sup>79</sup>

Firms who receive government privileges are less like to engage in beneficial innovation. Economist Chun-Lei Yang shows that the incentive to invest in research and development diminishes when rent seeking is more prevalent.<sup>80</sup> Economists Stefanie Lenway, Randall Morck, and Bernard Yeung found that companies most actively engaged in lobbying often were "larger, older, less diversified, and less profitable than non-lobbyers." Rent seeking appears to be a substitute for innovation and entrepreneurship.<sup>81</sup>

As subsidies, loan guarantees, and restricted entry cause companies to become less innovative, overall economic growth generally suffers. In competitive markets, new companies can challenge older, less-innovative ones. New companies, not being bogged down by bureaucratic inefficiencies, are more likely to patent and commercialize new technological innovation.<sup>82</sup>



Government privilege often encourages companies to engage in risk-taking that they would have avoided if they were left alone to compete in the market. Excessive risk-taking happens often in loan guarantee situations because a company gets to keep any profits, but the company is not liable for any losses, which are shifted to taxpayers. Engaging in risk-taking when a company is insured against loss is called “moral hazard.” In other words, when people know they will not bear the full costs of some action, they are willing to act in riskier ways.<sup>83</sup> The Solyndra scandal is a prime example of moral hazard.

When politically connected companies receive government privileges, labor and capital allocations are not based on market-determined fundamentals. These allocations instead are based on political considerations that benefit politicians, bureaucrats, and the politically connected companies. These misallocations are problematic because they distort the flow of labor and capital to the places where they are most highly valued.<sup>84</sup> Markets provide the feedback mechanism for people to communicate what they value, and based on the feedback producers respond by using labor and capital in the most efficient combinations available. Government-caused market distortions muffle the feedback mechanism, causing labor and capital to flow towards lower-valued uses.

### Case Study: Energy Policy Act of 2005

#### Subsidies for Fossil Fuels under the Energy Policy Act

Under the Energy Policy Act (EPAct) of 2005, the fossil fuel industry has received billions of dollars in subsidies, most notably for development of “clean coal” technology. The law established tax credits (a form of subsidy) for investments in clean

coal facilities, such as a 20 percent credit for integrated gasification combined cycle (IGCC) projects. Rather than burning coal directly, the expensive IGCC process breaks coal down into its chemical constituents and collects each byproduct (carbon dioxide, sulfur dioxide, nitrogen oxide, trace metals, and particulates) for filtering or treatment before combustion.<sup>85</sup> Many in the environmental movement saw these subsidies a sly move by the coal industry to acquire government money by claiming that coal can be part of a more environmentally friendly energy future.

Politically connected fossil fuel companies have been able to exploit the EPAct's subsidies since its enactment. Then-House Majority Leader Tom DeLay (D-TX) included hundreds of millions of dollars in subsidies for companies in his district to which he had direct ties. DeLay added \$500 million in subsidies over 10 years to the bill for research into deep-water oil and gas drilling. Much of this grant went to the Texas Energy Center in DeLay's hometown of Sugar Land, Texas.<sup>86</sup> Title IX, Subtitle J of the EPAct allows the government to contract with "a corporation that is structured as a consortium to administer the programmatic activities" for deep-water drilling.<sup>87</sup> The "program consortium" has the power to allocate taxpayer money to participating corporations. The Research Partnership to Secure Energy for America (RPSEA) is the program consortium for Subtitle J of the Energy Policy Act of 2005.<sup>88</sup> The Texas Energy Center is one of the members of the RPSEA.<sup>89</sup> Six executives of the Texas Energy Center have strong ties to Tom DeLay, donating thousands of dollars to DeLay's campaign since March 2004.<sup>90</sup>

In the 1990s, Alaska Senator Frank Murkowski persuaded Congress to allocate \$117 million to a clean coal plant in Healy, Alaska. After a potential buyer called the coal plant "fatally flawed by faulty design and unproven experimental technology," the plant

was abandoned. Murkowski's daughter, Senator Lisa Murkowski, used the EPAct of 2005 to allocate an additional \$80 million in loan guarantees to revive her father's clean coal plant.<sup>91</sup>

#### Renewable Energy Subsidies under the Energy Policy Act

A variety of renewable energy sources received billions in subsidies from the EPAct of 2005. The act extended the Production Tax Credit (PTC), which guarantees a per-kilowatt subsidy for most new renewable energy facilities. The law extended these subsidies until 2007. The EPAct also created a 30 percent tax credit for the purchase of residential solar water heating, photovoltaic equipment, and fuel cell equipment, as well as tax incentives for the construction of geothermal facilities, all through 2007.<sup>92</sup> The PTC has expired several times since 2007, and Congress has repeatedly renewed it. In December 2015, the Consolidated Appropriations Act renewed the PTC until the end of December 2019 for wind facilities. The Consolidated Appropriations Act also extended the tax credit for other eligible renewable energy sources until the end of December 2016.<sup>93</sup>

Despite these subsidies, advocates of renewable energy were unconvinced that renewable energy had been given enough support by the EPAct. Although the law awarded \$6.4 billion in subsidies and incentives for renewable energy, it also included \$25 billion for oil, gas, coal, and nuclear plants.<sup>94</sup> The Institute of Electrical and Electronics Engineers issued a report on the effects of the EPAct on renewable energy, stating that the level of subsidies provided to renewable energy in the bill would have little impact on the amount of renewable energy produced in the United States.<sup>95</sup>

Because many renewable energy sources do not produce electricity consistently or efficiently, renewable energy industries have become dependent on government assistance. Continually extending the PTC and other subsidies implies that federal policymakers do not perceive that the wind and solar industry can be economically self-sustaining. Renewable energy industries also have a strong incentive to continue lobbying and rent-seeking for subsidies, regardless if renewable energy becomes more efficient, consistent, or economically viable. Despite the financial stability of the fossil fuel industry, the fossil fuel industry still receives government assistance and has for decades. The renewable energy industry likely will follow the same course.

#### The Energy Policy Act's Exemptions for Fracking

Cronyism and political connections allowed the oil and gas industry to secure special fracking exemptions from the Safe Drinking Water Act (SDWA) under the EPAct of 2005. The explicit SDWA exemption for fracking wells resulted from an Alabama court case in the 1990s. The Legal Environmental Assistance Foundation (LEAF) claimed that Alabama's Underground Injection Control (UIC) program did not regulate natural gas production. In 1997, the 11th Circuit Court ruled that the EPA, through the SDWA, had authority to regulate fracking wells in Alabama. To bypass EPA oversight, the Energy Policy Act of 2005 modified the definition of “underground injection” in the SDWA to exclude fracking fluids and other fracking materials. The EPA could regulate fracking injections only when diesel fuels were used in the injections.<sup>96</sup> The EPAct changed the scope of the Safe Drinking Water Act so that federal agencies have a limited

role in regulating fracking, but most state governments have robust regulations for nearly every facet of the fracking process.

The oil and gas industry lobbied heavily for exempting fracking from the SDWA. Politicians clearly included the fracking exemptions in the EAct, not because of reason and science in federal regulation, but because of the profit interests of oil and gas companies. In January 2001, President Bush appointed the National Energy Policy Development Group, which was to serve as a task force for energy policy. Vice President Cheney served as the head of the group. In May 2001, Cheney's task force recommended that any new energy policy law should exempt fracking from the SDWA.<sup>97</sup> Cheney and the other task force members held at least 40 meetings with interest groups while preparing recommendations for federal energy policy. Most of the initial meetings were between the task force and special interest groups mostly representing energy industries. The task force largely had completed the initial drafts of its report and already had briefed President Bush by the time they began meeting with environmental groups, according to a former White House official.<sup>98</sup>

In October 1995, Cheney became president and chief executive officer of the Halliburton Company in Dallas, Texas, which is one of the largest energy companies in the world.<sup>99</sup> Cheney plainly had a direct financial interest in making sure that government intervention in the oil and gas industry was as minimal as possible. The EAct became a cronyistic political tool to grant special privileges to certain industries for people in power.

Following the EAct's revised fracking regulations, the number of well permits in coalbed methane basins increased. It is not clear whether, or by how much, the number of

wells, the production costs, or the time required by operators may have been different without the revisions. For the oil and gas industry, regulation of hydraulic fracturing under the UIC program could have many negative impacts. In some states, oil and gas operations are subject to regulation by a state oil and gas agency or commission as well as an environmental or public health agency. States and industry representatives have warned about the potential for duplication of requirements from having both state oil and gas regulations and UIC regulations. Bureaucratic delays in issuing permits and the resulting slowdowns in well stimulation may also be a problem. IHS Global Insight, an economics consulting organization, analyzed the economic and energy effects of potential regulation. The analysis noted that "there will be a reduction in the number of wells completed each year due to increased regulation and its impact on the additional time needed to file permits, push-back of drilling schedules due to higher costs, increased chance of litigation, injunction or other delay tactics used by opposing groups and availability of fracturing monitoring services."<sup>100</sup>

Furthermore, even though contamination incidents are infrequent, water cleanup from contamination is very expensive and would impose large costs on the oil and gas industry.<sup>101</sup> Despite the small number of incidents, the threat of high costs has given the oil and gas industry the incentive to block comprehensive hydraulic fracturing regulation.

One of fracking's largest problems is that many states do not require water testing prior to fracking operations, which makes accusations of drinking water contamination difficult to validate. Without an established baseline of water quality beforehand, it is unclear whether pollutants in the water were caused by fracking, natural sources of groundwater pollution, or human activities other than fracking operations. Contaminants

commonly attributed to fracking operations, like methane, can enter groundwater through natural sources, such as biogenic methane from the breakdown of organic materials, or methane that has been rising to the surface for millions of years.<sup>102</sup>

Several congressmen have introduced bills to expand federal regulation of hydraulic fracturing activities. Senator Robert Casey (D-PA) and Representative Diana DeGette (D-CO) sponsored the Fracturing Responsibility and Awareness of Chemicals Act of 2015 (FRAC Act) in the Senate and the House, respectively.<sup>103,104</sup> The bill proposes to amend the SDWA in several ways to enact more stringent federal oversight on fracking. First, the bill requires oil and gas operators to report on the chemicals used in the fracturing process. Second, the bill would repeal the fracking exemptions in Energy Policy Act of 2005. Third, the bill would authorize the EPA to regulate fracking under the SDWA by amending the definition of “underground injection” to include fracking operations.<sup>105</sup>

Representative Janice Schakowsky (D-IL) introduced the Safe Hydration is an American Right in Energy Development (SHARED) Act to require baseline and follow-up testing of potable groundwater in the vicinity of fracking operations.<sup>106</sup> The SHARED Act would amend the SDWA to prohibit fracking unless an oil or gas company agrees to test and report water quality. The SHARED Act would also require water quality testing before, during, and after fracking operations. Under the bill's provisions, the EPA would post all test results publicly on its website.<sup>107</sup>

## BUREAUCRACIES AND RULEMAKING

### Regulation-Making Process

Like legislators, regulators are rationally self-interested individuals who try to maximize budgets and power. Regulators impose regulations for two reasons. One, industry leaders may actively seek regulations because they stand to benefit from them. Two, regulators may impose regulations on industry against the industry leaders' wishes. George Stigler asserts that the driving force for regulation is that industries seek regulations for their own benefit. Stigler proposed that "every industry or occupation that has enough political power to utilize the state will seek to control entry."<sup>108</sup> This process is called regulatory capture.

The lawmaking process often maximizes the benefit to legislators and their allies. Federal legislators often draft environmental laws vaguely and passed them quickly to give the public the perception that they were "doing something" to protect the environment. Under these circumstances, bureaucrats in federal agencies have wide discretion in deciding how to implement the laws. Often, bureaucrats have more power than legislators in determining the actual outcomes of environmental laws. The more vaguely legislators write laws, the more discretion bureaucrats have to interpret the law. The bureaucratic implementation of laws is called rulemaking.

In the rulemaking process, bureaucracies exhibit two common problems. First, bureaucracies typically gather inadequate evidence to justify the merits of a proposed rule. Second, bureaucracies often lack a coherent theory as to why a rule is necessary or appropriate. Timothy J. Muris, former Chairman of the Federal Trade Commission, has



said that deciding to regulate can be distilled down to three fundamental questions. First, is the issue serious enough to warrant a one-size-fits-all rule? Second, will the proposed rule actually address a supposed market failure? Third, what are the costs associated with the proposed rule in terms of time, money, and opportunity? Without clear evidence and coherent theories to answer these questions sufficiently, a bureaucracy cannot believably demonstrate that it is qualified to resolve issues with a nationwide rule.<sup>109</sup>

Often, the bureaucratic rulemaking process begins without a clear statement of why an observed action violates a law and without a well-formed theory as to why a regulation will solve a problem better than will market forces. Even when bureaucracies try to gather evidence and form theories based on that evidence, the evidence often is incomplete or dubious. Bureaucrats rely on anecdotes, internal agency expertise, and the testimony of experts, but these types of evidence rarely can be tested. Imposing an untested theory on an entire country is likely to be risky at best, immoral at worst.<sup>110</sup>

Benefit-cost analysis (BCA) is one of the standard tests bureaucrats adopt when making rules and regulations. Regulatory reformers are not pushing the use of BCAs in every government agency to promote the usefulness of federal lifesaving regulations. These reformers seek regulatory policies that will protect against risk at lower costs to both the private and public sectors. Although deregulation is a viable option to eliminate the unintended consequences that arise from rules and regulations, "smarter" regulation is probably a more politically viable option than the outright removal of regulations. BCA is helpful because it allows legislators and bureaucrats to distinguish effective or efficient rules from ineffective and inefficient ones. BCA will be useful only if the analyses are conducted and interpreted appropriately.<sup>111</sup> The Office of Information and Regulatory

Affairs (OIRA), in the Office of Management and Budget, is responsible for reviewing all “major” Executive Branch regulations.<sup>112</sup> Over the past several decades, OIRA has made BCA more common in government agencies. As time goes on, BCA will likely become more widespread in bureaucracies.<sup>113</sup>

Despite the growing trend of BCA in government agencies, bureaucrats tend to overstate the benefits and understate the costs for any rules they promulgate. As rationally self-interested budget maximizers, bureaucrats are incentivized to make their rules seem as good as possible with the fewest costs.<sup>114</sup> Bureaucrats are not impartial judges of their own rules, so BCAs may be biased to favor an agency.

#### Benefit-Cost Analyses and Regulatory Impact Analyses

Policymakers justify environmental regulations to overcome the problem of negative externalities that polluters impose on non-polluters. Direct government intervention in the form of market-based instruments, such as a pollution taxes, or in the form of command-and-control regulations can increase the benefits to society while minimizing the negative externalities. Accurate and unbiased benefit-cost analyses are one of the most effective ways of maximizing net benefits from environmental policies. In the simplest terms, benefit-cost analyses (BCA) measure how much people are willing to pay for a gain or to avoid a loss. BCAs help regulators to choose the option that maximizes the difference between benefits and costs.<sup>115</sup>

Bureaucratically formed regulations impose costs on the public. Prices for consumers may rise. Workers in certain industries may earn less. Government may restrict privacy and personal liberty. Regulatory impact analysis (RIA) is the framework

that government agencies use to make the tradeoff between the benefits and the costs that the regulations will impose. BCAs are one of the most important parts of RIAs.<sup>116</sup> Jerry Ellig, a Senior Research Fellow at the Mercatus Center at George Mason University, asserts that the most robust regulatory impact analyses should generally contain four parts. First, RIAs should examine the significance of a problem so that bureaucrats know the severity of that problem. Second, RIAs should look at an array of solutions that bureaucrats can employ. Third, RIAs should show the benefits from a particular policy, and contrast them to the benefits of the alternatives, which includes doing nothing. Fourth, RIA's should show the costs that each policy will entail, but these costs are not just monetary. The costs include all the sacrifices that consumers and taxpayers must bear if a policy is passed.<sup>117</sup>

Regulatory impact analyses can be flawed because they often address only one aspect of economic and environmental considerations. To some regulators, it appears that many consumers are irrational because they, for example, do not adopt more energy-efficient cars and appliances. Although some consumers may not make ideal choices because they lack information, agency officials often focus only on concerns that fall under their own purview with little consideration for other factors. In other words, bureaucrats act on single issues while excluding other concerns.<sup>118</sup>

If government agencies do not conduct robust RIAs, regulators make decisions on good intentions, not scientific thinking. Adopting regulations without thoroughly knowing the costs and benefits is irresponsible because regulations affect the livelihoods and well-being of millions of people throughout the nation and around the world. RIAs are also important because they help Congress in its oversight duties. Legislators can

make beneficial decisions only when they have accurate information about how regulations are fixing problems or how alternative solutions could be fixing problems more effectively.<sup>119</sup>

Academic research has shown that many agencies do not use RIAs effectively or do not use RIAs at all when making regulatory decisions. It appears that RIAs are used more as justifications for decisions that already were made, as opposed to providing information to help regulators make more informed decisions. The Mercatus Center has created a "Regulatory Report Card" to qualitatively analyze RIAs in government agencies. The Regulatory Report Card scores agencies and regulations based on 12 criteria from Executive Order 12866 and OMB guidance. The Report Card shows that agencies often fail to provide significant evidence that would help RIAs inform decision-making. The statistics in the Report Card suggest that agencies either do not conduct RIAs, or they do not document how they used RIAs in decision-making. Even if agency officials use RIAs when forming decisions more than the statistics suggest, then the agencies lack transparency when they make decisions.<sup>120</sup>

The Government Accountability Office (GAO) and other academic research illustrates that agencies do not complete RIAs fully, which makes many RIAs unsuitable for agency decisions. Each agency, however, has widely different qualities of analysis. The GAO studied regulation formation between 2011 and 2013, and the study found generally positive results for RIAs. For example, the GAO found that government agencies wrote a statement of purpose and provided information on benefits and costs for every regulation passed in this period. The GAO also found that agencies had researched alternatives for 81 percent of regulations, estimated costs for 97 percent of regulations,

and estimated benefits for 76 percent of regulations during that time. The GAO report, however, is less than ideal because it did not evaluate the quality of those factors. As the GAO admits, their report did not "evaluate the quality of the cost-benefit analysis in the rules. The presence of all key elements does not provide information regarding the quality of the analysis, nor does the absence of a key element necessarily imply a deficiency in a cost-benefit analysis."<sup>121</sup> Without evaluating the quality of the agencies' RIAs, the GAO's report does not accurately reflect the effectiveness or usefulness of the RIA process in federal agencies.<sup>122</sup>

Federal agencies conduct less-than-ideal RIAs because of institutional weaknesses. The Office of Information and Regulatory Affairs (OIRA) is meant to ensure effective regulations, but agency officials who issue the regulations have conflicting incentives. First, when the president chooses to prioritize a certain regulation, agency officials choose to skim over the analytical requirements in past executive orders to fulfill the president's goals. Second, OIRA review is institutionally problematic because administration officials evaluate the administration's own regulations, so there is little incentive for OIRA workers to sabotage the administration's own work. Another institutional problem that OIRA officials face is that agencies can appeal to the vice president when OIRA blocks a regulation. Thus, the OIRA administrator is incentivized to block a regulation only if he knows that he is likely to win the political battle within the administration.<sup>123</sup>

President Clinton issued Executive Order 12866, which requires Cabinet departments and independent agencies to submit a cost-benefit or other type of economic analysis to OIRA before issuing "significant" regulations. Independent regulatory

agencies, which are a subset of independent agencies, are not subject to most executive order rulemaking requirements.<sup>124</sup> Independent regulatory agencies include federal entities such as the Board of Governors of the Federal Reserve System, the Consumer Product Safety Commission, the Federal Communications Commission, the Federal Energy Regulatory Commission, the Federal Trade Commission, and the Securities and Exchange Commission.<sup>125</sup>

### Regulation-Making in the EPA

The EPA, as one of the most prolific regulatory agency, has incorporated cost-benefit analyses into its regulatory process slowly over time. The role of economics in environmental policymaking, however, is understudied. Fraas found that throughout the 1980s, economics had only a minor influence on the environmental policymaking process, but when the EPA did engage in economic analyses, the agency made better regulations.<sup>126</sup> Morgenstern also explored how economics has shaped the formation of environmental policies. He found that “in many instances the economic analyses played only a minor role in actual decision making.”<sup>127</sup> Hahn and Dudley found that “a significant percentage of the analyses done by the EPA do not report some very basic economic information.” Hahn and Dudley also found that the quality of benefit-cost analyses generally is low.<sup>128</sup>

The EPA's experience with economic analysis has gone through three periods over the course of the agency's existence. First, in the early years of the agency, economics played an insignificant role in the EPA's decision-making process. Second, after presidents Reagan and Clinton issued Executive Orders 12291 and 12866,

respectively, the EPA was required to use economic analysis more robustly in the decision-making process. Third, the EPA currently uses economics more than it has in the past, but the role of economics in the EPA decision-making process has peaked and does not seem to be increasing.<sup>129</sup>

After Congress created the EPA in July 1970, President Nixon combined agencies from across the federal government to form the new agency. The newly formed EPA consisted of a diverse set of professionals from a variety of fields, including law, biology, chemistry, and engineering. During the EPA's early years, the only economists involved with regulating agriculture worked in the agency's Office of Pesticide Programs. One of the EPA's earliest responsibilities was implementing the Clean Air Act, which Congress passed the same year that the EPA was formed. The Clean Air Act was unfavorable to economic analysis because the law specifically disallowed the EPA from considering costs when setting standards regarding air quality standards. The EPA lacked economic guidance, and the agency used nearly no market incentives in its early years. The EPA employed "command and control" strategies to fulfill the mandates found in environmental laws like the Clean Air Act and the Clean Water Act. The command and control strategies stifled innovation because the EPA often relied on standards that locked in current technology while disregarding new technologies that may have been more efficient or cost-effective.<sup>130</sup>

Because the EPA lacked economic guidance in its early years, its policies were not as well informed as those of other agencies, such as the Department of Agriculture (USDA). In the 1970s, USDA economists crafted agricultural policies that employed economic analysis regarding agricultural subsidy levels, conservation reserve levels, and

market conditions. USDA economists were equipped with economic tools and techniques that helped the agency officials make policies in light of a wider set of information. More information allowed USDA officials to make more informed policies. In the early years of the EPA, however, officials neglected economic analysis, and so officials largely created policies by popular demand, not economic reasoning.<sup>131</sup>

When Ronald Reagan became president, he issued Executive Order 12291, which required that agencies conduct a “regulatory impact analysis” for all economically significant EPA rules. Regulatory impact analyses included benefit-cost analyses. Executive Order 12291 also mandated that the EPA should select the policy option that maximized net benefit, as long as the law allowed it. The executive order also gave the Office of Management and Budget (OMB) the responsibility to review how well other agencies were complying with the executive order. Executive Order 12291 became the primary force for economics entering the EPA's policy-making process in the 1980s. The mandates for benefit-cost analyses and OMB reviews became controversial within the EPA and for environmentalists because they saw the analyses and reviews as a means for deregulation, instead of a scientific tool for better policy making. Because many people within the EPA and the environmental movement did not understand what benefit-cost analyses were, they saw the executive order as a sinister political tool, not a beneficial policy-making tool.<sup>132</sup>

As the benefit-cost analysis process became more common at the EPA, many officials treated it as simply another box to check rather than as a way of helping to improve policies. During the 1980s, the EPA's major program offices, which included Air, Water, Waste, Toxic Substances, and Drinking Water, began employing economics



staffs that would conduct benefit-cost analyses. The EPA administrator and deputy administrator began to incorporate economics arguments into policy considerations, as well as arguments regarding public health, engineering, and legal precedent.<sup>133</sup>

From the 1980s and into the 1990s, EPA officials began to consider new ways to incorporate economic incentives into their environmental regulations. The EPA adopted a “banking and trading system” for the lead phase-out program. Eileen Claussen, the director responsible for the stratospheric ozone program, worked to find a system for marketable permits to phase out chlorofluorocarbons (CFCs) and other ozone-destroying chemicals. Other leaders in the EPA began to understand the political economy of market incentives, such as the Clean Air Act's 1990 amendments that allowed an acid rain trading program. Officials from the George H. W. Bush administration and policy leaders at the Environmental Defense Fund used market-based approaches to set up a cap-and-trade system for sulfur dioxide emissions from coal power plants.<sup>134</sup>

Although economics has grown in prominence during the EPA's lifetime, many officials still resist economic ways of thinking when approaching regulatory rule making. The EPA typically imposes harsher requirements for new sources of risk, such as new technologies and new products. For example, new pesticides that are potentially safer have a difficult time competing with existing pesticides because of stringent regulations. Or, stricter regulations on new pollution emitters prolong the lives older, dirtier polluters. Without economists in the EPA, differentiated regulations would likely be much worse.<sup>135</sup>

Dick Morgenstern, who served as the head of the EPA's central economic/policy office, assessed the relative risks of all U.S. environmental problems. Many people in the

EPA were skeptical of Morgenstern's study, but the administrator then supported it. With Morgenstern's help, the EPA produced its first comparative risk assessment. This risk assessment became one of the agency's main factors for setting budgets and priorities. Other relative successes for economics at the EPA include the phase-out of many technological standards, the consideration of unintended consequences and improvements in risk assessments. Technology standards were a simple way for the EPA to regulate because they are easily enforceable, but EPA economists showed that such standards limit innovation and efficiency. Thanks to EPA economists, the agency began to employ more performance standards and emissions trading, rather than imposing technological standards. EPA economists also helped the agency to more fully appreciate the fact that thorough analysis before any regulation is implemented can still spawn unpredicted consequences. EPA economists also contributed to risk assessments that estimated pollution-dose response curves from cross-sectional data, which helped to combine environmental data with health outcomes data. Before this type of risk assessment, EPA risk assessors used data from animals or laboratory test chambers. Using the response curves, EPA economists worked with risk assessors to estimate risk reductions.<sup>136</sup>

One of the most influential contributions made by economists to the EPA was the use of marginal analysis. Economists are generally trained in thinking on the margin, but other EPA employees who worked in law, ecology, and health sciences had little exposure to that way of thinking. Because costs and benefits rarely are linear, marginal analysis became an important way for EPA officials to make decisions when weighing the costs and benefits of implementing new, costly policies.<sup>137</sup>

Many people in and out of the EPA fear that benefit-costs analyses are the driving force for EPA decision-making. Benefit-cost analyses are simply one consideration for EPA decision makers, and decision makers often ignore economic analyses when other considerations are put forward. For every regulatory proposal, each EPA benefit-cost analysis goes out for public comment. Public comment allows other government agencies and the public to check the work of EPA economists.<sup>138</sup>

### Accumulation of Regulations Over Time

Regulations typically are responses to major events, including new technology, scandals, and perceived crises. Congressional laws give regulatory agencies the power to create new rules and regulations to fix these problems, and even laws passed decades ago can allow regulators to create new regulations. One of the main problems with the regulatory process, however, is that no system-wide mechanism exists to remove old, redundant, or ineffective regulations from the federal code. Because no such mechanism exists, federal regulations accumulate over time, and as the number of regulations continues to grow, the regulations' effects on the economy and personal liberty also grow.<sup>139</sup>

The federal government prints the Code of Federal Regulations every year. The code contains all of the regulations that are in effect at any given time. In 2012 alone, the code consisted of over 170,000 pages. The accumulation of regulations over decades has resulted in over one million restrictions written in legal jargon. The Code of Federal Regulations has more than doubled in size in the past 40 years. In 1975, the code contained 1,224 pages of regulations. By 2012, the number of pages had grown to

174,545. The number of pages may not accurately represent the actual growth in the number of regulations, since not all regulations are the same in quality, scope and impact. The number of restrictions within the code, including words such as “shall,” “must,” and “may not,” has grown similarly to the number of pages.<sup>140</sup>

The constant accumulation of regulations is problematic for society in several ways. First, excessive regulations can hinder innovation and entrepreneurship. Second, over-regulation can hamper economic efficiency. By stifling innovation, entrepreneurship, and efficiency, regulations can lead to a lower average real household income nationwide. Third, regulatory accumulation can disproportionately affect low-income households, which places the burden most heavily on the people that the regulations generally are trying to help. Fourth, political and public pressures can incentivize regulators to create regulations without proper research or create regulations that favor one group of people over another.<sup>141</sup> By pushing through hastily made regulations, regulators can spur even more unintended consequences from their rules, harming even more people in the process. Also, because regulations are so difficult to remove once they are put in place, making regulations too quickly allows unsound or counterproductive regulations to exist almost indefinitely. Poorly made or rushed regulations may not even achieve what they were meant to achieve, but they surely will impose costs on taxpayers and consumers.<sup>142</sup>

Regulations are a way that government officials change behavior to fit their preferences. In an expert paper from the Organization for Economic Co-operation and Development (OECD), Dr. Cary Coglianese asserts that regulations change individual or organizational behavior for some sort of societal or economic improvement. In other

words, ideal regulations are meant to change the behavior of the entities under the regulations, which will lead to better outcomes by solving problems or internalizing externalities.<sup>143</sup> Coglianesse's assertion, however, treats regulators as benevolent and omniscient. Public choice theory asserts that regulators respond to incentives and try to maximize their own utility, like any rational self-interested actor. It is naive to assume that regulators will make regulations simply to change behavior that will result in better outcomes. If regulations actually led increasingly to better outcomes, we would not expect to see such drastic increases in the number of regulations over the past several decades.

Federal regulations, especially environmental regulations, restrict the choices of individuals, which imposes costs on the market and on government itself. Regulations increase the time costs and monetary costs for business owners and state, local and federal governments to complete nearly any project. As the number of regulations continues to increase, the costs will almost certainly continue to increase.

According to the OMB, the costs directly imposed on regulated entities amount to tens of billions of dollars each year.<sup>144</sup> The costs alone are staggering, but the estimations of the supposed benefits of these regulations vary widely. Within the federal government, the EPA has the rules with the largest estimated benefits and the highest estimated costs. The EPA's Office of Air and Radiation has the largest estimates of all. Of all federal regulations, EPA rules make up 63 to 82 percent of the monetized benefits and 46 to 56 percent of the monetized costs. The EPA's air rules compose 98 to 99 percent of all benefits from EPA rules. The estimates of monetary benefits for particular EPA rules vary so widely that they differ by orders of magnitude. For example, the EPA estimates

that the 2007 Clean Air Fine Particle Implementation Rule results in benefits ranging from \$19 billion to \$167 billion per year (in 2001 dollars). The EPA also estimates that the 2005 Clean Air Interstate Rule monetarily benefits the United States from \$12 to \$152 billion annually (also in 2001 dollars). The EPA estimates benefits for the 2011 National Emission Standards for Hazardous Air Pollutants from Coal- and Oil-Fired Electric Utility Steam Generating Units at \$28 billion to \$77 billion.<sup>145</sup> The OMB asserts that the benefits of these rules "far exceed the costs," but with such large variation in the estimates of the benefits and the difficulty in calculating all the unseen costs from market distortions, it is difficult to trust the assertion that the benefits far outweigh the costs. When benefit estimations can be inflated and indirect or hidden costs are nearly impossible to measure accurately, rationally self-interested regulators can make any regulation seem better than it actually may be. Regulators would be unwise and irrational to calculate that the costs outweigh the benefits for any of the regulations.

The accumulation of regulations harms the economy because an ever growing body of regulations makes engaging in entrepreneurship and innovation costlier. Dr. John Dawson of Appalachian State University and Dr. John Seater of North Carolina State University found that "regulation has statistically and economically significant effects on aggregate output and the factors that produce it—total factor productivity, physical capital, and labor." They also found that regulations have reduced the growth rates of output and total factor productivity. Dawson and Seater also report evidence that the growth of regulations explains the productivity slowdown of the 1970s.<sup>146</sup> The study found that federal regulations have reduced real output growth on average by about two percentage points over the past fifty years, which means that the accumulated reduction in GDP

equals about \$38.8 trillion as of 2011. In other words, Dawson and Seater's calculations showed that 2011 GDP would have been \$53.9 trillion instead of \$15.1 trillion if regulations had not increased since 1949.<sup>147</sup> Currently in the United States, 300 million people living in 140 million households have lost \$277,100 per household and \$129,300 per person because of the past fifty years of federal regulations.<sup>148</sup>

Other studies corroborate Dawson's and Seater's empirical analysis. In World Bank Policy Research working paper, Norman Loayza, Ana Maria Oviedo, and Luis Servén find that a heavier regulatory burden reduces growth in both developed and developing countries. Especially in developing countries, the informal sector of the economy produces a large fraction of national wealth. More regulations promote the informal sector of the economy as people work to avoid regulations. Their study finds that more product-market or labor regulations are associated with an expansion of the informal, underground economy.<sup>149</sup> The World Bank and the OECD have found that a larger number of regulations leads to slower economic growth.<sup>150</sup>

### Negative Effects of Regulations

One of the main problems with growing numbers of regulations is the increase in "opportunity costs." Opportunity costs are the value of the next-highest-valued alternative use of a resource or action.<sup>151</sup> In terms of regulations, the opportunity cost of regulations is the lost productivity because scarce resources have to be allocated to complying with regulations.<sup>152</sup> Business owners and government officials have to spend time and money complying with an ever-growing list of regulatory requirements, rather than innovating, creating value, or seeking entrepreneurial success. Regulatory accumulation means that

people have higher opportunity costs because they must devote a greater fraction of their limited time, money, and capital to compliance instead of looking for new products that could make people's lives better.

Inflexible regulations stifle innovation because they do not align with economic incentives. As long ago as 1991, the EPA was looking for ways to incorporate market-oriented policies into some of its regulations to limit the negative effects of regulations. EPA Administrator William K. Reilly established an Economic Incentives Task Force to research potential ways to incorporate market-oriented policies into the EPA's regulatory processes. Amendments to the Clean Air Act in the early 1990s included a tradable permit system for acid rain control, which was a more market-based approach than the EPA had used previously. Market-oriented environmental policies are drastically different from the command-and-control approaches that the EPA had used since it was first established in the 1970s. Despite steps forward, the EPA still issues many regulations that mandate uniform technologies or performance standards, which lack flexibility or incentives to innovate better technology.<sup>153</sup> In addition, market-based policies like trading systems do not necessarily mean that the desired outcome will come about. Aligning economic incentives with environmental regulations is simple in theory, but much more difficult actually to achieve in practice. Future policymakers will need to allow economists to expand techniques that can align economic and environmental benefits more closely. Incentive-based instruments likely will improve environmental regulations because they require less administrative expertise and fewer resources.<sup>154</sup>

Regulations are often regressive, meaning that the burden of the regulation disproportionately falls on people of lower incomes.<sup>155</sup> Regulations force producers to



incur greater costs, and those costs are often passed onto the consumers as higher prices for goods and services. Producers spend billions of dollars each year to comply with regulations that are meant to mitigate risks from pollution and other environmental degradation. Evidence shows that many high-income households prefer regulations that reduce low-probability risks with higher costs. In essence, these regulations redistribute wealth from the lower-income groups to higher-income in return for only marginal benefits.<sup>156</sup>

#### Case Study: Wilderness Designations in National Parks

The Wilderness Act and the National Park Service Organic Act of 1916 are both meant to preserve land, but the National Park Service (NPS) has turned to wilderness designations within national parks as a way to lock in current management preferences. This process makes wilderness designations in national parks both redundant and a political tool for national park managers to ensure that future managers cannot override current managers' preferences.

Both the Organic Act of 1916, which established the NPS, and the Wilderness Act require land managers to protect federal land in a way that leaves it available for the use of future generations. The 1916 Organic Act states that the NPS must "provide for the enjoyment of the [parks, monuments, and reservations] in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."<sup>157</sup> The Wilderness Act states that wilderness must be "administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness."<sup>158</sup> Although the wording of the two acts implies that the intent

of both laws is to preserve the land for future use, the management policies of the NPS are different than the management practices of wilderness management agencies.

The 1916 Organic Act allows the Secretary of the Interior to engage in active management to protect national parks. The Secretary of the Interior can permit logging in national parks to control invasive species and protect the condition of the park. The secretary can also do what she sees fit in providing for the preservation of native plant and animal life. The 1916 Organic Act of requires the secretary to accommodate visitors to parks, national monuments, and reservations managed by the NPS.<sup>159</sup> In comparison, the Wilderness Act restricts any commercial enterprise (which includes logging) within wilderness areas unless a mining or grazing claim existed on the land prior to the wilderness designation. Under the 1964 Wilderness Act, wilderness management agencies are not required to provide any special accommodations for those with disabilities.<sup>160</sup>

NPS officials in specific national parks sometimes lobby Congress to designate wilderness areas within national parks. The designation of wilderness in national parks is inherently contradictory because of the different purposes of wilderness land and national parks. While the Organic Act explicitly states that park managers must accommodate visitors to the park, the Wilderness Act was designed largely to limit human activity within wilderness. National parks already are one of the most heavily protected forms of federal lands. NPS managers have complete authority to develop, or not develop, national park land as they see fit. In practical terms, the difference between the protection provided by a national park designation and a wilderness designation is minimal at best. Wilderness designations within national parks essentially are superfluous.

The NPS asserts that wilderness designation is necessary in national parks because “[n]ational park backcountry is protected only by administrative regulations that agency officials can change.”<sup>161</sup> Implicitly, NPS officials fear that future park managers and officials will undermine the conservation principles that current NPS officials employ, so wilderness designations within parks are a strategic tool to limit the power of future NPS managers. Wilderness designations within parks allow present managers to ensure that their preferences for the park last indefinitely. In essence, current park managers can use wilderness designations to impose their preferences and management styles on future NPS managers by using the most stringent land policy in the United States to restrict future development.

Designating wilderness in national parks is not only superfluous; it is also inconsistent between national parks. Some major national parks, like Yellowstone National Park, Grand Canyon National Park, and Glacier National Park, do not have designated wilderness lands within them, but they nevertheless are some of the most highly protected and undeveloped land in the United States. Other national parks, like Yosemite National Park and Mount Rainier National Park, contain official wilderness areas. Yellowstone and Glacier National Parks are not any less wild than Yosemite and Mount Rainier National Parks, yet the latter are protected by additional laws. Undeveloped lands in non-wilderness national parks are not in any danger of being developed because NPS officials have no disposition or incentive to develop wild land. The potential for public backlash also protects land in non-wilderness national parks from being developed. The uneven distribution of wilderness designations among national parks illustrates that wilderness designations are used as a tool for park managers to

ensure that land remains in its current states, furthering their own interests. Wilderness designations in national parks create legislative and judicial burdens that may discourage future NPS managers from taking necessary actions to maintain national park land.

## HOW NEGATIVE CONSEQUENCES ARISE

### Unintended Consequences

Policymakers and economists often have a difficult time foreseeing what the effects of any law will be. Many laws are rooted in noble intentions, but the actual application of the laws and the political process can alter the law so that unforeseen outcomes arise. Frederic Bastiat, a French economist in the 19th century, was one of the first theorists to publish the concept of unintended consequences. In his work "The Seen and the Unseen," Bastiat describes how all laws spark a series of effects. He says, "There is only one difference between a bad economist and a good one: the bad economist confines himself to the *visible* effect; the good economist takes into account both the effect that can be seen and those effects that must be *foreseen*."<sup>162</sup>

Government officials do not and cannot have sufficient information to accurately plan complex economic or political systems, and their lack of knowledge allows negative consequences to arise that they may not have foreseen. Friedrich Hayek, in his essay "The Use of Knowledge in Society," asserts that there are two types of planning: centralized and decentralized. Centralized planning occurs when a small number of legislators or bureaucrats dictate the solutions to problems and use the government's authority to make others comply with their system of solutions. Decentralized planning

occurs when many people voluntarily cooperate to find solutions to problems without any coordinating force.<sup>163</sup>

Government officials may genuinely try to find the best solution by using the best scientific knowledge and expert opinions. Even aided by the most knowledgeable experts, they cannot know the specific details about every situation in every time and every place. Because it is impossible for government officials to gather and process all relevant information or foresee all possible outcomes, unintended consequences easily arise from even the most well-intentioned policies. Decentralized planning, on the other hand, takes advantage of the collective knowledge of people in a society.<sup>164</sup> Decentralized planning is not perfect, but it allows individuals to respond to changing incentives.

#### Intended Consequences

Although lawmakers and regulators may not be able to foresee every outcome from environmental laws, outcomes that are negative for society may be beneficial for a small group of influential people, and negative outcomes may be too costly for policymakers to avoid. The benefits to interest groups are concentrated, so they have a strong financial incentive to continue lobbying policymakers to keep socially negative laws on the books. The costs, however, are dispersed among the whole population, so fighting against preferential treatment to a small group would cost any one person more than the costs they individually incur.<sup>165</sup>

Special interest groups seek for preferential treatment, and lawmakers often oblige when they can reap benefits from the industries while not upsetting their constituency. The political exchange of favors between lawmakers and special interest

group leaders may intentionally enact laws with net negative social effects as long as the costs are dispersed over a sufficiently large number of people. Therefore, negative consequences may be intended when politicians strategically use them as a means of political exchange.<sup>166</sup> The combination of purely unintended consequences and strategically designed political exchange can result in policies that generate socially negative outcomes.

#### Case Study: Bark Beetles in Wilderness Areas

The Wilderness Act can prevent land managers from preserving environmental quality in wilderness areas because they are limited in how much beneficial active management in which they can engage. The Wilderness Act requires that wilderness land must “[retain] its primeval character and influence,” so wilderness land managers in the U.S. Forest Service, National Park Service, Bureau of Land Management, and the Fish and Wildlife Service can do very little to improve the quality of wilderness land. The Wilderness Act restricts logging and prescribed burns in wilderness areas, causing forests in wilderness to become densely overgrown. Although the Wilderness Act was meant to preserve environmental quality, the unmanaged state of wilderness forests makes them particularly susceptible to pest infestation and overwhelming forest fires, negating the purpose of the law.

Bark beetles burrow into trees in the summer and fall, lay eggs, and then move onto new trees. When the eggs hatch, the larvae tunnel out of the trees, limiting nutrient flow and killing the trees.<sup>167</sup> When trees die due to beetles, they dry out and provide prime fuel for wildfires. Beetles spread more easily in dense wilderness forests than in

managed forests, but the Wilderness Act severely limits active management on wilderness land.

In 1986, Louisiana's Kisatchie Hills Wilderness suffered an infestation of the Southern Pine Beetle, killing approximately 3900 acres, or 45 percent of the wilderness area. The wilderness managers felled trees around the wilderness boundaries to prevent the bark beetles from traveling farther into the forest, but they did not engage in active management inside the boundaries. In 1987, lightning ignited a wildfire that burned 7500 acres, which became the largest wildfire in Louisiana's history. The beetle-killed wood exacerbated the severity of the fire, which may have been lessened if active management were allowed.<sup>168</sup>

As of 2013, a Mountain Pine Beetle epidemic has killed 90 percent of the trees in the Black Elk Wilderness in South Dakota.<sup>169</sup> Since the infestation began, the U.S. Forest Service has issued commercial logging contracts for areas outside the wilderness to help control the spread of the beetles. Logging and thinning reduces the risk of further infestation, but the wilderness designation has stopped abatement techniques within the boundaries, causing more die-offs.<sup>170</sup>

#### Case Study: The Clean Air Act and Pollution Exports

Rather than cleaning up industrial processes, the Clean Air Act (CAA) has incentivized many industries to export sources of pollution to countries that have not enacted strict environmental laws. Instead of actually cleaning the air, the CAA has made pollution more of a problem for less developed countries. The Clean Air Act raises manufacturing costs in the United States for many companies, contributing to the exodus

of manufacturing jobs. In 1970, nearly 18 million Americans, or 8.8 percent of the population, were employed in manufacturing jobs.<sup>171</sup> Today, only 12 million Americans, 3.7 percent of the population, work in manufacturing.

The CAA has shifted the locations from which we purchase manufactured goods. Many of the manufacturing jobs lost in the United States have moved to low-wage countries with less stringent environmental laws in the past forty years.<sup>172</sup> Between 1999 and 2008, American multinational companies created 2.4 million jobs abroad, while reducing their domestic workforce by 1.9 million jobs.<sup>173</sup> During this same time, air pollution has been increasing in poorer parts of the world.<sup>174</sup> The Blacksmith Institute, a nonprofit that focuses on pollution in developing countries, estimates that more than 4.5 million people die each year from indoor and urban air pollution in less developed countries.<sup>175</sup>

Although cheaper labor is a driving force for the manufacturing shift, the cost of compliance with National Ambient Air Quality Standards (NAAQS) issued by the EPA also raises costs that help drive manufacturing overseas. Manufacturers estimate that they spend upwards of \$30 billion every year just to comply with environmental regulations imposed by the federal government.<sup>176</sup> Finding better ways of keeping and reducing pollution at home would reduce net global emissions, rather than exporting it to nations less capable of handling the damaging effects.

#### Case Study: Picking Winners and Losers in the Clean Air Act

The CAA has been counterproductive to its original intent by protecting some of the oldest, dirtiest coal plants with the provisions included in Section 111 of the law. Coal



power plants that should have been closed years ago have continued to operate because the CAA prevents competitors from replacing them. Federal standards for new stationary sources of pollution are stricter than state standards in many cases, providing existing polluters with a market advantage.

The average lifespan of a coal power plant is approximately forty years, but more than fifty percent of the 1400 operating coal plants in the country were built in 1970 or earlier.<sup>177,178</sup> Because the CAA raises costs for new coal plants, many coal power plants have not been retired, and the United States has seen a reduction in the number of new coal power plants since the 1980s, indicating the prohibitively high costs associated with CAA compliance.

The CAA also has been economically harmful because it has taken from many Americans the ability to find work in counties or areas that have been designated as “nonattainment areas.” Under the CAA, nonattainment areas are locations that do not meet the EPA’s National Ambient Air Quality Standards. In an article published in the *Journal of Political Economy*, Michael Greenstone finds that the costs companies incur from being located in a nonattainment area have an impact on employment and capital accumulation. Greenstone concludes that over a fifteen-year period, the EPA standards for the Clean Air Act were responsible for over 590,000 lost jobs and more than \$100 billion in reduced output.<sup>179</sup> Nonattainment designations also punish people in economies who cannot reasonably afford cleaner energy. Poorer economies based in dirtier industries disproportionately bear the burden of nonattainment punishments, and the CAA will likely continue to harm America’s poorest communities economically.

### Case Study: Bureaucratic Growth from the Clean Air Act

The CAA has allowed the EPA to grow over the last few decades, which has increased costs for taxpayers and reduced economic in return for only marginal benefits. In 2004, the Commonwealth of Massachusetts sued the EPA for declining to regulate greenhouse gases, including carbon dioxide.<sup>180</sup> The case eventually reached the Supreme Court, which determined that the CAA's broad language permitted the EPA to regulate carbon dioxide. The Supreme Court required the EPA to determine alternative measures for greenhouse gas emissions.<sup>181</sup> The EPA's greater authority to regulate carbon dioxide will continue to expand the EPA's control of nearly every industry in the United States.

Despite huge declines in air pollution, the EPA's budget continues to rise unnecessarily. According to the EPA's own statistics, nearly the entire country is now in compliance with the majority of air quality standards. Concentration levels for criteria pollutants have fallen by an average of 50 percent and have all attained the national standard goals.<sup>182</sup>

Each year, the EPA receives increased funding to improve air quality, despite achieving national standards and having fewer nonattainment areas to regulate. Total resources for regulating air quality increased by approximately 10.8 percent in fiscal year 2016, with most of this increase coming from additional money for addressing climate change.<sup>183</sup>

As with all bureaucracies, the EPA's leadership continues to search for ways to expand its budget and secure additional responsibilities. Since the creation of the EPA in 1970, the annual budget has grown from \$1 billion to \$8.59 billion for 2016.<sup>184</sup> Adjusted for inflation, this represents a forty percent increase in spending, despite the fact that

nearly all stationary polluters are compliant with air quality standards and automobile emissions are down 90 percent since the CAA was passed.<sup>185</sup>

### Case Study: NEPA's Time Constraint & Delays

The National Environmental Policy Act (NEPA) requires all federal agencies to research and analyze environmental impacts from any government project. As NEPA compliance has become increasingly complex and meticulous, the amount time required to file Environmental Assessments (EAs) and Environmental Impact Statements (EISs) has increased steadily, imposing higher costs on taxpayers with minimal benefits.

Current Council on Environmental Quality (CEQ) guidance recommends that a typical EA be between 10 and 15 pages in length, but the CEQ found that nearly two-thirds of 41 surveyed agencies exceed the 15-page ceiling.<sup>186</sup> The CEQ expects EISs to be between 150 and 300 pages, depending on the project's complexity and scope.<sup>187</sup> According to a study completed by Cambridge University, which analyzed 2,236 final EISs completed between 1998 and 2006, "the time [required] to prepare an EIS ranged from 51 days to 6,708 days (18.4 years)."<sup>188</sup> In April 2013, the National Association of Environmental Professionals (NAEP) reported that the average preparation time for final EISs in 2012 was 1,675 days, or 4.6 years.<sup>189</sup> The NAEP also found that from 2000 to 2012, the average preparation time for all government-wide EIS completion "increased at an average rate of 34.2 days per year."<sup>190</sup> The U.S. Department of Transportation reported that the average time elapsed between a Notice of Intent and a Record of Decision is 67 months.<sup>191</sup> The constant threat of litigation has incentivized agencies to invest large amounts of time and money in over-preparing EISs to "insulate them from

judicial challenge.”<sup>192</sup> The sheer time commitment for adequately completing an EIS, coupled with possible litigation delays, can drag out a project’s potential approval for more than a decade.

The case of Atlas Minerals’ tailings disposal shows how the NEPA process can needlessly waste millions of dollars and decades of time to reach a simple decision. In 1986, the Nuclear Regulatory Commission (NRC) issued an EA for Atlas Minerals’ uranium waste disposal plan. The radioactive waste was located on a floodplain of the Colorado River in Moab, Utah, which provides drinking water for massive cities such as San Diego and Los Angeles. In 1993, the NRC issued a “Findings of No Significant Impact” (FONSI), allowing Atlas Minerals to cap its tailings pile without relocating the waste away from the Colorado River.<sup>193</sup>

Following local opposition, Senator Orrin Hatch (R-UT) requested that the NRC prepare an EIS regarding disposal alternatives. The EIS only considered capping the tailings where they were currently located, which was exactly the same solution recommended in the previously prepared EA. The NRC asserted that water contamination was unlikely. Following the issuance of the final EIS, multiple agencies and laboratories found dangerous levels of contamination in the water near the tailings pile.<sup>194</sup>

Atlas filed for bankruptcy after spending hundreds of millions to stabilize the material or move it to a safer location.<sup>195</sup> Following Atlas’s bankruptcy, the DOE became responsible for disposal of the uranium tailings. The DOE leaders decided to conduct a new, more comprehensive EIS. In September 2005, after 19 years of debate, a record of decisions was issued, stating that the 12 million tons of tailings would be transported 30 miles by train to Crescent Junction, Utah.<sup>196</sup>

### Case Study: Incentive to Litigate under NEPA

Litigating against NEPA compliance allows individuals and special interest groups to hinder governmental action. Because litigation is costly and time-consuming, government agencies over-prepare EISs to protect against litigation, which adds unnecessary time and money costs to the NEPA process. Approximately 100 NEPA-related lawsuits are filed each year, and the government prevails in the vast majority of cases.<sup>197</sup> The GAO stated, “Although the number of NEPA lawsuits is relatively small when compared with the total number of NEPA analyses, one lawsuit can affect numerous federal decisions or actions in several states, having a far-reaching impact.”<sup>198</sup> The Department of Justice estimates that plaintiffs’ attorney fees paid between 2009 and 2013 exceeded \$22 million, but due to incomplete information, the House Committee on Natural Resources believes “the numbers are likely much higher.”<sup>199</sup> According to ex-NEPA practitioner, Alan Harwood, “The threat of litigation under NEPA is entirely too pervasive. Too often the NEPA process is used as a threat by community groups to fight or block projects they don’t like - even if there is widespread but less vocal support for the project.”<sup>200</sup> Plaintiffs in these litigations are most often environmental groups and citizens groups.<sup>201</sup>

Federal agencies prevailed in 86 percent of NEPA-related litigations in 2012, which were held in a court of appeals.<sup>202</sup> Plaintiffs understand the small likelihood of a victory in court, and often use NEPA litigation simply as a tool to block projects that might be environmentally damaging<sup>203</sup>

For example, on May 14, 2012, the Quechan Tribe of Arizona’s Fort Yuma Indian Reservation sued the Bureau of Land Management (BLM) over NEPA compliance for

approving the Ocotillo Wind Energy Facility Project. According to the Quechan Tribe, the BLM failed to consider the tribe's concerns about building the large wind farm on top of sacred land. After nearly a year of litigation, the court ruled in favor of the BLM, stating that the BLM made "many attempts, starting regularly in 2010" to meet with the tribe and modify the wind project around the tribe's concerns. The BLM made significant effort during the development stages of the project to incorporate the Quechan Tribe's concerns about the project's design, and adequately complied with NEPA's regulations. The case delayed the Ocotillo Wind Project for nearly a year, and did little more than waste time and money for both parties involved.<sup>204,205</sup>

To avoid wasteful court time and legal fees, agencies over-prepare EAs and EISs by compiling as much information as possible to protect against litigation, which incurs huge costs in both time and money. The GAO stated that this incentive for agencies to produce "litigation-proof EIS[s]... may lead to an increase in the cost and time needed to complete NEPA analyses but not necessarily to an improvement in the quality of the documents ultimately produced."<sup>206</sup>

#### Case Study: Lack of Cost-tracking Mechanisms in NEPA

NEPA lacks any cost-tracking mechanisms, which makes monitoring agencies' difficult and cost-benefit analyses nearly impossible. A report published by the U.S. Government Accountability Office (GAO) stated, "Little information exists on the costs and benefits of completing NEPA analyses. Agencies do not routinely track the cost of completing NEPA analyses, and there is no government-wide mechanism to do so."<sup>207</sup>

Data compiled by the National Association of Environmental Professionals (NAEP), as

well as a study conducted by Cambridge University, show that the cost and time required to comply with NEPA has been rising steadily since the law's passage, but no comprehensive financial data exist.<sup>208,209</sup> NEPA's expensive inefficiencies largely have been ignored by lawmakers because no government-wide, quantifiable data are available. Until government-wide cost-tracking measures are implemented, the costs associated with NEPA compliance will continue to be overlooked, and the law's blatant inefficiencies will continue to grow.

#### Case Study: Unintended Consequences of Energy Efficiency Policies

The Energy Policy Act of 2005 (EPAAct) was meant to promote energy efficiency and reduce energy consumption, but due to the “rebound effect,” energy consumption actually increases in some cases. More efficient appliances require less energy per unit of “service”, and so in theory, consumers should use less energy. The basic laws of supply and demand, however, show that people use services more, rather than continue to consume the same amount, when services become cheaper. Consumers have less of an incentive to use services frugally, and end up using more services than before. This “rebound effect” negates some, or even all, of the energy savings from using energy-efficient appliances.<sup>210</sup> The rebound effect has negated much of the energy savings of the EPAAct's energy-efficiency provisions. The AEEE estimated that the EPAAct's energy efficiency provisions lowered U.S. energy consumption by 1.5 percent in 2005, but this estimate did not account for the rebound effect.

When energy is cheap, people use more of it, and when energy is expensive, people use less of it. Reducing energy costs and increasing energy efficiency incentivizes

large amounts of energy consumption, which offsets any gains from greater energy efficiency.

Rebound estimates vary widely, depending on factors such as the energy-saving device or system being assessed, and the region and wealth of the people studied.<sup>211</sup> Dr. Steve Sorrell of the University of Sussex conducted a meta-analysis of rebounds associated with more efficient electric heating and found a range of savings between 10 and 58 percent in the short run and 1.4 to 60 percent in the long.<sup>212</sup> One study of Sweden estimated that 20 percent of the improvements in the efficiency of personal transport and space heating would bring backfires of 120 and 170 percent of the saved energy.<sup>213</sup> The American Council for An Energy-Efficient Economy (ACEEE) estimated the energy savings caused by the EPAct of 2005, but did not account for rebounds in the calculations. The ACEEE's modest estimate of 1.5 percent energy savings is likely an overestimate.

#### Case Study: Economic and Environmental Impacts of the Renewable Fuel Standard

The EPAct of 2005 mandated that ethanol be mixed with gasoline. Because the majority of RFS requirements are fulfilled using corn ethanol, RFS significantly increases the demand for corn. In 2001, ethanol production used only 7% of the U.S. corn crop, while in 2015, ethanol production used approximately 38% of it. The laws of supply and demand necessitate that an increase in the demand for a good or service must be accompanied by an increase in price, holding all else equal. These price increases affect every industry that uses corn as an input, including the food industry.



A 2010 Congressional Research Service report estimated that the greater corn demand for ethanol production will have collectively raised food prices in the U.S. by \$3 billion by 2022. A National Academy of Sciences study found that globally, biofuels expansion accounted for 20-40 percent of the food price increases seen in 2007, which led to a global food crisis that pushed 100 million people into hunger and sparked riots in 30 countries.<sup>214</sup> Other estimates, such as a 2014 Congressional Budget Office report, say that the impact on food prices exists, but is insignificant.<sup>215</sup> Although the precise impact of the RFS on food prices is unclear, the possibility of a meaningful impact on food prices should not be ignored in policy discussions.

Transporting ethanol is more expensive than shipping gasoline via conventional modes, raising prices further. Unlike petroleum products, ethanol and ethanol-blended gasoline cannot be shipped by pipeline in the United States. The current distribution system for ethanol is dependent on rail cars, tanker trucks, and barges, which are more expensive than pipeline transport. Though shipping ethanol or ethanol-blended gasoline via pipeline could be feasible, no major U.S. pipeline has made the investments to allow such shipments. Even if these modifications are technically possible, they likely will be increase ethanol transportation costs.<sup>216</sup>

The dramatic increase in RFS-caused ethanol production, especially corn-based ethanol, has several negative environmental impacts, including increased carbon emissions, greater water scarcity, lower water quality, lower soil quality, and harm to wildlife. The amount of energy it takes to produce corn ethanol exceeds the energy created when corn ethanol is burned for fuel. A Cornell University study specifically

calculated that every time you make 1 gallon of ethanol, there is a net energy loss of 54,000 BTU.<sup>217</sup>

While corn ethanol burns cleaner than conventional gasoline in terms of carbon emissions, the whole lifecycle emissions of corn ethanol often generates more pollution and carbon than conventional gasoline. Lifecycle emission analyses consider the emissions released in every phase in the production, use, and waste disposal of corn ethanol, which includes the emissions from fertilizer used to grow corn and the carbon that is released when grasslands and forests are converted to corn production.<sup>218</sup>

Because corn is more fertilizer-intensive than any other crop that is grown in the United States, approximately 2.39 million additional tons of nitrogen fertilizer will be needed to meet the 2015 RFS requirements. Greater use of nitrogen fertilizer and pesticides degrades water quality in rivers and in oceans. In the Midwest, where the majority of corn in the U.S. is grown, fertilizer-laden runoff eventually flows into the Mississippi River and contributes to algae blooms in the Gulf of Mexico. These algae blooms deplete the region of oxygen and suffocate marine plants and animals. With more fertilizer contributing to larger algae blooms, the Gulf of Mexico's "Dead Zone" likely will continue to expand.<sup>219</sup>

Growing corn is a water-intensive process and can threaten regional water supplies, and mandating and subsidizing corn for ethanol will continue to exacerbate water supply problems. Most of this irrigation water is drawn from groundwater aquifers in regions that already are stressed. Conflicts over water allotments have occurred in Kansas and Nebraska because the Ogallala Aquifer under the Great Plains is shrinking rapidly.<sup>220</sup>

Despite the costs associated with RFS mandates, ethanol does very little to displace gasoline consumption. Thirty-five percent of the U.S. corn crop was used for ethanol in 2009, yet the resultant ethanol accounts only for about five percent of gasoline consumption. If the entire 2009 record U.S. corn crop of 13 billion bushels were used as ethanol feedstock, they would displace only 18 percent of estimated national gasoline use. Under the RFS2 mandate, by 2022 biofuels will still represent less than 25 percent of gasoline energy demand.<sup>221</sup>

#### Case Study: Imposing Unfair Liabilities under CERCLA

CERCLA's liability provisions are unfair for small businesses, who are assigned massive EPA fees that severely limit their profitability. The attempts to revise and amend CERCLA in 1995 illustrate the injustice of the law's retroactive liability provisions. During these discussions, Senator Larry Pressler of South Dakota told the story of Bill Huebner, a South Dakota businessman, to highlight the harsh, unyielding liability provisions of the CERCLA.

Bill Huebner was the owner of a company called Ace Steel and Recycling, based in Rapid City, South Dakota. In 1991, Huebner became a victim of the unfair liability provisions of CERCLA when he received a letter from the EPA indicating that he owed \$47,000 for cleanup actions taken at a former battery recycling site in Nebraska. According to the EPA, Huebner was liable for actions taken between 1940 and 1982, despite the fact that Huebner's company did not exist prior to 1989. CERCLA's retroactive liability provisions can and do violate the due process rights for some potentially responsible parties (PRPs).<sup>222</sup>

If the EPA mistakenly or unjustly accuses someone of contamination, defendants have a difficult time exonerating themselves. Provisions in CERCLA limit the ability of accused parties to challenge EPA orders because the law stipulates that any review of the EPA's orders must be delayed until after a site has been cleaned.<sup>223</sup> In other words, if a PRP wants to challenge or dispute an order issued by the EPA, the PRP needs to adhere to the order's commands and then challenge the measure in court, after spending large sums of money on cleanup. The other alternative would be the PRP refusing to adhere to the EPA's order and waiting until the EPA performs cleanup, then begins enforcement proceedings against the PRP to recoup the cleanup costs, where it could finally defend itself.<sup>224</sup> Neither option is particularly appealing, and would appear to conflict with Constitutional protections of an individual's right to due process of law.

## CONCLUSION

Over the past several decades, federal environmental policies have been one factor in the United States' rising environmental quality. These same policies, however, have caused negative outcomes, such as high costs, inefficiency, market distortions, and environmental degradation. Public choice theory explains how federal environmental policies can be ineffective or counterproductive.

Government officials, such as legislators and bureaucrats, are rationally self-interested and work to maximize their incomes and power. Legislators use environmental legislation to enact benefits for special interest groups. These special favors are mutually beneficial for the legislator and the special interest group, but the costs of these policies are spread out among the rest of the population. Legislators work strategically to form

environmental policies that distort markets in favor of special interests without causing enough stress in the rest of the population that would harm the legislator's chances of reelection. Government-caused market distortions skew price signals that communicate what people value and impose higher costs on taxpayers and consumers.

Legislators empower bureaucrats to create rules and regulations that are meant to fulfil the intentions of environmental statutes, but these bureaucrats often create regulations with minimal scientific evidence or limited consideration of economic benefits or costs. The rulemaking process has little effective oversight, causing the regulatory burden to grow year after year. As the number of regulations continues to mount and the scope of the regulations widens, compliance costs for business owners and average Americans also will continue to grow. As regulations continue to regulate less pressing problems, the marginal benefit of these regulations continues to decline as the marginal cost increases.

Negative consequences may emerge unintentionally or intentionally. Even the most intelligent economists and policymakers cannot have enough information to craft flawless laws, and they cannot have enough information to foresee all possible outcomes. Therefore, the lawmaking and rulemaking processes spawn outcomes that may not have been intended by the policymakers or special interests. Even if unintended consequences arise, influential minorities nevertheless may benefit from these outcomes while the rest of the population bears a net social cost. Special interest groups will work with policymakers to perpetuate these benefits, even if the net effect harms society.

Regardless of the source of these negative consequences, federal environmental policies are not magical solutions to environmental problems. The lawmaking and

rulemaking processes are made by imperfect, self-interested individuals, and so outcomes have proven to be imperfect. To avoid the negative outcomes from policy making, society will have to demand better policymaking or embrace market-based solutions.

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