Spring 2017

Structures, Norms, and Renewable Energy Policy: A Comparative Analysis of the Driving Forces Behind Energy Policymaking in the United States and Denmark

Elise Ogden
Trinity College, Hartford Connecticut, elise.ogden@trincoll.edu

Structures, Norms, and Renewable Energy Policy:

A Comparative Analysis of the Driving Forces Behind Energy Policymaking in the United States and Denmark

By Elise Ogden

Senior Honors Thesis

Department of Public Policy and Law

Trinity College, Hartford, CT

Fall 2016-Spring 2017

Acknowledgements

First and foremost, I would like to thank Professor Adrienne Fulco for her endless support and guidance- without you, this thesis would not have been possible. Having you as a mentor for the past three years has made me a better writer, thinker, and person. My experience at Trinity would not have been the same without you. Thank you for everything.

Next, I would like to thank Professor Joe Chambers, for serving as my second reader. Although I had never taken a class with you, you generously donated your time and expertise to reading my thesis and I very much appreciate it.

Finally, I thank my friends and family for their encouragement and interest in this thesis. You all kept me motivated, and I couldn't have done it without you.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION & LITERATURE REVIEW

1.1 Introduction

According to many scholars, Denmark is arguably the most energy secure and sustainably minded country in the international community (Sovocool, 2013; Mendonca, Lacey, & Hvelplund, 2009). As of 2010, the country was 121% energy self-sufficient, and its thriving wind energy sector allows it to be a net exporter of energy to its German and Scandinavian neighbors (Sovacool, 2013). In 2012, the Danish government under Prime Minister Helle Thorning-Schmidt pledged to reduce national greenhouse gas emissions by 40% by 2020, and to become carbon neutral as a nation by 2050 (Kosiara-Pederson & Little, 2016). Environmental issues tend to be more salient in Denmark than in other EU countries and despite recent declines in concern about environmental issues as a result of a recently elected conservative government, there is broad political consensus about the importance of energy policy (Kosiara-Pederson & Little, 2016).

Meanwhile, in the United States, no comprehensive federal energy policy has ever been passed into law. Development and enforcement of energy policy is left to the states, creating a disconnect in prioritization and policy as a result of variable interstate factors such as state affluence and fossil fuel production (Vassuer, 2016). Although President Obama made climate change and energy policy a cornerstone of his 2008 campaign, promising to cut carbon dioxide emissions by 80% by 2050, his Clean Power Plan struggled to gain any traction in Congress (Konisky & Woods, 2016). As of 2015, 67% of all energy in the United States was generated from fossil fuels (coal, natural gas, and petroleum) and 11% was generated from hydropower and other renewables including biomass, geothermal, solar, and wind ("What is U.S. electricity generation," 2016).

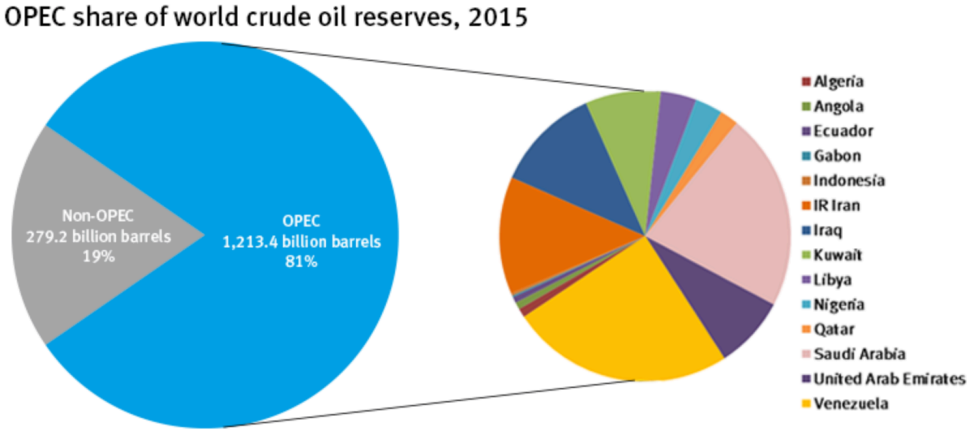
Energy policy in Denmark and the United States had similar beginnings, and prior to 1973, both countries had undeveloped policies. Both countries were highly dependent on foreign oil, with Denmark importing 90% of its oil, with 90% coming from OPEC countries, and the United States imported 31.9% of its total petroleum 31.9% by 1976 (Sovacool, 2013; Ghosh, 1983). Therefore, both countries were heavily impacted by the 1973 OPEC embargo and consequent oil shortages. Each country was forced to implement emergency energy saving measures to counteract the sudden shortages. Both countries put an immediate emphasis on transitioning to coal, but the similarities stop there. Denmark responded to the 1973 oil crisis by investing heavily in renewable energy, while the United States used energy saving methods and an adjusted energy mix as a short-term, temporary solution until the price of oil dropped again in 1986 (Rüdiger, 2014; Shum, 2015). The energy policies established in the wake of the 1973 OPEC oil crisis set a precedent for Danish and American national energy policies, the effects of which can be seen in modern discussions about environmentalism and climate change.

Prior research offers extensive insight into Danish and American energy policies that came immediately after the oil embargo up through the present day. Comparisons from a political and economic theory perspective attempt to explain the efficacy of differing energy policies. The social structures in each country have been analyzed to determine how and why certain policies (not limited to energy policy) can be successful. These two sets of factors have been treated separately, and the prior literature lacks an analysis of how Danish and American normative and structural factors drive environmental policy.

1.2 Literature Review

1973 OPEC Oil Crisis: Explanation and Implications

Established in 1960, OPEC, or the Organization of Petroleum Exporting Countries, is a permanent intergovernmental organization comprised of 13 member countries. As of 2017, the Member Countries are: Algeria, Angola, Ecuador, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The OPEC Members are a heterogeneous group, spanning the Middle East, Africa, and South America. The countries are ethnically and politically very different, but they are united by a common goal of using their resources to advance more modern, independent nations (Vernon, 1976). OPEC's self-stated goal is "to co-ordinate and unify petroleum policies among Member Countries, in order to secure fair and stable prices for petroleum producers; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the industry" ("About Us"). Approximately 81% of the world's crude oil reserves are under OPEC's jurisdiction, with Venezuelan and Saudi Arabian reserves being the largest.



OPEC proven crude oil reserves , at end 2015 *(billion barrels, OPEC share)*

Venezuela	300.88	24.8%	Kuwait	101.50	8.4%	Qatar	25.24	2.1%	Indonesia	3.23	0.3%
Saudi Arabia	266.46	22.0%	United Arab Emirates	97.80	8.1%	Algeria	12.20	1.0%	Gabon	2.00	0.2%
IR Iran	158.40	13.1%	Libya	48.36	4.0%	Angola	9.52	0.8%			
Iraq	142.50	11.7%	Nigeria	37.06	3.1%	Ecuador	8.27	0.7%			

Source: OPEC Annual Statistical Bulletin 2016.

Source: OPEC Share of Crude Oil Reserves

By creating OPEC, the Member Countries established a greater degree of political power in the international sphere. This was demonstrated by the Oil Embargo of 1973. In response to U.S. support for Israel in the Yom Kippur War, in October 1973 the Arab members of OPEC declared an embargo against the United States and many other countries who supported Israel, including Denmark. The embargo ceased imports to the U.S., the price of oil quadrupled from $2.90/barrel to $11.65/barrel in January 1974 (Corbett). Although the embargo was lifted in March 1974, the high prices remained.

This embargo had significant political and economic implications. In the U.S., nationwide fuel shortages saw Americans lining up at the pump to purchase the meager supplies of oil. This scene demonstrated to people the degree of American dependence on foreign oil, and oil in general. The cost to the consumer skyrocketed, but the embargo also unbalanced American and foreign economies. The acknowledgement of American vulnerability would ultimately inspire President Nixon to implement "Project Independence," a new national energy policy to promote energy independence.

Denmark: Energy Policy from 1973-Present

1973 Oil Crisis & DE-76 (1976)

Prior to the late 1950s, Denmark was a predominantly agricultural society with correspondingly low energy demands, and "only around 1960 did consumption reach a level equivalent to that of the countries with which Denmark normally compares itself" (Rudiger, 2014). At the time, Denmark had no domestic sources of energy (despite untapped oil reserves in the Danish sector of the North Sea) so by 1973, 90% of Denmark's energy consumption was oil and 90% of this oil was imported from the Middle East. Without a diversified energy source,

Denmark was vulnerable to political shifts in supply, but the lack of energy policy and a general governmental focus on other issues meant that lawmakers ignored this insecurity until they were forcibly confronted with the 1973 OPEC embargo (Rudiger, 2014).

The immediate policy response was to secure the energy supply. To do so, the Danish government passed the National Energy Policy of 1976 (DE76) which introduced energy taxes and energy planning to enhance use of combined heat and power (CHP) methods (Danish Energy Agency, 1998). CHP captures surplus heat from power plants to heat nearby buildings. The government also began exploring natural gas resources in the North Sea through the Natural Gas Supply Act (1979) (Sovocool, 2013). Investing in nuclear power was considered for the first time, but significant public, political, and scientific pressure made nuclear unpopular. Renewable energy was preferred (McBryan, 2009). Beyond securing the supply, this new Danish energy policy also placed strict restrictions on energy consumption, particularly in the transportation sector. These included mandated car-free Sundays, adjusted speed limits, and turning off every other street lamp to save power (Rüdiger, 2014). Rüdiger (2014) asks the question "why were such strong measures applied? And why did the Danish population accept these measures as precautions with which they simply had to comply?" (Rüdiger 2014, p. 102). He posits that the answer lies in the strong Danish welfare state, but he does not consider the values underlying this willingness. This paper will attempt to answer that question by identifying the relevant social, structural, and normative factors that drive energy policy.

In terms of diversifying the energy supply and reducing reliance on foreign oil, the following were considered successes (Sovocool, 2013; Sill, 1986; Rudiger, 2014).

1. Overall energy consumption declined 15% by 1983.

2. Energy self-sufficiency increased from 0.4-13.3% by 1983, largely due to exploitation of the 2.2 million tons of oil from the Danish sector of the North Sea.
3. Between 1976 and 1981, "Danish electricity production changed from 90 percent oil-based to 95-percent coal based" (Sovocool, 2013, p. 831). While coal is still a fossil fuel, this was considered a success for Danish energy security and demonstrated the country's commitment to making a rapid transition away from oil. Starting in 1985, the country began an aggressive transition to wind power.
4. In 1978, Denmark produced 11 TJ (terajoules) of wind power. By 2010, this number rose to 28,114 TJ, or 28% of the country's electricity demand (Sovacool, 2013).

EP-81 (1981)

Once the energy supply was secure, socio-economic and environmental considerations were worked into the official national energy policy in Denmark, EP-81. Energy Plan 81was largely targeted at acquiring energy at the lowest possible cost. To do so, the oil and natural gas reserves in the Danish sector of the North Sea were developed, and the government "tried to ensure that renewable energies generated from the wind turbines and biomass plants were competitive in the market by instituting heightened taxes on fossil fuels, oil, and coal" (Kaplan, 2010, p. 2). The revenue from these taxes was reinvested in research and development for renewable energy technologies which, according to Kaplan (2010), "demonstrated to both Danish citizens and the world that solving the energy crisis was one of Denmark's top priorities" (p. 2) The national government continued debating the merits of investing in renewable energy versus nuclear power, but public pressures took nuclear energy entirely off the table by 1985 (McBryan, 2009). Politics played a large role in this new policy, as a "green majority" had been elected to Parliament in the form of the Socialist People's Party, the Social Democrat Party, and the

Radical Liberal Party (Kaplan, 2010). EP-81 was a significant step towards renewable energy and away from fossil fuels in Denmark.

Energy 2000 (1990) and Energy 21 (1996) - Present

Energy 2000, the third substantial piece of Danish energy policy legislation, was introduced in 1990 and placed further emphasis on developing renewable energy, particularly biomass. The plan targeted the 1990-2005 period, with the goal of reducing CO2 emissions by 20% compared to the 1988 level (Kaplan, 2010; Danish Energy Agency, 1998) Taxes on fossil fuels increased further from EP-81 levels, and the government set the goal of converting 10% of power production to wind (Kaplan, 2010). Energy 2000 was highly successful, so in 1996 the government passed Energy 21, which set even more ambitious goals for renewable energy use. In addition to the Energy 2000 provision of reducing carbon dioxide emissions 20% by 2005, it added the goals of reducing 50% by 2030 and receiving 35% of the country's energy from renewable sources by 2030 (Danish Energy Agency, 1998). Energy 2000 and Energy 21 made renewable energy, particularly wind, a staple component of Danish energy planning. In the years since, renewable energy dominates the policy agenda, while expanding fossil fuels and nuclear energy are not considered options.

With regard to the current debates about global climate change, Denmark continues to value environmental issues but other policy debates, especially immigration, dominated the 2015 general election. In 2012, then-Prime Minister Helle Thorning-Schmidt set the ambitious goal of reducing national greenhouse gas emissions by 40% by 2020 and by 100% by 2050 (Kosiara-Pedersen & Little, 2016). The government elected in 2015 did not include environmental concerns in its list of Top 9 priorities, but making Denmark carbon neutral by 2050 is still on the agenda (Kosiara-Pederson & Little, 2016).

United States: Energy Policy from 1973-Present

The United States was also hit hard by the OPEC oil embargo in 1973, and the immediate response was to prioritize economic recovery. In terms of policy, this meant further developing domestic oil reserves. The United States had substantial reserves, and was a top global producer prior to its peak in 1970 (Shum, 2015). President Nixon, followed by President Carter, made substantial policy promises that emphasized energy independence and security for the U.S.

Nixon Administration, 1973-1977

Nixon was president at the time of the OPEC oil embargo in 1973, and his response to the crisis was to pass the 1973 Emergency Petroleum Allocation Act (EPAA), then to establish the Federal Energy Administration which created 'Project Independence.' The EPAA attempted to maintain a competitive domestic oil market by equalizing the costs of crude oil. Refineries with access to "cheaper, price-controlled crude oil, in effect, subsidized other companies that relied heavily on more expensive imported or uncontrolled domestic oil" (Ghosh, 1983, p. 162). In theory, this program would incentivize domestic production for smaller companies, but in practice it created a more complicated bureaucratic environment. Next, the Nixon administration created the Federal Energy Administration (FEA), which was meant to be a temporary means of coordinating domestic energy policy and establishing a national policy. The FEA created "Project Independence", with the goal of making the United States energy independent by 1980 (Kaplan, 2010; Shum, 2015). These goals were never enforced or met, because of the complex and idealistic nature of the policy, but also due to Nixon's resignation after the Watergate scandal.

Given that Republicans today fiercely oppose federal oversight of environmental matters, it is important to note that the Nixon Administration was one of the most influential

administrations in terms of promoting environmentalism. Capitalizing on the political appeal of environmental issues, Nixon created the Environmental Protection Agency (EPA), the Clean Air Act, the Council on Environmental Quality, and the Clean Water Amendments. This allowed him to pass legislation despite a divided Congress and White House (Rosenbaum, 2008).

Carter Administration: 1977-1981

President Carter made the environment a cornerstone of his administration, placing a primary focus on reducing oil consumption by converting oil and gas resources to coal, and promoting the development of renewable energy sources (Ghosh, 1983; Shum, 2015; Kaplan, 2010). This contrasted with Nixon's attempts to increase domestic production of oil. Carter proposed the National Energy Plan (NEP) in 1977, stating that "Because we are now running out of gas and oil, we must prepare quickly for a third change, to strict conservation and to the use of coal and permanent renewable energy resources, like solar power" (Shum, 2015, p. 387). The specifics of this policy include a crude oil equalization tax, which raised the oil price to world levels, as opposed to low domestic prices. This was meant to discourage oil consumption (Ghosh, 1983). Carter set the goals of reducing oil consumption 10% by 1985, and substituting coal for 10% of oil and gas consumption (Ghosh, 1983). Carter's plan was very unpopular in Congress and various Senate committees gutted the bill, particularly the tax components. Ultimately, political disagreement made it nearly impossible to pass. According to Ghosh (1983), Carter's plan was too bureaucratic in nature to make the changes the United States needed in the area of energy policy.

Obama Administration: 2008-2016

Given the current conversation about global climate change, President Obama made environmental policy a key component of both his presidential campaigns and his policy agenda.

His major environmental policy points included the American Recovery and Reinvestment Act (2009) and the Environmental Protection Agency's Clean Power Plan (2015). Historically, environmental policy has always been implemented at the state level, but the Obama administration marked the beginning of an era of "environmental federalism," intervention and regulation at the federal level (Konisky & Woods, 2016).

The American Recovery and Reinvestment Act, a stimulus package of $840 billion intended to jumpstart the U.S. economy during the Great Recession, was also a means for the Obama Administration to implement policy goals, including environmental policy (Konisky & Woods, 2016). The ARRA invested $66 billion in energy technology, green jobs, and energy efficiency, "the largest federal infusion of fiscal resources into energy-related activities in modern history" (Konisky & Woods, 2016).

In 2015, the EPA published its new emissions standards as the 'Clean Power Plan'. If passed, the Clean Power Plan mandates a 32% reduction in carbon dioxide emissions from existing power plants by 2030 (compared to 2005 levels). This 32% represents the national average of emissions; depending on how individual states generate their power, some states face different targets. For example, Vermont has a 0% emissions reduction target, but South Dakota faces a nearly 50% reduction by 2030 (Konisky & Woods, 2016, Figure 1). States are given the power to determine how they will meet these new emissions standards, be it through increased energy efficiency or through a cap-and-trade program (Konisky & Woods, 2016).

It is important to note that the Clean Power Plan is highly controversial, and a resolution was passed in both chambers of Congress that could nullify the Plan. At this point, the fate of the CPP will be determined in federal courts (Konisky & Woods, 2016). However, President-elect

Trump has promised to repeal the Clean Power Plan early in his administration, so it is unlikely that the CPP will continue.

A Comparison of Denmark and the United States

The role played by the national government in the making of energy policy reveals a critical difference between the United States and Denmark. Since the 1970s, Denmark has centralized its energy policy within the national government. The United States, on the other hand, has never passed a comprehensive federal energy policy. Energy policy, including renewable energy policy, has been left to the individual states, each of which implements a very different policy (Vasseur, 2016). The role of the states will be elaborated in the next section.

Prior scholarly literature has analyzed the policymaking process in either the U.S. or Denmark to determine what contributes to the success of environmental policy, and/or the saliency of environmental policies in social and political discourse (Lowry, 2014; Mendonca et al., 2009; Vasseur, 2016). Additionally, the U.S. and Denmark have been compared together in several studies (Mendonca et al., 2009; Baumgartner et al., 2009).

Baumgartner et al. (2009) analyzes the policymaking institutions in the U.S., Denmark, and Belgium to determine if institutional structure affects the efficiency of policy outcomes. In the United States, policymaking is designed to be inefficient and only minimally responsive to public opinion, whereas in Denmark, the government is held much more accountable to the will of the people. The authors analyze this by measuring the 'friction' of policy issues as they progress through the policymaking process. Theoretically, the structural characteristics of political systems are likely to create differing amounts of friction in the policymaking process. Ultimately, Baumgartner et al. (2009) found no significant difference in the efficiency of policy outputs between the two countries' political systems. The authors suggest that further research is

required to understand qualitatively why friction is lower in some institutions than in others (Baumgartner et al., 2009). One possibility is that these discrepancies could be a result of the normative factors that influence public opinion and thus policymaking in the two countries.

Mendonca et al. (2009) look specifically at the two countries' environmental policies and analyze them through a political and economic lens. Mendonca et al. (2009) analyze the implementation of Danish and American energy policies in the context of political theory. The U.S. has historically incentivized the development of renewable energy technologies, specifically wind, using federal tax credits that have "ensured that only a few large corporate entities and wealthy individuals participate in the wind and solar markets" (Mendonca et al., 2009, p. 379). As of 2009, only 4% of installed wind capacity are small-scale installations. The American wind market is driven by "inherently inequitable incentive" (Mendonca et al., 2009 p. 381). American citizens are less informed about renewable energy and generally less responsive to expanding the technology than are the Danes. The authors credit a combination of the cooperative ownership model (which generated popular support), the balance in Parliament, and strong grassroots advocacy for the success of the Danish wind industry. By 2001, 80% of wind turbines in Denmark were owned by individuals or cooperatives, and covered 10% of energy consumption by 2005 (Mendonca et al., 2009). They also assert that the success of Danish energy policy is dependent on the political approach taken, arguing sustainable energy technologies are more successful in times when a concrete institutional economy and innovative democracy approach dominated the political process, but that renewable energy faltered when a neoclassical approach dominates (Mendonca et al., 2009, p. 389). They do not offer the same analysis about American politics, but apply their conclusions from Denmark to the U.S. Based on the Danish case, the authors ultimately conclude that the key to successful renewable energy technology is direct

investment by local communities, an innovative democracy approach, and increased citizen involvement. Only through "long-term, stable support schemes which allow a multiplicity of actors to invest" does wind technology thrive (Mendonca et al., 2009, p. 394). Here, the authors use the Danish case to make recommendations for how policy may be effectively implemented, but do not address the underlying factors that influence the efficacy of policy.

To analyze renewable energy specifically in the United States, Lowry (2014) and Vassuer (2012) offer some insight into the structural mechanisms that drive energy policymaking at the federal and state levels, respectively. Lowry (2014) analyzes the saliency of energy issues in the U.S. He argues that, despite the fact that 76% of the American public support increasing solar power, suggesting the issue of the environment and renewable energy has saliency with the public, no comprehensive federal policy has been implemented. Lowry (2014) recognizes that there are factors unrelated to of the will of the people that drive the efficiency of energy policymaking at the federal level. Through a content analysis of *New York Times* articles about energy issues from 1952-2009, he determines that three issues tend to increase salience of energy issues in the U.S.: gas prices, the liberalness of Congress, and unanticipated shocks (such as the 1973 oil embargo). He concludes by stating that "higher salience on the public agenda may not lead to action in the decision agenda" (Lowry, 2014, p. 168).

Vasseur (2016) analyzes how different states implement energy policy. Since there is no comprehensive federal policy, individual U.S. states are left to handle energy policy. He finds that states use either incentives or mandates to implement renewable energy policy. Few states adopt only mandates and policy is typically entirely incentive based or a mix of both incentives and mandates. The combination of incentives or mandates depends on state affluence, influence of environmental movements, and in-state fossil fuel production. Higher state affluence and a

stronger presence of environmental movements result in more renewable energy policy action. States that produce fossil fuels are less likely to provide incentives. States labeled as "neoliberal" by Vasseur (states with right-to-work laws and low welfare spending) have a tendency to adopt more incentives-based policies, regardless of fossil fuel production. This paper considers several in-state factors determining how energy policy is implemented, but does not provide insight into how laws are passed, or analyze any federal factors. Vassuer (2012) and Lowry (2014) both attempt to provide structural explanations of U.S. environmental policy but further study is required to find comparable information about Denmark.

Beyond discussions of the policymaking process alone, some prior research has focused on how political values influence the implementation of energy policy. Dunlap et al. (2010) analyzed the correlation between one's political party (Democrat vs. Republican), ideology (liberal vs. conservative), and position on environmental policy and environmentalism. Democrats and liberals were found to be significantly more pro-environment than Republicans and conservatives, but these gaps in opinion are much narrower among the public than among elected politicians. Interestingly, "partisan and ideological differences exist not only on specific policy issues or questions such as strong enforcement…or increased government spending… but are apparent in attitudes towards and involvement with the Environmental Movement" (Dunlap et al., 2010, p. 45). Dunlap et al. (2010) argues that this is due to the 'liberal cast' of environmentalism, rather than solely concerns about government intervention or spending.

In terms of the political factors that influence Congressional voting on an environmental issue, Ralston (2015) addresses the political side of voting on biofuels. He finds that the House of Representatives is more political and influenced by party and ideology, rather than constituency. The Senate is less political, and constituencies are more influential than party

ideology. Given that representatives are elected more frequently, they are more subject to partisan changes than senators. In the case of biofuel policy, "When the concentration of agricultural interests in a legislator's district or state was great enough, it could override the effects of party" (Ralston, 2015, p. 340). Therefore, special interests have an outsized influence on the voting choices made by members of Congress. Ralston concluded more broadly that "political considerations are likely to trump scientific concerns" (Ralston, 2015, p. 341). This begs the question, if political interests are so much more influential than science, how can we create lasting renewable energy policy? Tomain (2015) says the best way to reframe the political debate is to transition away from fossil fuels and towards renewable energy, thereby merging energy and environmental policy. Energy policy has long been synonymous with economic growth, while environmental policy has been considered more altruistic. Tomain argues that, through local action, the two ideologies can be merged to demonstrate that renewable energy investments can benefit both the economy and the environment (Tomain, 2015). His claim that energy and environment should not be considered mutually exclusive is a good one that merits further investigation, as it may provide a normative explanation about why energy policy is so difficult to federally mandate.

A review of existing literature demonstrates that there has been extensive analysis of environmental policy in the U.S. and Denmark, with particular emphasis placed on longitudinal studies of policy since the 1970s. This research is predominantly a summary of policy in relation to the domestic and international events, although some studies about the United States have analyzed how institutional structures and politics influence environmental policy. Danish energy policy is generally viewed as a model example for other countries to follow, but prior studies tend to focus on the written policy rather than the social and political mechanisms that determine

policy outcomes. There has been little or no comparative analysis of Danish and American societies, nor have the implications of these social realities been applied to energy and environmental policy specifically.

Although Denmark and the United States had a similar cause and motivation for building energy policy after 1973, the two countries approached the problem very differently. Both immediately sought to secure their energy supply, but while Denmark turned away from oil and invested in coal and wind power, the United States worked to develop domestic sources of oil to eliminate dependence on foreign oil. For Denmark, oil was the problem; for the United States, oil was the solution. Why did they come to such different conclusions, and why has Denmark been so much more "successful" in implementing renewable energy policy in the years since? I believe the answer lies in structural and normative factors within the two countries that influenced which policies were prioritized.

Not only have Denmark and the United States taken vastly different paths in the realm of energy policy, but the two countries are drastically different in terms of their political structures and social norms and values. These frameworks determine the issues that matter to the public, and the success of policymaking plans to solve these issues. The environment is viewed differently in each country, and policy responses have been correspondingly different. Therefore, if we want to understand how and why energy policy is made, we must first analyze the societies that have built those policies. This thesis seeks to understand these particular underlying structural and normative factors that are distinct to Denmark and the U.S. respectively. Once these factors have been identified, they will be applied to the realm of energy and environmentalism to explain the motivations behind each country's policies. To conclude, environmental issues in the United States will be explained in context and I will recommend

issue framing tactics to increase concern about energy and environmental policy in the United States. Ultimately, I hope to determine whether any specific Danish policy initiatives can be realistically applied to the United States, or if the normative and structural factors that drive policy creation are two disparate to be reconciled.

This thesis will attempt to answer the following question: How can normative and structural factors influence the implementation and success of energy policy (specifically renewable energy policy) in the United States? Using Denmark as an example of successful policymaking and implementation, how can the United States create effective and lasting energy policy?

I will begin with an analysis of Danish structures and norms in the next chapter. First, I will discuss the nation's political history and modern political structure as an explanation for its support of a strong federal government. Then, I will discuss the Danish cultural norm of egalitarianism and anti-elitism. These structural and normative factors will then be applied in context to understand Danish energy policies and environmentalism. The following chapter will analyze American society in the same way: first, identifying the particular structural and normative factors that define the United States, and then applying those factors to energy policy specifically. The final chapter will frame the importance of creating renewable energy policy in context through examples of climate change impacts across the United States, and will suggest a method for reframing the issue of energy policy to be salient with the American public.

CHAPTER 2: THE DANISH PERSPECTIVE

2.1 Introduction

Denmark is a country located in Scandinavia, adjoining Germany on its southern border. The country has a population of approximately 5.75 million people, and is the geographically smallest in Scandinavia. Officially called the Kingdom of Denmark, the sovereign state also includes the Faroe Islands and Greenland. Both the Faroe Islands and Greenland are represented in the Danish parliament, but are individually governed by home rule. The capital city, Copenhagen, is home to roughly 1.2 million people and is the cultural, political, and economic center of the nation.

Denmark has been a member of NATO since 1949 and the European Union since 1973, although the country maintains the use of its own currency, the Danish krone. Denmark's per capita GDP in 2015 was estimated at $46,600 USD, making it the 31st most wealthy nation in the world (The World Factbook: Denmark, 2017). Denmark's economy is mainly driven by agriculture and industry, with major production in pharmaceuticals, shipping, and renewable energy. As of 2012, the country receives 43.1% of its total installed electricity capacity from renewable sources (The World Factbook: Denmark, 2017). In this capacity, Denmark receives more energy from renewable sources than any other nation.

Denmark's specific political, social, and physical characteristics provide insight into why the country makes and supports certain national policies, particularly renewable energy policy. The Danes are strongly connected to their central government, indicated through a long history of support for the crown and a current high proportion of voter participation (DeSilver, 2016). Public support for the Danish welfare state, as well as the services provided therein, enhance support for centralized national policies. As a whole, a hallmark of Danish society is a strong

identification with country and status as a Dane, as indicated by culture norms including cycling culture and the Danish tradition of *hygge*. Physically, Danish land is well equipped to support renewable energy infrastructure, particularly wind turbines. These structural, cultural, and physical factors all contribute to a society that values environmentalism and therefore supports and implements significant renewable energy policy.

2.2 A History of Trust: Danish Government and Politics

A Historical Context

The Danish government is a parliamentary constitutional monarchy, and is the oldest monarchy in Europe. The people of Denmark have a history of support for their monarch that has translated into support for their centralized government, after the transition away from an absolute monarchy to a parliamentary democracy.

In 1282, King Erik Klipping was coerced into signing an assurance that "limited the expansion of his power and safeguarded the traditional rights of the church, the nobility, and the freemen of Denmark" (Andrén, 1964, p. 28). This was, effectively, Denmark's first constitution, and the tradition of signing such an assurance lasted until the emergence of an absolute monarchy in the 1660s. This period of despotism was a result of support for the king by the commoners, and this tradition lasted until the early 19th century, when farmers began to gain more independence and elementary education was made compulsory. This increased the power of the common man in Denmark, which resulted in the passage of Denmark's constitution in 1849. The June Constitution of 1849 created a bicameral parliament. The *Folketing*, or lower house, was directly elected, and the *Landsting,* or upper house, was indirectly elected. As was

typical of the era, women were excluded from any political rights, but the rights to equality, civil liberties, and property were guaranteed for men. (Andrén, 1964).

Due to political and social pressure, the Constitutional Act was amended in 1953, which remains the present form today. The Constitution was updated by creating a unicameral parliament, simply called the *Folketing*, and allowing for the succession of the crown to women. The Constitution has four fundamental principles: the Constitution shall apply to all parts of the Kingdom; royal power may be inherited by both men and women; legislative power belongs jointly to the king and *Folketing*, executive power lies with the king, and judicial power with the courts; and that the official established religion is Evangelical Lutheranism (Denmark 1953).

Present Day

Today, the Danish government remains a parliamentary representative democracy with a constitutional monarchy. Denmark, and Scandinavia generally, has been hailed in recent years by the likes of Bernie Sanders as "socialist", but the country is not socialist. The country acts as a social democracy, which "aims to promote public welfare through heavy taxation and spending, within the framework of a capitalist economy" (Iacono, 2016). Therefore, there is a large amount of state intervention and control in Denmark, but it is important to note that Denmark operates on a capitalist model, not a socialist model. This intersection of capitalism and social safety nets is known as the Nordic Model, and it promotes free trade, thereby distinguishing the Danish approach from a purely socialistic model. Denmark is a highly globalized country, is a net exporter of food, oil, and gas, is an international leader in the development and export of renewable energy technologies, particularly wind turbines (The World Factbook: Denmark, 2017).

Danish politics operate on a multiparty system: there are nine major parties, with two or three dominant parties. As of the 2015 general election, the dominant parties are the Social Democrats (center-left), the Venstre or Denmark's Liberal Party (center-right), and the Danish People's Party (right-wing). Not since 1901 has a single party held an outright majority, but parties ideologically align as "red bloc" (leftist) or "blue bloc" (right of center), which serves to guide policy (Nardelli, 2015). In the 2015 election, the "blue bloc" narrowly won a majority, with Venstre's Lars Løkke Rasmussen elected as Prime Minister. The 2015 election centered largely on concerns about immigration and national security.

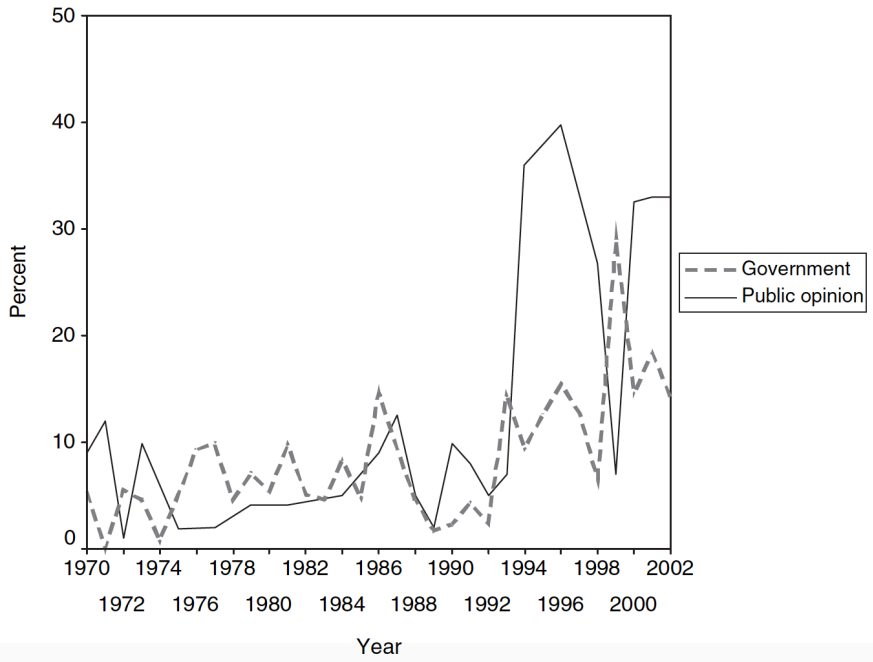
Relevance

The evolution of the Danish government and monarchy is important to how present-day Danes view their government, and the degree to which Danes feel they can rely upon their government to be responsive to popular opinion. The period of absolute monarchy from the 1660s to mid-1800s was largely supported by peasants and the lower classes. Prior to the period of absolutism, the aristocratic class had held the majority of power in Denmark for almost 400 years. The King needed support, so the "establishment of absolutism had the paradoxical effect that privileges were stripped from the nobility and granted instead to this new class of citizens [the bourgeoisie]" (Bang et al., 2000, p. 378). Danish society was little impacted by the ideals of the French Revolution, which demonstrated that Danish citizens were comfortable with absolutism and a highly centralized government.

This relationship is reinforced today through compulsory referenda, which are required in instances of constitutional amendments. Perhaps because of these factors, the Danish population has a consistently high voter turnout. Per a 2015 Pew Poll, 80.3% of the voting age population voted in the 2015 general election; Denmark had the fifth highest voter turnout of the 35

countries polled (DeSilver, 2016). This dedication to the Danish government is reciprocal. A 2005 study by Hobolt & Klemmenson investigated policy responsiveness to issues of public opinion in Denmark, and found that public opinion generally impacted policy responsiveness within one year. It was hypothesized that, as a proportional democracy, Danish elected officials were held to greater accountability and are therefore forced to respond more quickly to public opinion (Hobolt & Klemmenson, 2005). Their study analyzed public opinion polls versus the content of opening speeches in Parliament, which were used as an indicator of the government's policy agenda. It was found that there is approximately a one year time lag between public opinion and policymaking in Denmark, and responsiveness is generally high. The graph below details the relationship between public opinion and policymaking over a 30-year period

Figure 4: The Salience of Social Problems in Denmark



Source: Hobolt & Klemmenson, 2005

This graph shows that public opinion sometimes leads policymaking, but not always. However, the relationship between the two is tight and occurs over a short time period.

As a result of Danish political structure, Danish society has a generally positive view of their government and there is a high degree of responsiveness to public opinion. It can be argued, therefore, that policy issues of importance are quickly considered and implemented by the Danish government, and the citizens are trusting of the decisions made by their government. This can reduce resistance to government actions, particularly for policies that require a large amount of state involvement, such as energy and environmental policy. The right of center "blue bloc" won a majority Danish Parliament in 2015, which has shifted the emphasis away from environmental issues.

2.3 We're All Danish: Danish Culture and Normative Values

Beyond a common trust in their government and acceptance of centralized government authority, there are important elements of Danish culture that represent shared normative values. While local community is important, there is also a focus on addressing common concerns on a larger scale. Political community can exist on a national scale, and this sentiment is manifested through support for the welfare state and communal, anti-elitist actions such as Danish bike culture and the tradition of *hygge*.

The Welfare State: Structure and Public Opinion

Denmark, along with its Scandinavian counterparts, operates on a full welfare system that covers healthcare (including paid parental leave) and higher education. To fund these services, Denmark has one of the highest tax rates in the world. In 2012, the average single person paid 38.4% tax, with a top marginal effective rate of 60.1%. Tax revenue accounted for 48.6% of the country's revenue in 2013. According to the Organization for Economic Co-operation and Development, Denmark is ranked third globally for income equality, behind only its

Scandinavian counterparts Iceland and Norway. In Denmark, the top 20% earn roughly four times more than the bottom 20%. In the United States, this figure is doubled to eight times ("Income: Income Inequality," 2016). Perhaps due to this greater income equality, Danes act in a more communal manner, working towards the common good of their fellow citizens and rejecting elitism.

The Danish welfare state is both an economic and cultural institution and it is, for the most part, supported by Danish society. The social safety nets provided by the Danish welfare system are significant, and the economic benefits are well-established. Healthcare and education are universally free. Danish students over the age of 18 who live on their own receive a state issued monthly stipend the equivalent of $1000 USD, and students living with their parents can receive roughly half that amount. By including higher education in the welfare state and subsidizing the cost of living, the Danish government guarantees the ability of any citizen to receive an education, regardless of social standing. As a result of this emphasis on education, Denmark has a highly skilled labor force. The safety net extends to businesses as well. A "flexicurity model" allows Danish companies to compensate for economic downturns with quick layoffs and the laid off workers are trained and given guidance for new careers (Olsen & Rising, 2014). The Danish welfare state has promoted gender parity in the workforce, as state-subsidized daycare has allowed women with children to maintain full time work at higher rates than countries without such a provision. As previously stated, this system does require high tax rates, but per a 2014 Gallup poll, 9 out of 10 Danes "happily pay their taxes to some or a high degree" (Wiking, 2016). It is viewed by many as an investment in a quality of life that is worth the price.

Several social and political scientists have analyzed the sources of welfare-state support in Denmark. In 1992, Jørgen Andersen analyzed fluctuations in support for the welfare state

between the 1970s and 1980s, and used a bivariate cross-tabulation to determine whether support for the Danish welfare state was individually motivated or a social-structural determination based in values and norms. No significant relationship was found between a person's opinion of the welfare-state and their relationship to the welfare state (taxpayer, public employee, state dependent, or consumer). This suggests that support for the welfare state is not fundamentally self-interested. Andersen also analyzed "way of life factors" (social class, family structure, and gender). His social class study found no substantial differences among various groups' opinions of welfare benefits, even when the payoff from each benefit was not felt equally. For example, there was even support for education (more beneficial to upper classes) and social security benefits (more beneficial to lower classes). Similar results were found for other "way of life factors", including family structure, gender, and age. It was determined that "interests are almost irrelevant as determinants of welfare state support in Denmark, except if these interests express way-of-life differences" (Andersen, 1992, p. 43). Conventional wisdom would suggest that the only reason to support a welfare state is the possibility of individual gains, but these findings suggest that the support Danes have for their welfare system is largely motivated by a desire to improve their quality of life, rather than to benefit economically. This preference was seen across multiple public expenditures, including the environment.

Cultural Anti-Elitism

As previously demonstrated, popular support for the welfare state exists across economic lines and the relatively small income gap has created a culture of egalitarian anti-elitism that values acting for the common good rather than solely personal gain. This is demonstrated through the cultural staples of bike culture and *hygge*.

In Denmark, social and structural factors have led to the rise of bike culture. In Copenhagen, 50% of commuters get to and from work on a bicycle, including 63% of members of Parliament ("Bicycle Culture"). Biking culture is so intrinsically Danish that it has its own page on denmark.dk, the country's official website. The discussion below is based on this information.

Before the advent of the car, many Danish citizens, particularly residents of Copenhagen, used bicycles as a means to escape the congestion of urban life. The bicycle became fashionable in the late 1800s, and came to symbolize freedom- an interpretation that lasts today. After the Great Depression, however, cars and consumerism became global symbols of prosperity, and bicycles briefly fell out of fashion. Then, in the mid-twentieth century, several factors combined to re-popularize the bicycle. High rates of traffic accidents and urban pollution from personal vehicles created a sense of nostalgia. This, combined with rising environmentalism and the 1973 OPEC oil crisis, saw a return to cycling culture. The oil crisis played a large role in this transition, as stringent oil reducing policies were implemented, including "Car Free Sundays", which prohibited the use of private cars for eleven consecutive Sundays (Rüdiger, 2014). Today, convenience and environmental and public health concerns have kept the bicycle in fashion ("Bicycle Culture").

Within the municipality of Copenhagen, cycling is made more attractive by developing cycling infrastructure and discouraging the use of cars within city limits. In Copenhagen, there are more than 390 kilometers of designated bike lanes. Residents bike 1.2 million kilometers per year, roughly double the 660,000 kilometers traveled annually in the metro system ("Bicycle Culture"). The registration tax on new car purchases is 150%, and the price of gas hovers around USD $6.00 per gallon (Barrett, 2015; Olsen & Rising, 2014). There is a significant economic

barrier to owning and operating a car in Denmark, and given the well-developed bicycling infrastructure, it is unsurprising that cycling is a popular alternative. The public transportation sector is also well established. The Copenhagen Metro system is currently being expanded, with two new lines and 17 new stops to be completed in 2018 to meet increased ridership demand which is expected to reach 72 million passengers annually ("Expansion of the Metro"). Therefore, the Danish preference for cycling is not a result of poor transportation infrastructure, but rather an appreciation for the social and environmental benefits of cycling. Although many Danes cycle simply for convenience, this trend is consistent among all social classes- even the royal family participates. Bicycle culture is an example of a cultural custom that is not explicitly egalitarian, but aligns with this broader Danish ideal.

Another important element of Danish culture that reflects the national trend towards anti-elitism is *hygge*. *Hygge* is a deeply Danish concept, a cultural standard to which all social interactions aspire. There is no direct English translation of *hygge*, but it is typically translated to mean "a form of everyday togetherness". It exists in quiet, casual social interaction, not at the high-energy level of a party, but rather in the feeling of completeness and belonging one gets from spending quality time with close friends and family. It is an abstract concept, but one that is central to Danish culture and dictates how individuals behave.

A 2011 study by Jeppe Trolle Linnet analyzed *hygge* as a form of social control, given its egalitarian nature and how it informs social behavior. Linnet argues that *hygge* is a social equalizer, because in many ways it is viewed as a rejection of material goods and luxury, and thus social hierarchy (Linnet, 2011). *Hygge* is inherently simplistic and is often interpreted as a middle-class virtue, making it anti-elitist. *Hygge* has a universally understood meaning, and can be achieved through the same means regardless of a person's socioeconomic position. Therefore,

hygge is another example of a common social goal in Denmark. Danes are constantly striving to achieve a common social standard, which has contributed to building a unified national identity with a strong emphasis on quality of life over individual economic and material gains.

The Danish emphasis on quality of life sheds light on several elements of Danish society that are intrinsically important. First, by subsidizing education, Denmark is continuing a centuries-long tradition of valuing education as a social equalizer. Elementary education has been compulsory in Denmark since the early 19th century. As mentioned in the previous section, increased availability to education helped to elevate the social and political power of the common man. In the same vein, another intrinsic value is an anti-elitist view of society. Because of the welfare state, Danish society experiences low income inequality. With less economic difference among them, Danes reject elitism in favor of egalitarianism. Egalitarianism is a pervasive philosophy and manifested through sociocultural features including bicycle culture and *hygge*. This philosophy emphasizes communal values, meaning that there is a broad degree of consensus about what is important. If a certain value (for example, high regard for the environment) is considered good for society, it is generally met with broad support.

2.4 Danish Physical Resources and Geography

Up to this point, possible support for environmental issues and renewable energy policy has been demonstrated through the political and social conditions in Denmark. An important consideration, however, is whether a country has the physical resources to support renewable energy infrastructure; if not, the implementation of renewable energy policy would be difficult, even with public support.

Fortunately, the geography of Denmark offers several advantages for successfully producing renewable energy from wind: it is extremely flat, and has a lot of coastline. Physically, wind blows much stronger and more consistently over uninterrupted areas, which is important for energy generation from wind turbines. In the presence of mountains, wind is often redirected over and around the obstacles, and this interrupts the kinetic energy of the wind. Wind turbines work best when wind blows directly through the blades, which best occurs over flat surfaces. Denmark has the benefit of a long coastline, meaning the potential for offshore wind farms is high. Although the installation costs of offshore wind are higher, the energy payoff is significantly higher and more reliable. On average, offshore wind is 50% more reliable than onshore wind (Danish Wind Industry Association). Today, more than 40% of Denmark's total electricity consumption is from wind power ("A World-Leader in Wind Energy", 2015).

Another, subtle physical factor that makes Denmark a good candidate for renewable energy policy is its small size. Denmark is roughly twice the geographic size of Massachusetts, and as such its natural resources and climate are consistent throughout the country. One difficulty of renewable energy is its location dependent nature. For example, areas that receive a consistent amount of sun are good candidates for solar power, but in large countries such as the United States, characteristics such as sun exposure are not consistent throughout the country due to its large size. Therefore, in many geographically large countries it is necessary to support infrastructure from multiple different energy sources, adding an extra barrier to energy generation. Denmark is small enough that its climate is consistent throughout, meaning it is possible to administer renewable energy policies that apply on a national scale.

Physical capacity for renewable energy is important, but a country's desire to invest in renewable energy policy is more important when determining the efficacy of implementation.

2.5 Denmark in Context: Implications for Danish Renewable Energy Policy

Danish environmentalism is pervasive throughout society, and mitigating the impacts of climate change and fossil fuels is highly salient. In 2008, the European Commission published a report on the attitudes of European citizens towards the environment. Among the EU residents questioned, Danes were some of the least likely to feel the impacts of environmental problems in their daily lives; however, 91% of Danes interviewed felt individuals bore a significant responsibility for environmental protection (Eurobarometer, 2008). This provides evidence that Danes see an altruistic value in the environment that does not need to be reinforced by personal inconveniences.

Broadly speaking, Danish egalitarianism may be the root cause of support for environmentalism and a transition towards renewable energy over the last 50 years. Many political and social theorists have extensively tried to identify the cause of public opinion towards environmentalism. The Danish case fits well into Douglas and Wildavsky's cultural theory, as described by Carlisle and Smith (2005).

Developed by the anthropologist Mary Douglas in the 1950s, cultural theory attempts to explain societal perceptions of risk as a product of the structures of social organization. This in turn can be used to analyze conflicts in the policymaking process, as the salience of a policy issue is a reflection of the perceive risk associated with that issue. To determine this risk, Douglas and Wildavsky identified two variable aspects of social communities: 'group' and 'grid.' Group refers to "the extent to which people are incorporated into communities…the greater the incorporation, the greater the group influence on individual decisions and the lesser the individual choice" (Carlisle & Smith, 2005, p. 529). This influence is due to a large amount of social interaction- in high group societies, people interact frequently, but in low group

societies, interactions are fewer. The other variable, 'grid,' describes the importance of rules and norms as influencers of behavior and activities. For example, in high-grid communities, characteristics like status and sex can constrain people's behavior and activities, but in low-grid communities these factors have little influence (Carlisle & Smith, 2005). By combining 'group' and 'grid' variables, Douglas and Wildavsky offer four types of social relationships, which can help explain public opinion on policy issues such as environmentalism.

The cultural theory pattern that best describes Denmark is high group and low grid, meaning there is a high degree of social interaction and people are generally treated equally with few social limitations on group engagement. This pattern is called *egalitarianism*. Cultural theory states that egalitarians generally support policies that "reduce risks at the expense of growth" and several studies have identified a strong link between egalitarianism and environmentalism (Carlisle & Smith, 2005). It is also suggested that egalitarians tend to be opposed to nuclear power and offshore oil drilling. This idea of reduction of risk at the expense of growth is also consistent with Danish support for the welfare system; as previously stated, Danes tend to support the welfare state for the sake of quality of life rather than personal gain and report a willingness to pay high taxes. Support for environmentalism is relatively altruistic, given that few impacts of climate change or pollution are rarely felt by an individual but rather impact society broadly.

The Danish emphasis on quality of life considerations extends to the realm of environmentalism and renewable energy policy. Denmark is considered the most sustainably minded nation, due to its aggressive renewable energy policies and goals. In 2014, 57.4% of Denmark's electricity was supplied by renewable energy, and 29.2% of all energy needs were met by renewable energy (World Factbook: Denmark, 2017). The Danish Energy Plan of 2006

pledged to reach 30% renewable energy by 2030 and 100% by 2050, so the country is tracking to meet and surpass those goals. Considering that between 1980 and 2010 Danish energy self-sufficiency increased from 5% to 121%, there is clearly a significant value placed on renewable energy and thus the environment to successfully implement such a seemingly optimistic policy (Sovacool, 2013). This value can be explained through the structural and normative factors identified in the previous section.

The 1973 OPEC oil crisis represented a true turning point for political and social opinions about energy and the environment. Prior to 1973, energy generation in Denmark had been largely decentralized due to a lack of national development. Although Denmark would come to develop significant oil reserves in the North Sea, these were untapped at the time of the oil crisis and Denmark was importing 90% of its energy as oil, 90% of which from the Middle East (Rüdiger, 2014). At the same time, there was minimal social awareness of environmental issues until the 1970s. Without a centralized environmental policy, pollution and environmental degradation were common. In 1976, a new education law was passed that required the teaching of environmental issues in primary and lower secondary schools (Breiting & Wickenberg, 2010). This combination of building a national energy policy and investing in new environmental education initiatives indicated a transition towards environmentalism in the social and political spheres. This education initiative was implemented at the elementary level, which ties into the Danish view of education as an important tool. By introducing environmentalism into education, Denmark helped to ensure that the next generation would be conscious of environmental concerns.

Broadly, the combination of egalitarianism and increased education has framed environmental protection as a valuable quality of life consideration in Denmark. Specifically, the

evolution of Danish energy policy (specifically renewable energy policy) since the 1970s is reflection of the relationship between the Danish people, their values, and the government.

Since 1976, Denmark has had four major energy policies. Each has had the consistent goal of decreasing energy dependence and expanding renewable energy sources. The first plan, the Danish Energy Plan of 1976, was an immediate response to the OPEC oil crisis with the primary goal of reducing Danish dependence on oil as quickly as possible. The first plan did not initially emphasize alternative power sources, like wind, but rather proposed a quick transition to coal and nuclear. The public opposed nuclear power and preferred renewable power, however, and the government adjusted the plan accordingly. Public opposition to nuclear power is consistent with Douglas and Wildasky's theory of egalitarianism, as well as pro-environmental sentiment because nuclear power, while clean, has extremely destructive potential in the case of meltdown. The government's positive response to public backlash is also characteristic of the strength of relationship between citizens and the government, as demonstrated by Hobolt and Klemmenson's finding that the Danish policy is highly responsive to public opinion. Another component of the Danish Energy Plan of 1976 were stringent restrictions on behavior, including car-free Sundays, lowered speed limits, and reduced public transportation, all in the interest of saving energy. These bans were inconvenient, but people accepted them (Rüdiger, 2014). This acceptance is another reflection of the Danish communal way-of-life values, as it was likely viewed as helpful to the whole country, rather than simply inconvenient to the individual.

The next plan, the Energy Plan of 1981, continued to stress a reduction on imported fuels but it incorporated renewable energy as a potential alternative and permanently removed nuclear energy from future energy supply considerations. Both moves were in response to public opinion and pressures on the government. Energy 2000, the third plan established in 1990, maintained

the momentum of renewable energy by setting Denmark's first emissions goals and increasing taxes on fossil fuels. The success of Energy 2000 led to a policy update in 1996, creating the fourth plan, Energy 21, which raised taxes again and updated Denmark's energy goals (McBryan, 2009). The Danish government capitalized on early public recognition of the importance of energy independence, and maintained the momentum towards renewable energy (especially wind) by setting goals and consistently updating the policy to reflect society's stance, as exemplified by the permanent removal of nuclear power from energy policy considerations.

Another critical structural component of Denmark's renewable energy policy was a tax incentive system that encouraged small-scale ownership of wind capacity. In 1980, the government favored investment in renewable energy, as a Social Democratic Government was in power and a "green majority" held Parliament. This government provided a 30% subsidy on new wind installations, which made small-scale installations by individual households or co-ops financially feasible. By 2001, 80% of the wind turbines in Denmark were owned by 175,000 households. The creation of a feed-in tariff required electricity companies to buy all privately produced electricity, which allowed small installations to compete with larger ones that would have otherwise been much more attractive for electricity companies (Mendonca et al., 2009).

The tax incentive model for wind turbines in Denmark is significant and productive for several reasons. First, tax incentives operate within the government structure and this system also worked in harmony Denmark's sociocultural norms. It worked with the Danish custom of cooperatives, a custom dating back to Denmark's agricultural days. By allowing for turbine ownership through cooperatives, the transition to a new energy system worked within Danish culture and created public support for the system because many individuals had a financial investment. This approach demonstrates that "local acceptance is central to successful

deployment of wind power" (Mendonca et al., 2009, p. 394). This policy again demonstrated key Danish norms, namely the relationship with the government and shared egalitarian values. The government recognized the importance of public support for the policy, because the public is highly capable of holding the government accountable. When this policy was implemented in 1980, public opinion had significantly shifted towards renewable energy and away from fossil fuels. In the wake of the 1973 oil crisis, the high prices of oil were incentive enough to make a cultural transition (Rüdiger, 2011). By playing into the Danish cooperative model, the government built a secure support base. This example demonstrates how shared values, in this case for renewable energy, carry significant power.

2.6 Conclusion

Danish society and politics have many shared values, although they manifest in seemingly unrelated ways. The Danish people have a long history of positive sentiment toward their government, even through periods of complete state control as with the absolute monarchy in the 17th-19th centuries. The Danish government has always been responsible to its people, and has long recognized the significance of their approval. Today, this relationship has manifested as a give-and-take in the policymaking process, and public opinion holds significant power. Culturally and socially, Denmark has a strong sense of local and national community. Danish camaraderie is best seen as majority support for the welfare state, as people tend to prioritize quality of life over individual gains. In doing so, a national sense of egalitarianism has developed that encourages shared goals and values. This is the basis for Danish environmentalism and support for renewable energy. The 1973 OPEC oil embargo served as a wakeup call for the Danish people, after which a national sense of environmentalism quickly developed. It was best

for Denmark to reduce dependency on foreign energy, and, when this was coupled with a rising concern for local pollution, the Danes saw the value of investing in renewable energy instead. The Danish government, in turn, recognized the importance of popular support for their policy decisions, and adapted to this switch in national values. This specific combination of structural and normative factors led to Denmark's rapid transition to renewable energy over the last 40 years and other nations could not expect to follow the exact same path. In order to understand possible renewable energy policy solutions, it is critical to first analyze the society that policy would be acting upon.

The next chapter will analyze the structural and normative framework of the United States, to establish a contrast between the two countries vis a vis energy policy and environmentalism. Denmark and the United States are often used as counterpoints for analysis of renewable energy policy, and I will attempt to identify the underlying factors that influence the way energy policy is created in the United States.

CHAPTER 3: THE UNITED STATES

3.1 Introduction

As with Denmark, the United States possesses a unique set of political and social characteristics that dictate the way policy is made. Politically, economically, and culturally, the United States and Denmark are vastly different; it is only logical that there would be significant, demonstrable differences in the implementation and efficacy of policy between the two nations. By any measure, the United States is significantly larger than Denmark. As of 2016, the CIA World Factbook estimated the United States per capita GDP at $57,300, 18th in the world, but the nominal GDP is the highest in the world. The economy is mainly driven by strong industries in technology, steel, petroleum, pharmaceuticals, and military equipment, among other products. To support its massive economy, the United States demands the second highest electricity usage in the world, and 73.5% of this electricity is from fossil fuels (World Factbook: United States, 2017). The United States is the biggest importer of crude oil in the world, the third largest producer of crude oil, and the biggest producer of natural gas globally. This demonstrates the nation's continued dependence on fossil fuel sources for many years. As of 2012, only 7.4% of the country's electricity demands were met through renewable energy sources (World Factbook: United States, 2017).

Denmark is marked by a tight, trusting relationship between the government and its people, and a nationwide commitment to advancing tangible and intangible quality of life conditions, all of which can be attributed to their collectivist, egalitarian mindset. The United States, on the other hand, adheres to a different set of values informed by the American experience. The American people have a distrust of strong federal government that is based in a long history of revolutionary spirit. The resultant federalist structure has given more power to the

states, and contributed to a highly polarized political system. Policymakers should be driven by their constituents, on whom they rely for job security, but lobbying and campaign contributions from large corporations have the power to influence national policy. Normatively, the American people believe in a free market economy and are highly individualistic, generally driven by personal success and materialism. Due to the simultaneously heterogeneous and individualistic nature of the American population, it is rare to find national consensus on any issue, and this contributes to political divisiveness.

3.2 A Structural Analysis of the United States

Distrust of Large Government and the Resultant Federalist System

As a sovereign nation, the United States was built on a foundation of revolutionary spirit and rugged individualism. Early Americans were wary of large government after the tyrannical rule of England's King George III, and the Founding Fathers embodied these concerns in the U.S. Constitution. By placing emphasis on federalism and individual rights, a system of separation of powers was built, in which each branch of government would be able to check and balance the power of the others. Even so, passage of the Constitution proved impossible without the addition of a Bill of Rights to further specify the rights and protections of the people against the federal government.

The structure of the United States Constitution is informed by principles of federalism, or the sharing and separation of powers between the individual states and the national government. This is best demonstrated in the Ninth and Tenth Amendments. The Ninth Amendment states that the people have other rights not specifically listed in the Constitution that cannot be infringed upon (U.S. Const. amend. IX). The Tenth states that the federal government reserves

only those powers specifically listed in the Constitution; any others are rights retained by the people or the individual states (U.S. Const. amend X). These requirements helped to appease the strong Anti-Federalist movement within the United States during this time, which opposed the Constitution and any attempt to expand the powers of the federal government. Arguably, this sentiment still exists today, although in a somewhat diminished capacity, among individuals and legislators who are wary of expanding government powers beyond their current levels. Because individual states have the power to pass local legislation, distinct political cultures are created within each state. In turn, a state's representatives in Congress must reconcile the political interests of their constituents with the priorities of their party as a whole.

American revolutionary and constitutional history is a proud and romanticized aspect of modern American culture that nevertheless continues to affect policymaking today. The Revolutionary War was fought to make America an autonomous nation, and the development of government and the Constitution demonstrate lasting and pervasive concerns about centralized government control. Borne of an ideological and political revolution, the citizens of the United States today maintain a proud individualism that influences their behavior in their local and national community.

Two's a Crowd: Party Polarization in the United States

Party Politics

Unlike the multiparty system of Denmark, politics in the United States are dominated by two parties: the Democrats and the Republicans. The two-party system has existed in the United States since the early 19th century, and ever-increasing polarization exists between the two parties.

According to the Pew Research Center, political polarization in the United States has been increasing steadily for several decades. A 2014 study found that, between 1994 and 2014, the percentage of Americans with consistently liberal or consistently conservative ideologies had doubled, from 10% to 21% (Doherty, 2014). In the same period, having a very unfavorable opinion of the other party increased from 17% to 43% among Republicans, and 16% to 38% among Democrats (Doherty, 2014). These two statistics provide firm evidence that, not only is American political culture becoming more polarized ideologically, but the potential for compromise between the parties is decreasing as relations between the parties degrade.

Interestingly, this Pew Research Center survey found that these polarizing liberal and conservative opinions reach beyond the political sphere. When asked about their preferred living conditions, three quarters of Republicans said they would prefer a larger home that is further from neighbors, schools, and restaurants. Conversely, 77% of Democrats said they would prefer a smaller home that is closer to neighbors and community amenities (Doherty, 2014). This seems reflective of traditional conservative and liberal values, as discussed below in the section on Normative American Values. Conservatives tend to place a greater emphasis on individual rights and freedoms, as opposed to building a broader community. Liberals, on the other hand, are generally more collectivist.

There has been significant discussion over the causes of political polarization. In the United States, party identity is part of social identity and is self-reinforcing (Miller & Conover, 2015). The two-party structure creates a system of competition, in which fellow party members view each other positively and members of their opponent party negatively. The opposition party becomes a rival to be beaten at all costs in elections, because their platform presents a threat to one's beliefs and structure. Over time, this culture of competition has grown into outright

hostility and anger (Miller & Conover, 2015). This minimizes any possibility of compromise, even on issues that could be categorized as ideologically more moderate. Although they play a role, policy differences alone do not drive interparty competition. This process becomes cyclical, as rivalry generates more extreme party identification, and prior research has demonstrated that people with strong ideological beliefs generally have markedly higher party identification and rates of participation (Baldassarri, 2011; Miller & Conover, 2015).

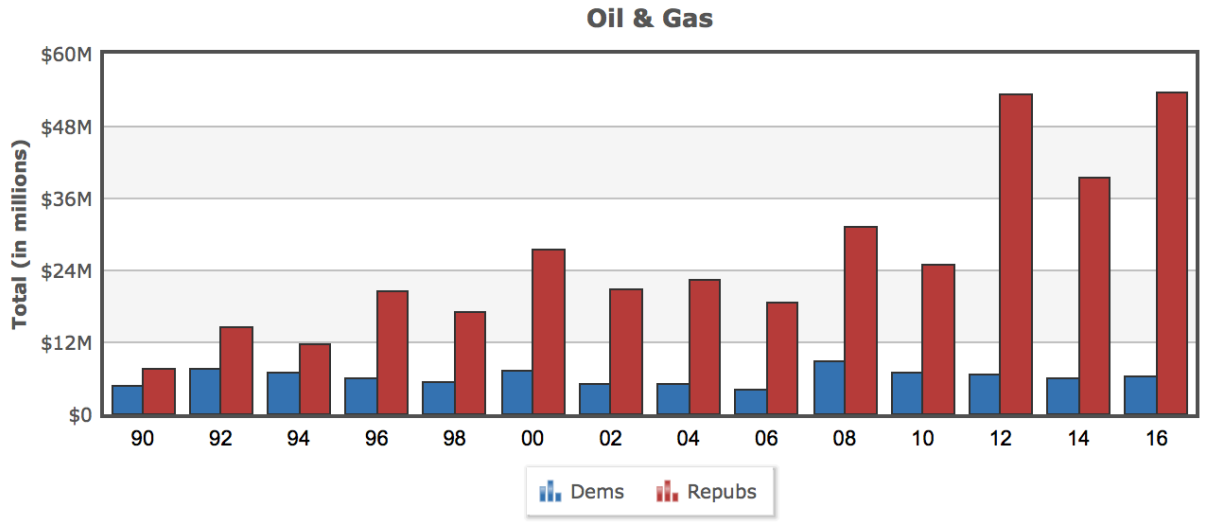
Typically, liberal ideologies are associated with increased government intervention into markets and increased spending for welfare systems, while conservative ideologies broadly oppose government regulation and intervention (Coffey, 2011). At a national level, Democrats and Republicans do not have categorically antithetical ideologies on all issues, but due to significant ideological differences within their state organizations, the two parties have become deeply linked to partisanship (Coffey, 2011; Brown & Bruce, 2008). Members of Congress rely on their constituents for re-election, which in turn is dependent on how well the congressmen represent constituent interests. To define the United States as simply a two-party system disregards the fact that each party organizes on multiple levels, including federal, state, and local. Previous scholarly research has demonstrated that the rise of polarized party politics can be linked to the federalist system, because state party organizations are products of their local environment and this in turn influences federal policy (Brown & Bruce, 2008).

The Influential Role of Interest Groups

One of the biggest drivers of the ideological positions of Democrats and Republicans is the role of interest groups and corporations. Through interest groups, like-minded individuals may organize and synergistically increase their influence. Interest groups and corporations alike can sway the policy positions of individuals or groups of politicians, for example through the

contribution of campaign funds. In a democratic system, when elected officials are meant to represent the interests of their constituents, it makes logical sense that organized groups would be influential. Lobbying efforts occur on both state and federal levels, with varying degrees of success.

Mahoney (2007) compared lobbying success in the United States and the European Union. She determined that, in the United States, there was a failure to reach a compromise in nearly 75% of lobbying instances, demonstrating a "winner-take-all" approach to lobbying, with absolute victories and absolute losses. Of these winners and losers, most of the time the winners are large corporations with flexible assets and the losers are civilian groups and foundations (Mahoney, 2007). She attributes this to the fact that American elections are privately funded, making it feasible for politicians to be swayed by large campaign contributions (Mahoney, 2007). This is consistent with lobbying data and legislative successes from Washington, D.C., from interests like Big Oil. In the 2016 election cycle, oil companies such as Exxon Mobil, Koch Industries, and Royal Dutch Shell spent approximately $117.5 million on lobbying, with $29 million going directly to members of Congress. Of that $29 million, $25 million was contributed to Republicans; since 1990, $207 million has been contributed to Republicans (Center for Responsive Politics, 2016). Below is a graphical representation of campaign contributions to Democrats and Republicans since 1990 (Center for Responsive Politics, 2016):



The Republican Party is traditionally supportive of business interests, and these contributions may have influence over voting records and political appointees. During the Bush Administration, many of the president's advisors had ties to oil including Vice President Dick Cheney, ex-CEO of Haliburton. The Bush Administration as a whole was sympathetic to large corporations, filing multiple corporate tax cuts and advocating for oil exploration in Alaska (Kay, 2001). Conversely, between 2001 and 2008, environmental groups gave nearly eleven times less to Republicans, and the Republican voting record did not represent environmental interests (Mayer, 2008).

3.3 Land of the Free: An Analysis of American Norms and Values

The previous section demonstrated how American history and the government structure established in the Constitution have created a national trend toward decentralization and distrust of a strong central government. In addition, modern political factors such as an increasingly polarized two-party political system and the intense influence of powerful, wealthy lobbying networks have meant that, even when an issue is salient with the American people, this sentiment is not always reflected in Congress. These structural issues have created an American political

system that is generally resistant to increasing access to and funding for renewable energy initiatives, despite the fact that 76% of American support increasing investment in solar energy (Lowry & Joslin, 2014).

Beyond these structural factors, however, there are also identifiable and distinct normative American values that help inform how individuals feel about a given issue, including the environment. These values are all rooted in the free market economy, whereby Americans believe that individualistic actions and minimal state control are all that one needs to better their own social and economic position. This is the "American Dream", and it dictates the way Americans act towards themselves and society as a whole. This chapter will use the underlying emphasis on the free market economy and the ideals of the American Dream to explain why American society operates so individualistically, and thus why issues that require a high degree of state involvement and interpersonal cooperation, such as environmental policy, struggle to gain momentum.

Free Markets and Capitalism

A "free market economy" is an economic theory wherein the costs of goods and services are determined solely by competition amongst consumers and producers, without the influence of governing regulations on the operation of this system. The theory was popularized by the famous economist Adam Smith in his seminal work, *The Wealth of Nations*. In practice, free market economies are rarely as unregulated as theory may suggest, as fully free markets can lead to anarchism. For the sake of this argument, a "free market economy" refers to a highly materialistic, capitalism-driven society such as the United States.

The United States consistently ranks as one of the freest markets in the world. According to an annual survey conducted by the Libertarian think tank the Fraser Institute, the United States

was ranked (on average) as the third most economically free country in the world between 1980-2000. This measure is based on an index that calculates economic freedom on the basis of previously agreed upon conditions of what makes an economy "free": personal choice, voluntary exchange coordinated by markets, freedom to enter and compete in markets, and protections of persons and their property (Gwartney et al., 2016). It is important to note that, as the product of a highly libertarian think tank, this report's findings may be somewhat biased. However, the fact that the United States has consistently been considered one of the "Most Free" nations in the world has remained constant. This is largely a product of the United States' emphasis on deregulation of the market and personal freedoms; these are two metrics that are considered by the Fraser Institute for its report, but they are also well documented within society. Importantly, American strongly believe in the free market, regardless of the data.

This belief that individual actions and self-motivation have contributed to a national culture of individualism. Whereas Denmark has a long tradition of acting for the common good in a communitarian, egalitarian way, Americans tend to be wary of strong communitarianism (Bang et al., 2000). Communitarianism, or the "idea that people's lives are enriched by joining together to pursue goals that reach beyond the individual, embodying a vision of the common good" (Bang et al., 2000, p. 369). As argued in the previous section, Danish culture embraces communitarianism, and the Danish perspective is seen through their support for a welfare state and community centered cultural norms like *hygge* and cycling. The United States, on the other hand, behaves in a much more individualistic way, where freedom and liberty are negatively associated with government involvement.

Individualism and the American Dream

The United States is a fundamentally individualistic society, and individual success without the assistance of the state, or anyone else, is the basis of the American Dream. American individualism was first recognized and praised by Alexis de Tocqueville in *Democracy in America*, and this national tradition has persisted since the nation's founding. Individualism is "the first language in which Americans tend to think about their lives, [which] values independence and self-reliance above all else" (Bellah et al., 1996, p. viii). First published in 1985, Bellah's comprehensive sociological analysis *Habits of the Heart: Individualism and Commitment in American Life* attempts to understand how individualism informs individual actions in the United States. In his section on citizenship, he discovers that many Americans feel a sense of fulfillment from community involvement, but it is difficult to balance self-interest with a strong community. He argues that Americans struggle to accept groups with a different set of values and therefore struggle to link relatively homogenous local and participation with a diverse national dialogue. When surrounded by those who reinforce our individual values and ideals, we more readily become involved and reach political consensus. This makes it much more difficult to reconcile self-interest with national good (i.e.: the environment).

Individualism is well documented from a sociological perspective, but it is harder to quantify from a policy standpoint. Here I will attempt to demonstrate how individualism influences policy issues using the debate over gun control.

Celinska's (2007) study attempts to demonstrate how American gun ownership is an example of American individualism. Gun ownership has been closely tied to the American ideal of individualism for many years. The Second Amendment, which guarantees the right of citizens to bear arms, has become a foundational principle of American democracy for some, and is

lauded by gun owners and limited government proponents alike. Her argument includes a nuanced differentiation between individualism and collectivism, and characterizes the United States as individualistic:

> Following Bellah et al.'s (1985) conceptualization, utilitarian individualism is defined here as pursuing one's material goals in a self-reliant fashion. Thus, utilitarian individualism is closely associated with the values advanced by industrialized, capitalist democracies (Durkheim 1893/1964). In addition, utilitarian individualism is a centerpiece of the American Dream and an important cause of chronic anomic conditions in the United States (Merton 1957; Messner and Rosenfeld 1997). The second aspect of utilitarian individualism and the consequence of a strong belief in self-reliance is opposition toward governmental efforts to equalize citizens' economic position, to limit private business, and to build strong social programs that provide assistance to the most disadvantaged. In brief, "equal opportunity for all and special treatment for none is the individualistic creed" (Fine 1993: 56). Lipset (1990) agrees and points out that the United States is exceptional in that it has the lowest level of support among developed nations in providing assistance to the disadvantaged. (p. 232).

She goes on to argue that the traditional traits of an American gun owner (white, male, Protestant, middle-class Republican) are also closely associated with individualism. She conducts a multivariate regression analysis that holds these "individualistic" characteristics constant, and finds that individualistic characteristics are significantly correlated with support for gun ownership. Proponents of gun control, a more collectivist view, argue that gun control is in the best interest of public safety. Celinska's study offers evidence that many Americans would prioritize individual freedoms over public safety, a very individualistic view.

This consideration of individualism versus collectivism is relevant to environmental policy in the context of Douglas and Wildavsky's cultural theory of environmentalism, discussed in the previous section about Denmark. Per Douglas and Wildavsky's theory, the value people place on environmentalism is based on a combination of two variables: "grid" and "group", both

of which are subdivided into 'high' and 'low'[1]. The United States fits well into the low group/low grid model. This means that individual choice, rather than group influence, impacts individual decisions, and there are few constraints on individual behavior and activity. This low group/low grid model is known as *individualism,* which Douglas and Wildavsky use as a counterpoint to *egalitarianism* as it describes Denmark. Cultural theory characterizes individualism as being dismissive of environmentalism in favor of free market development.

In Carlisle and Smith's 2005 study, the authors randomly sampled 810 adults, and asked questions that would indicate whether the individual was more egalitarian or individualistic, and then asked a variety of questions about environmental opinions[2]. Of these questions, three were characterized as "pro-development" while six were "pro-environment". Pearson correlations were conducted, and it was found that being individualist was positively correlated ($p < 0.01$) with all three pro-development questions, and negatively correlated ($p<0.0$) with all six pro-environment questions. Conversely, egalitarianism was negatively correlated ($p<0.01$) with two of three pro-development questions, and positively correlated ($p<0.01$) with all six pro-environment questions (Carlisle & Smith, 2005, p. 536). This study therefore contributes significant evidence that individualism and egalitarianism are predictors of environmental opinions and attitudes.

If we categorize the United States as individualistic, as demonstrated by Bellah, Celinska, and Douglas and Wildavsky, it makes logical sense that environmentalism and thus renewable

[1] For a detailed explanation of cultural theory, please refer to Chapter 2, "Implications for Danish Renewable Energy Policy".

[2] For their exact findings and survey questions, please refer to Carlisle, J., & Smith, E. R. (2005). Postmaterialism vs. Egalitarianism as Predictors of Energy-related Attitudes. *Environmental Politics*, *14*(4), 527-540.

energy policy has struggled to gain traction. Although Americans appreciate having a sense of community, there is a tendency to default to self-interest when faced with a choice between the two. The environment is the ultimate shared commodity, as it is pervasive and accessible to all Americans. Somewhat ironically, that means that individuals are rarely confronted directly with environmental issues such as climate change and pollution. When gas prices are low, people see their own immediate economic benefit without seeing how their oil is sourced or where the fossil fuels go when they leave the exhaust pipe. If Americans are not directly faced with the consequences of their environmental actions, they will by nature feel little motivation to make a change that could inconvenience them. Based on Bellah's assessment of the role of community, individuals and their homogenous communities have difficulty understanding the motivations of other groups; therefore, the knowledge that other communities are struggling with air quality or sea level rise has little impact. Given that the infrastructure for renewable energy systems is undeveloped, implementing change would be a significant capital investment and, without seeing the bigger picture, is only seen as an inconvenience. The federalist system only further complicates this conundrum, because individual states control their own energy policy. Therefore, renewable energy policy may only be considered a valuable policy goal on the local or state level, not federally.

3.4 Implications for American Renewable Energy Policy

When it comes to the environment, these normative and structural characteristics inform the passage and implementation of renewable energy policy. The United States has never had a comprehensive environmental policy, even though every presidential administration since the 1970s has attempted to address energy policy (either by suggesting an increase in fossil fuel

production or an increase in investment in renewable energy technology). Given that the American government elects a new Presidential administration with new players and new priorities every four or eight years, policy repeals of this kind are standard procedure between administrations. Energy policy and the environment have been branded as highly partisan issues, and as such Congress has failed to legislate the issue successfully. Executive actions, such as the Clean Power Plan, are easy to issue, but they are also much more easily overturned than laws. During his administration, then-President Obama created new emissions standards in his Clean Power Plan, but his successor President Trump quickly repealed the plan with an Executive Order (Dance, 2017). Due to the failure and inability of Congress to act on this issue, any long-term considerations of renewable energy reform have been largely implemented by the states. Every state is different economically and demographically, and thus takes a unique position on energy policy.

The next sections will look closely at past and present energy policies established on a federal and state level. The content and efficacy of these policies will be analyzed through the structural and normative frameworks laid out in this chapter thus far.

Federal Energy Policy

Discussions of federal energy policy are best explained through the actions of the various presidential administrations, as Congress has never successfully passed a national energy policy. Prior to the 1970s, most energy and environmental policy was created at the state level, and this holds true today. However, each presidential administration has attempted, in one way or another, to sway the direction of energy policymaking. This section will elaborate upon each administration's policy goals and proposals, and attempt to frame them in the context of the structural and normative values identified in the previous two sections of this chapter.

Actions of Presidential Administrations

As with Denmark, the OPEC oil embargo of 1973 hit the United States hard, and immediate action was required of the Nixon Administration. Nixon, a Republican, promoted his "Project Independence", which aimed to make the U.S. energy independent by 1980 through the development of domestic oil and gas sources (Shum, 2015). The Watergate Scandal would ultimately disrupt his plans for energy policy, but initially Project Independence was well received (Kaplan, 2010). Energy policy had the potential to be controversial, but the extreme economic circumstances created by the oil embargo left room for Nixon to lead politically. This is comparable to Roosevelt's New Deal in the Great Depression. In cases of economic hardship, the United States is more accepting of strong government power and presidents can initiate policies that are an exception to the structural tradition of distrusting large government. Normatively, the concept of energy independence was based in the value of individualism (but in this case, for the nation as a whole). By ending American involvement in foreign oil and becoming energy self-sufficient, the United States would be acting self-sufficiently. Perhaps this offers an added explanation for why the American people were accepting of Project Independence. Not only was Nixon interested in energy independence, he was also a remarkably environmentally minded Republican. In fact, he passed significant environmental legislation including the creation of the Environmental Protection Agency (EPA) in 1970, as well as the Clean Air Act and the Clean Water Act Amendments (Farrah, 2016). This suggests that Nixon was riding the wave of American environmentalism borne of the environmental movement of the 1960s. He capitalized on this opportunity, and made significant environmental policy reforms.

After Nixon, President Carter, a Democrat, developed the National Energy Act of 1978, which would begin developing renewable energy sources. In several ways, this policy conflicted

with the political structure of the country. First, he referred to transforming the energy system as the 'moral equivalent of war', which had "implications of shared sacrifice" (Shum, 2015). Given the nation's preference for individualism over centralization, the proposal was not well received. Second, the Act was essentially a tax bill for oil and natural gas. The United States was already deeply invested in foreign and domestic oil, and had a long tradition of rejecting raised taxes (Ghosh, 1984). By attempting to pass a major piece of legislation that would both increase the powers of the federal government and raise taxes, Carter's policy struck at the heart of American political values and failed.

Even though Nixon and Carter were not ultimately successful, their desire to pass energy reform indicated an awareness of energy and environmental concerns. President Reagan, however, desired deregulation in all sectors, including energy. During his 1980 presidential campaign, Reagan preached that "our problem isn't a shortage of fuel, it's a surplus of government" (Shum, 2015, p.389). His primary goals with regard to energy were the "increased production of domestic oil and natural gas, for which he want[ed] to curtail or eliminate the web of governmental regulations that are still thwarting the drive toward that goal" (Ghosh, 1984, p. 185). In Reagan's eyes, oil prices had dropped again, there were no oil crises, and it made economic sense to pursue the cheapest option rather than investing in new, alternative fuel sources (Kaplan, 2010). In the Reagan years, American environmentalism was subordinated to regulatory relief. The public was largely unreceptive to his aggressive environmental rollbacks, perhaps due to the strength of the "Environmental Decade" in the 1970s. He did, however, successfully delay the implementation of environmental regulations and, as Rosenbaum (2008) argues, "the Reagan years bred an anger and suspicion still infecting the discourse between environmental activists and the Republican Party" (Rosenbaum, 2008, p. 71).

George H.W. Bush, a Republican in office from 1989-1993, took a less hard line stance than Reagan and passed some significant legislation, but ultimately made policy choices that did not benefit the environment. Prior to being elected president, Bush Sr. was an oil executive as CEO of Zapata Petroleum Corp. in Texas (Rosenbaum, 2008). Despite this, Bush's campaign ran on the promise that he would be an "environmental president," as he wanted to alter the public perception built during the Reagan administration that the Republican Party was anti-environmental (Rosenbaum, 2008). To this effect, his greatest accomplishment was passage of the Clean Air Act Amendments in 1990, something Congress had struggled to do for more than a decade (Rosenbaum, 2008). The Clean Air Act, first passed under Reagan in 1970, set new emissions standards after air pollution was demonstrated to have adverse impacts on human health. The Clean Air Act was especially significant because it represented a priority shift for the federal government, as the government implemented regulations on business and manufacturing (Ross et al., 2012). Bush's 1990 amendments included new regulations on acid rain, urban air pollution, toxic air emissions, and ozone depletion. Scientific estimates suggest that the benefits for human mortality and health outweigh the costs of the program by 46-to-1 (Ross et al., 2012). As a Republican president, however, partisan pressures required that Bush Sr. maintain a business-friendly stance, a position with which he largely agreed. The economic recession of 1992 made Bush's stance on the environment swing further to the right, and he began to denounce environmentalism (Fuller, 2014). Bush Sr.'s return to the traditional Republican platform suggests that, although he ran on an environmental platform and attempted to reconcile environmentalism as a partisan issue, he was ultimately forced to choose his party ideology over his own preached agenda.

President Clinton, a Democrat and Bush Sr.'s successor, had a strong basis in environmentalism and the American public had high expectations for his presidency. Unfortunately, his administration was marred with personal scandals and Congressional gridlock when Republicans took control of Congress in the 1990s (Rosenbaum, 2008). This made it difficult for Clinton to pass progressive energy policy. A good example of this struggle was the Kyoto Protocol, a 1992 United Nations treaty in which member countries would commit to reducing greenhouse gas emissions under the assumption that global warming exists due to anthropogenic causes. The Kyoto Protocol placed an emphasis on emissions reductions in developed countries, such as the United States, Japan, and Australia. Prior to Clinton signing the Protocol, the Senate passed the Byrd-Hagel Resolution, which stated that the U.S. would not become a signatory unless developing nations were also required to reduce emissions within the same period (Aschwanden, 2015). The Kyoto Protocol set binding emissions standards, and binding treaties require Congressional approval. Although President Clinton signed the Protocol, the United States never became a member country because the Protocol lacked Senate approval (Rosenbaum, 2008). Conversely, President Clinton was able to designate millions of acres of federal lands as national monuments, forests, and wilderness areas through the use of executive orders, which are unilateral and do not require the approval of Congress. This contrast with the Kyoto Protocol demonstrates the power of a majority in Congress to stonewall environmental policies put forward by presidents.

Following President Clinton, President George W. Bush, a Republican, insisted that he was not antienvironmental, but his actions reflected a greater emphasis on nonrenewable energy sources than on renewables. He was criticized for "failing to promote governmental regulation of climate-warming gases, utility construction, his enthusiasm for expanding energy exploration on

public lands, and his alleged suppression of federal scientific research uncongenial to his policy agenda" (Rosenbaum, 2008, p. 73). Within his first 100 days, Bush backed out of the Kyoto Protocol and reneged on a campaign promise to regulate coal burning power plant emissions (Goldenberg, 2009). The Bush Administration was also dogged by accusations of burying or altering scientific data that provided evidence for climate change and accelerating global warming, from scientists at NASA and the EPA (Goldenberg, 2009). By 2006, a national poll found that 54% of Americans did not approve of his environmental actions (Rosenbaum, 2008, p. 74). The Bush Administration's stance on energy and environmental policy clearly supported fossil fuel development and expansion, and apparently the Administration was willing to compromise their integrity for the sake of their agenda.

Barack Obama, a Democrat, made real efforts to expand the use of renewable energy during his presidency, but again, was met with significant partisan friction from his Republican congress. Obama made renewable energy policy a key component of his campaign, and attempted to uphold his promise via the Clean Power Plan in 2015. The Clean Power Plan, if passed, would have served as the first real, comprehensive federal energy policy in American history. He proposed a 32% average reduction in greenhouse gas emissions nationwide by 2030, meaning that individual states were given different targets for reduction based on their individual energy consumption (Konisky & Woods, 2015). Although this is likely the most efficient means of reducing fossil fuel use, it also places an unbalanced burden on the states for reform. South Dakota, Montana, and North Dakota would all be required to reduce emissions by 45-50%, but these states are also more economically impoverished and dependent on fossil fuel production and consumption for their economies (Konisky & Woods, 2015, Figure 1). Unsurprisingly, the Clean Power Plan was met with opposition along partisan lines. At least twenty-seven, mostly

Republican states, sued the federal government over the Clean Power Plan, but eighteen mostly Democratic states vocally defended the rule (Konisky & Woods, 2015). By the end of Obama's presidency, the fate of the Clean Power Plan was still up in the air. Beyond domestic policy and the Clean Power Plan, Obama was also very committed to passing the Paris Agreement, an international U.N. treaty wherein member countries pledge to work to keep global temperature rise below 2˚C above pre-industrial levels. To do so, member countries will provide international support to help developing nations meet these goals as well. Ideally, the Paris Agreement would create a new, more robust global position on climate change mitigation. So far, 143 of 197 countries have signed, including the United States (United Nations, 2017). Obama joined the Paris Agreement as an executive action, which did not require Congressional approval. After running on a strongly pro-environmental campaign, Obama fought throughout his presidency to leave a strong environmental legacy, and signing the Paris Agreement was a key component. When he was faced with Congressional gridlock, Obama began to use more executive orders and regulations, including the Clean Power Plan and the Paris Agreement. Ironically, these efforts to create a strong climate legacy have left the future of environmentalism on unstable ground.

President Trump's platform has demonstrated the ease with which executive orders can be overturned. Unfortunately for Obama's mandates, President Trump has made repealing the Clean Power Plan and leaving the Paris Agreement a cornerstone of his campaign and the early days of his presidency. During his campaign, he pledged to remove the U.S. from the Paris Agreement, to repeal the Clean Power Plan, and has called climate change a "hoax." In March of 2017, he slashed the EPA's budget by 31% to its lowest level in over 40 years (Thrush & Davenport, 2017). At the same time, he has promised to expand domestic and offshore oil production, which would roll back several Obama era policies (Thrush & Davenport, 2017).

Trump has also demonstrated his anti-environmental stance through his cabinet appointees. He appointed Scott Pruitt, former Oklahoma Attorney General, as head of the EPA. Pruitt openly denies the accepted science that climate change is directly caused by carbon dioxide emissions, and has been accused of allying with the fossil fuel industry (Davenport, 2017). An investigation conducted by the New York Times in 2014, while Pruitt was Oklahoma Attorney General, found that some fossil fuel lobbyists had drafted letters to the EPA and other agencies which Pruitt signed and sent on State stationary. These letters detailed the economic burden that would be placed on companies like Devon Energy, one of Oklahoma's largest oil companies, as a result of new environmental regulations (Lipton, 2014). He has also appointed Rick Perry, former Texas governor and climate change denier, as head of the Department of Energy. Electricity from wind production increased during his tenure in Texas, but he has stated that he opposes increasing federal tax credits to support renewables (Eilperin & Mufson, 2016). Although Trump's presidency is still in its infancy, his stated desire to "Make America Great Again" by ignoring scientific evidence of the anthropogenic causes of climate change in exchange for the expansion of fossil fuel production represents a serious return to (and expansion of) the pro-business, anti-regulation, anti-environmental promises of predecessors such as Ronald Reagan.

The various presidential administrations' positions on energy and the environment since the 1970s demonstrate how partisan opinions have altered over time, and how structural mechanisms within our government can preclude large-scale reforms of this type. Democratic administrations tend to support investment in renewables and are generally more environmentally friendly, in part because they tend to rely upon and believe the scientific evidence. Republicans have a less consistent stance, as presidents such as Nixon and Bush Sr. emphasized environmental initiatives while Reagan and Trump rolled back on federal

environmental regulations. Over time, party polarization has created a more staunchly business-friendly Republican Party that supports the fossil fuel industry and increasingly embraces climate denial. Both Clinton and Obama attempted to form international climate change treaties, the Kyoto Protocol and Paris Agreement respectively, and both were met with serious opposition in Congress. The two presidents differed in how they attempted to pass the treaties, which resulted in their differing levels of success. Obama's Paris Agreement was successful because he joined through executive action, which did not require Congressional approval. Clinton, on the other hand, attempted to join the Kyoto Protocol as a treaty, which required (but failed to receive) Congressional approval. This demonstrates how, on issues of the environment, executive action is the more efficient means of meeting energy goals. It seems that, in the case of energy and environmental regulations, each administration enters with its own agenda and many are willing to roll back the policies of previous administrations in favor of their own. This demonstrates the strength of party polarization at the federal level, which has created an environment where environmental and renewable energy issues are not salient federally, despite support from many Americans.

A 2013 Gallup Poll found that 76% of Americans (including 68% of Republicans) would support expanding solar power, but no energy reform has occurred at the federal level (Lowry & Joslyn, 2014). This indicates that, despite popular support, renewable energy and the environment are not significantly salient in Congress. Lowry and Joslyn (2014) found that economic and political factors independent of public opinion influence the saliency of a subject. Unsurprisingly, they found that environmental issues were more salient in Democratic Congresses, and that advocacy by environmental groups was crucial, but ultimately salience on the public agenda does not necessarily lead to action (Lowry & Josyln, 2014). Economic factors

such as gas prices play a key role in the salience of energy issues; when gas prices are high, people are more interested in developing other sources of fuel. The state of the economy nationally is also influential, as periods of affluence tend to be marked with a greater interest in developing renewable energy sources (Lowry & Joslin, 2014). This suggests that renewable energy is generally viewed as more of a luxury than a necessity good. This could be another indication of the power the fossil fuel industry holds in Congress: through lobbying and campaign contributions these corporations can override dominating public interests.

While renewable energy policy is not salient on a national level, some changes have been made through tax incentives. In the United States, wind and solar tax credits are a legacy of the Carter Administration in the 1970s. However, these incentives have "ensured that only a few large corporate entities and wealthy individuals participate in the wind and solar market" (Mendonca et al., 2009, p. 379). As such, only 4% of installed wind capacity is owned through small community projects, as compared with 80% in Denmark (Mendonca et al., 2009). Although this system is favorable to business and free enterprise and therefore fits within the normative values of the United States, investment in wind provides little (if any) direct benefit to individual citizens. As a result, the classic self-interested American will see no value in advancing this technology. Without citizen involvement, wind and solar projects are more prone to create social friction and ultimately make it more difficult to expand the renewable energy sector support without popular support. This friction will be elaborated upon later, through the case study of Cape Wind in Cape Cod, Massachusetts.

In cases where renewable energy does reach the policy agenda, structural restraints within the policymaking process make it difficult to pass radical legislation. The system of checks and balances requires that legislation pass in the House, Senate, and through the

President. Passing any legislation requires a great deal of compromise, especially if the government is politically split. The Energy Independence and Security Act of 2007, presented by a Democratically controlled Senate under President Bush, sought to increase energy efficiency and access to renewable energy across the country. This bill was popular among both parties, but was unable to pass until two of its more radically pro-environmental clauses were removed. When it came to vote on the Energy Independence and Security Act, the last two components, Energy Efficiency Equipment Standards for commercial and residential equipment and the removal of tax incentives for oil and gas, were highly controversial along partisan lines. To pass the bill, these features were scrapped as Republicans including President Bush stated that they would kill the bill if those provisions were included (Bang, 2010). The bill did ultimately pass, but in a watered-down form as the political stances of the two parties were too opposed to accept such radical change. The two acceptable components of this bill (new Corporate Average Fuel Economy standard for cars and Renewable Fuel Standards) had one thing in common. Both set targets for several years down the road: 2020 and 2022, respectively. The two components that did not pass would have been implemented immediately. Perhaps policymakers are more receptive to longitudinal changes rather than immediate ones. This suggests that, with the way energy policy is currently viewed politically, it is possible to pass reform but changes must be made incrementally.

State Energy Policy

Given the politicization of energy and the environment at a national level, most energy policy has been historically created by the states. The policies chosen, and the success of those policies, depends on several factors and the individual characteristics of each state. Several

studies have found that the most important factors dictating the implementation of renewable energy policy in the states are state wealth and ideology (Vasseur, 2016; Park, 2015).

When it comes to energy policy, states generally use either a tax incentives system or a regulatory mandates system. Tax incentives, such as deductions or credits, are "designed to provide an enticement for individuals or corporations to enter the renewable energy market, without the direct state intervention in shaping such a market" (Vasseur, 2016, p. 386). This is a positive incentive for investment, as opposed to a system of regulatory mandates, which are more coercive. Mandates include energy portfolio standards and cap and trade emissions programs. Vasseur (2016) found that "state actions have an overall consistency with broader policy orientation" (Vasseur, 2016, p. 298). States with a more neoliberal ideology, for example, tend to adopt incentives, as this requires a lower degree of government intervention.

Logically, the physical availability of energy resources should dictate the likelihood of a state adopting renewable energy policies. In states with high wind or solar capacity, and low fossil fuel production, there is a greater incentive to invest in these alternative energy sources (Vasseur, 2016). On the other hand, a Democratic or liberal state is more likely to invest, regardless of their physical capacity.

Solar Power Across U.S. States

Most installed solar power	Most solar potential
AZ	**AZ**
CA	**CA**
NV	**NV**
TX	**TX**
MA	NM
NY	CO
PA	HI
NJ	UT
	WY

According to the EPA, 99.5% of installed solar power in the United States exists in the southwestern and northeastern states, but the greatest potential solar power exists in the south and southwest; only four of these states overlap ("State Policies"). Therefore, we see significant solar installations existing in states that do not have significant solar potential, but rather a generally liberal state ideology that supports environmental initiatives and investment in renewables. As shown in the table above, most of these states are in New England. Conversely, Republican states like Nevada and Texas have recognized their solar potential and taken advantage of it, independent of state ideology.

Notably, California both uses the most solar power, and has one of the greatest capacities for solar. Citing the oil crises of the 1970s, the California state government took advantage of new federal tax credits and incentives for renewables to establish a solar and wind industry. As of 2009, 11.6% of the state's electricity came from renewables, and the state has pledged to meet 50% by 2030. This goal is comparably ambitious to Denmark's goal of 50% renewables nationwide by 2030 (California Energy Commission). Considering that the population of California is significantly greater than Denmark's, this marks a huge success for renewable energy policy in the United States. This goal is structured as a mandate, and is acceptable to the state because California is a consistently Democratic state. Therefore, this policy works within the political and social culture of the state, and passed a law that was harmonious with the broader policy orientation.

State ideology and broad citizen support for renewable energy do not necessarily guarantee that renewable installments will be completed. Massachusetts has been a consistently blue state since 1928, and has only cast its electoral votes for a Republican presidential candidate four times since then ("Massachusetts Presidential Voting History"). However, a proposed

offshore windfarm in the Nantucket Sound called Project Wind has been met with consistent opposition from citizens and politicians alike. Cape Wind would consist of 130 Siemens 3.6 megawatt offshore wind turbines with the electrical capacity to support 75% of the electricity needs for all of Cape Cod, and the islands of Martha's Vineyard and Nantucket. In doing so, it would reduce carbon dioxide emissions by 734,000 tons annually. The construction project has also been projected to create 600 to 1,000 new jobs, as well as 50 permanent positions and another 100 indirect jobs through ecotourism and other resultant operations. ("Cape Wind").

Despite these purported benefits, the project has been met with opposition for more than ten years and will likely never be built. Cape Wind is a classic example of NIMBY ("Not In My Backyard") concerns. Property values on the Cape, Nantucket, and Martha's Vineyard are consistently high, and many homeowners are concerned about the impacts of Cape Wind on their view and home value, as the project is located less than five miles offshore (Love, 2014). At this point, it is unlikely that Cape Wind will be constructed. This demonstrates the influence of individual interests, in this case property values and views, over renewable energy policy implementation. The environmental costs and benefits of Cape Wind have been studied extensively, and it has been determined that Cape Wind would not be a significant environmental burden on the Nantucket Sound (Love, 2014). Instead, it would represent a significant step forward for renewable energy policy in Massachusetts, as well as the United States generally. This suggests that the residents of Massachusetts have, to some degree, weighed the environmental benefits against self-interested costs, and individual self-interest has won.

Statewide opposition could be partially due to the large-scale nature of the project. American federal tax incentives for wind turbine installments have created an industry where only 4% of all wind turbines are owned by small investors. This project would be partially

funded by federal tax incentives, but such a large-scale project would have minimal individual involvement. As Mendonca et al. (2009) found, this gap between industry and individual investors creates greater friction for renewable energy projects in the United States because there are fewer direct benefits to individuals than Danish citizens experience.

The struggles with Cape Wind have not meant the end of offshore wind in the United States. On Block Island, Rhode Island, the first American offshore wind installation has just been completed. Built by Deepwater Wind, the installation consists of five turbines capable of powering 17,000 homes (Beeler, 2016). Compared to the 100 turbine Cape Wind, this installation is small. The installation has been met with little opposition from Block Island residents, which is likely due to the high cost of electricity on Block Island. Until now, there has been no local power generation, and electricity has relied on diesel imported from the mainland (Beeler, 2016). Deepwater Wind offers a direct economic benefit to the residents of Block Island that the residents of Cape Cod did not get with Cape Wind. This provides further evidence that self-interest is a major driver of attitudes towards renewable energy in the United States.

Providing further evidence that economic values, rather than environmental ones, are driving the American transition to renewables, several red states are national leaders in renewable energy usage. Texas produces more energy than any other state, and in 2014 it produced one fifth of all American energy (Wood, 2017). In 2016, Texas produced 19,000 megawatts of electricity from wind energy, and the town of Georgetown, Texas is tracking to be one of the first fossil fuel free cities in America (Wood, 2017). Considering how conservative and Republican Texas is, supporting investment in renewable energy seems counterintuitive. According to the city manager of Georgetown, Texas, however, the reasoning behind the switch was not environmental, but rather economic: “We didn’t do this to save the world- we did this to

get a competitive rate and reduce the risk for our customers" (Wood, 2017). Citing concerns about the fluctuations of oil prices, many Texans feel more economically confident investing in renewable sources. Global warming and environmental issues are still considered highly partisan, but investment in renewable energy has been framed as a matter of economy and energy security instead, issues that are salient in red states.

Implementing renewable energy policy at a state level is significantly easier than at a federal level. State governments do not experience the same structural constraints, particularly Congressional oversight, as the federal government. Local politics seem to have a greater influence over these policies than does state ideology, as demonstrated by the struggles in Massachusetts and the successes in Texas. Individualism and free market concerns still drive the popularity of these policies. In the case of Cape Wind, individuals failed to see the benefit of an offshore wind farm, seeing only the personal losses of views and property value. Individualistic concerns overrode liberal state ideology. In Texas, however, renewable energy was framed as a positive economic move, which aligned with their ideology. These cases demonstrate how, even with a lack of structural constraints, normative concerns can still have a significant influence over the implementation of renewable energy policy at the state level.

3.5 Conclusions from the United States

The United States is a large, complex country made up of a vast variety of political views. Underlying every aspect of American society is a long-established sense of individualism, wherein success is synonymous with individual achievements and material gains. People are committed to their own personal and political goals, and as much as they are motivated to create a sense of community, individualism comes first. This strong normative value has dictated the

way American citizens view their government; for the most part, people feel that a hands-off approach is best, with minimal state intervention and regulation. This normative battle between individual freedoms and the collective good is embodied by the polarization between the Democratic and Republican Parties, respectively.

Since the 1970s, party polarization between the Democrats and the Republicans seems to have created increasingly radical liberal or conservative presidential positions on energy and the environment. The Democrats have been working to pass increasingly aggressive energy reform, as exemplified by Obama's highly regulated Clean Power Plan. Conversely, Republicans have become further entrenched in their individualistic, pro-business positions that prevent any significant government regulation. This includes issues of the environment, as is currently being drastically emphasized by the Trump Administration. Trump's move to cripple the EPA, kill the Clean Power Plan, and remove the United States from the Paris Agreement is matched by his promises to expand domestic fossil fuel exploration in Alaska and middle America via the Keystone XL and North Dakota Access Pipelines. These choices are being met with serious criticism and opposition from many Americans, but the Trump Administration continues to push forth its agenda. This exemplifies the phenomenon that, even when issues are salient with the American public, they do not always reach the policy agenda of our federal government. Therefore, the most successful energy policy reforms have occurred at the state level, but the success of state energy policy is not determined solely on the basis of a state's liberal or conservative ideology. While many wealthy, consistently Democratic states are politically willing to adopt the necessary state mandates to make meaningful change, this is not universally the case, and several traditionally Republican states are leading the charge towards renewables as they view it as a positive economic investment for the state.

Overall, renewable energy policy in the United States follows the political patterns identified in this chapter. A distaste for a strong central government combined with significant influence from corporate lobbyists has created a national atmosphere that is unreceptive to large-scale renewable energy change, despite most of the American public supporting the expansion of wind and solar investments. As demonstrated by the energy policies of various presidential administrations, energy policy has become another politicized issue in a two-party system that is growing increasingly polarized. In this case, Democrats tend to support investment in renewables while Republicans favor business and deregulation, which lends itself to maintaining the status quo: investment in fossil fuels. Developing the infrastructure to make large-scale renewable energy change would require significant government involvement, and Americans in general prefer to maintain individual powers. These factors, combined with the political influence of the oil lobby, mean national energy policy is unlikely to change without significant cultural change. On the other hand, state energy policy, when framed to match the state's dominant ideology, has proven to be effective and has helped to depoliticize the issue in some states.

The next and final chapter will attempt to reframe the issue of energy policy to match the structural and normative realities of the United States, which I believe is the only way to make energy policy salient on a national level.

CHAPER 4: WHAT IS AT STAKE?

4.1 Introduction

Up to now, this thesis has attempted to demonstrate the specific structural and normative characteristics that define Denmark and the United States, and to apply these characteristics to the realm of energy and environmental policy. Among scholarly research in the realm of renewable energy policy, Denmark is frequently used as a model to which the United States should aspire. Within various frameworks, the two countries are compared and the Danish model is inevitably determined to be superior. This is unsurprising, given Denmark's impressive renewable energy portfolio. When comparing statistics and specific policy points, however, prior research tends to skip over the underlying forces that drive the policymaking process. Every country, including the United States and Denmark, is marked by unique structural and normative characteristics that predispose their policymaking process.

Denmark, a small, prosperous, and geographically and socially homogenous country, has easily passed renewable energy policy for almost 50 years. The Danes inherently trust their government, and they place a strong normative value on quality of life and collective benefits. This egalitarian, collectivist mindset pervades their homogenous culture, and creates national consensus that eases the policymaking process. Energy policy has been valued nationally because energy and the environment are ideologically linked, and the Danes place an inherent value on the environment. It is understood as a common good to be preserved, because it benefits the society generally, regardless of any economic payout. This is the same reason for widespread Danish support of their welfare state. This mentality is highly egalitarian and conducive of support for environmentalism.

In many ways, the United States is on the opposite end of the spectrum. Normatively, the U.S. is built on individualistic values, which manifest through the value placed on a free market economy and the idea of the American Dream. In the United States, success is measured through material goods and individual gains, rather than building a sense of community and collective success. As a result, many Americans support a limited government structure with minimal intervention, a platform typically represented by the Republican Party. The Republican Party tends to represent business interests and "progress," and environmentalism has been framed as being antithetical to progress. This mindset directly clashes with the mechanisms necessary to implement effective, large-scale renewable energy policy. Structurally, renewable energy policy requires a major reinvestment at a national level, which means significant in-state intervention determined by lawmakers in Washington. Although most Americans support increased investment in renewable energy, the strength of Big Oil's influence in Congress has swayed many policymakers' priorities away from renewable energy reform.

This comparative analysis has demonstrated that comparing renewable energy policy in the United States and Denmark is like comparing apples and oranges, and the policies made in one country could not be reasonably expected to succeed in the other country. Denmark is small and homogenous, and the United States is large and dynamic. Where the Danes are trusting of, and connected to, each other and their government, the United States is individualistic and Americans are often distrustful of the government, especially at the national level. Where Danes value bicycling, the Americans prefer the personal car. Where Danes strive to achieve *hygge*, Americans aspire to the American Dream. Both countries have a strong sense of identity, but these identities manifest in nearly opposite ways with respect to support for energy policies.

Practically speaking, this is bad news for the current state of renewable energy in the United States. If Denmark is any indication, renewable energy is most effectively implemented when environmentalism becomes a shared value that people are motivated to work toward. This requires a willingness to make individual sacrifices, something Americans are generally uninterested in doing. Historically, the only instances of large-scale support for energy reform have occurred in times of crisis, such as the 1973 OPEC oil crisis and President Nixon's highly restrictive response. It seems that when individuals' lives are inconvenienced and an abstract issue becomes a concrete nuisance, suddenly Americans are much more responsive. Based on the unique characteristics of the United States and its citizens, issues of environmentalism and renewable energy policy need to be re-framed to demonstrate how they can impact or benefit every individual. If this cannot be done, I would argue that American energy sources will remain entrenched in fossil fuels despite direct impacts on our environment and people.

Despite the denial of some, including our current President and his EPA chief, the anthropogenic causes of climate change and the direct link between fossil fuel emissions and global warming are scientifically well-documented. In fact, about 97% of climate scientists agree that climate change is real, and that the current warming trend is likely due to human activity ("Scientific Consensus"). Specifically, greenhouse gas emissions from electricity production, transportation, and industry contribute most significantly to the problem. According to the EPA, the United States contributes 15% of global GHG emissions, second only to China ("Global Greenhouse Gas Emissions", 2017). Given the structures and norms inherent to the United States, this dependence on fossil fuels is both unsurprising and difficult to break.

But why should we, as Americans, care about fossil fuel emissions? While they demonstrably lead to air pollution and climate change, it is easy to disregard science when faced

with a choice between personal convenience and the greater good. Despite the election of Donald Trump, who denies the anthropogenic causes of climate change and has enthusiastically begun to dismantle former President Obama's climate policies, Americans are already dealing with the realities of climate change. From Miami to Los Angeles, the impacts of our actions are being felt by Americans every day.

4.2 Local Impacts: Across America in Three Case Studies

It is easy to consider the impacts of pollution and climate change from fossil fuels in an abstract sense: knowing that the problem exists, but never seeing the impacts firsthand. This makes it harder to place a personal, self-referential value on the problem. This section will serve to demonstrate only a few of the areas in America that are being directly and seriously impacted by the effects of climate change and the failure to enact appropriate energy policies. These case studies all present extremely current issues.

Los Angeles

According to the American Lung Association, Los Angeles is the city with the worst air quality in the United States ("Most Polluted Cities"). This means that the average resident of Los Angeles experiences 122 days per year with air quality that violates federal standards (Barboza, 2014). The American Lung Association measures both ozone and fine particle pollution. A combination of environmental and anthropogenic factors has synergistically created a space that both generates significant air pollution and prevents air circulation to refresh the air supply. The problem is being exacerbated in California as a result of stagnant, warm air and wildfires, both of which have gotten worse as a result of the drought crisis (Barboza, 2016). Ozone is of concern in warm climates, like Los Angeles, because it occurs as a result of exhaust emissions and heat. The

main cause of ozone and particulate pollution in Los Angeles is from tailpipes, power plants, and factories (Barboza, 2014). In their current form, each of these sectors relies on the fossil fuel industry.

A study conducted at the University of California, Berkeley found that, among adults, proximity to traffic pollution was directly correlated with premature death. Per Jerrett et al.'s (2005) study, ozone exposure causes cardiovascular issues such as heart disease, nitrogen dioxide (NO_2) is positively correlated with increased rates lung cancer, and fine airborne particulates are independently associated with each of these causes of death (Jerrett et al., 2005).[3] According to the World Health Organization, 2.6 million people worldwide died as a result of outdoor air pollution in 2012. Heart disease and strokes accounted for 80% of these deaths, followed by COPD (11% of deaths), lung cancer (6%), and acute lower respiratory infections in children (3%) ("7 million premature deaths", 2014). This is a global issue, but it also has local impacts. It is estimated that at least 1,300 premature deaths occur every year in Los Angeles as a direct result of air pollution (McPhate, 2017). Non-fatal health impacts are also common, including increased prevalence of asthma and stunted respiratory development among children (Buka et al., 2006). These health impacts occur worldwide, but for the people of Los Angeles, this is a serious personal problem.

Los Angeles residents feel the need for major reform, particularly through emissions standards, but these concerns may be at odds with local and corporate businesses who worry about the restrictive impacts of regulation. Despite this, Los Angeles businesses have invested

[3] For specific findings, please refer to Jerrett, M., Burnett, R. T., Ma, R., Pope III, C. A., Krewski, D., Newbold, K. B., ... & Thun, M. J. (2005). Spatial analysis of air pollution and mortality in Los Angeles. *Epidemiology*, *16*(6), 727-736.

$40 billion since 1992 into cutting air pollution, which has resulted in an 80% reduction in ozone and particulate causing pollutants as compared to 1980 levels (Associated Press, 2016). The problem will likely only get worse, however, as rising global temperatures will further contribute to the chemical production of ozone. As of August 2016, Los Angeles had experienced 91 days with ozone levels above federal standards; during the same period in 2015, there had only been 67 days. The local hospitals felt the pressure: "In June and July, Dignity Health Community Hospital of San Bernardino saw a 10 to 15% increase in emergency room admissions over the previous year, including many children with asthma and elderly patients with chronic illnesses that are worsened by smog" (Barboza, 2016).

Los Angeles is an important example of the local impacts of climate change in the United States. Los Angeles is the second largest city in the United States, and it serves as a major cultural and economic hub. As stated in the previous chapter, California is one of the most sustainably minded states in the country, and yet its largest city is still struggling with the impacts of climate change.

Miami, Florida

On the other side of the country, Miami, Florida, is also struggling with the effects of climate change. Rather than air pollution, however, Miami is experiencing firsthand the devastating impact of sea level rise. Sea level rise is directly caused by fossil fuel emissions, as the greenhouse gases released in the process contribute to the global warming processes that are melting glaciers and sea ice globally; in turn, this meltwater raises sea levels globally. Therefore, sea level rise must be considered a direct impact of fossil fuel emissions. For years, climate scientists have argued that sea level rise would impact U.S. territory, and Miami is perhaps the most obvious example.

Frequently cited estimates suggest that, by 2030, Miami's sea level will be 6-10 inches above its 1992 level (Ruggeri, 2017). This is a significant rise in a very short amount of time, and residents are fully aware of the change and the individual impacts. Given how developed the Florida coastline is, experts estimate that $15-23 billion dollars of real estate property could be underwater by 2050 (Ruggeri, 2017). In Florida, flooding is ubiquitous and is presenting a serious management and infrastructural problem. In response, Miami and the surrounding municipalities have been developing many creative and effective mitigation problems, but no one is under the impression that all land can be saved. Miami Beach recently invested $400 million into raising roads, installing pumps, and elevating sea walls to hold back the rising sea (Gillis, 2016). As effective as these measures may be, they are only a temporary fix for a larger issue. If emissions patterns continue at their current levels, someday the ocean will rise above these temporary fixes. This will require further massive capital investments in Miami and elsewhere, which could ultimately present a significant economic burden on the United States generally. For people who are motivated by material gains, this economic stress should be of significant concern.

Middle America

Large cities and the coastlines are not the only areas directly impacted by American dependence on fossil fuels. To access tar sands in Canada, the United States has built significant oil pipeline infrastructure to transport this oil to refineries across America. Perhaps the most famous and controversial of these pipelines are the Keystone XL Pipeline and the Dakota Access Pipeline (DAPL). These pipelines create a significant environmental problem because tar sands contribute more greenhouse gases than crude oil, and the pipelines themselves can disrupt important animal habitats (Phillips, 2017). In addition, pipelines are a public health issue. A

study at Auburn University found that Ponca City, a small city in Oklahoma, is ground zero for the health impacts of the Keystone XL Pipeline. It was found that children living immediately near the pipeline had a 56% greater chance of developing leukemia than children further away due to poor air quality (Phillips, 2017).

This public health concern does not factor in the impacts of a pipeline failure, since it only accounts for standard operation. In the event of a failure, such as an oil spill, the surrounding ground water could be contaminated if the oil infiltrated the soil. The Keystone XL Pipeline runs through much of the Ogallala Aquifer, a massive 20 million-year-old underground freshwater reserve. Much of the aquifer is deep underground, but in places it is less than five feet below the surface and as such, stretches of the Keystone XL Pipeline would be submerged in water. By one scientist's estimate, there could be at least 90 leaks during the pipeline's 50-year lifespan (Mufson, 2012). Although scientists disagree about the full scope of these leaks, it is undeniable that oil would contaminate the surrounding water supply. Groundwater infiltration has both environmental and human impacts. The Ogallala Aquifer supplies fresh water to eight states, which is used for drinking and a quarter of the nation's cropland (Little, 2009). On top of the environmental impact, the costs of cleaning up an oil spill can be astronomical. There is no set cost, as each spill differs in terms of volume and environmental impact, but the largest onshore oil spill in U.S. history, in the Kalamazoo River in 2010, cost $1.04 billion to clean up (Linnitt, 2013). Not only are oil spills a loss of product and profit for the oil company, but they also have detrimental impacts on the local environment for which the company must pay damages. Although pipelines seem to be an easy way to transport oil, the public health and economic repercussions are demonstrable.

Across the United States, individual lives and entire cities are being drastically impacted by our dependence on fossil fuels. Climate change is indiscriminate, as impacts are being felt by rural blue collar workers in Oklahoma and billionaires in Miami alike. In each of these cases, the problems are rooted in fossil fuels. As a nation, the best way to prevent further problems is to make a large-scale, nationwide transition to renewable energy. Given the normative and structural barriers enumerated in previous chapters, however, we must reframe the issue of energy policy to align with the individualistic, free market ideas that are likely to appeal to America in order to make any meaningful change.

4.3 Putting a New Spin on Environmentalism

In terms of the environment, the Danes did not require much convincing. Environmentalism fit perfectly into their community-based egalitarian mindset, so making the transition to renewable energy was not a question of how, but when. In the United States, however, environmentalism is often considered antithetical to pro-business needs. However, energy policy can be framed as an issue of national security and economy. If a compelling narrative can be created, it may be possible to make renewable energy policy a salient and successful federal policy issue.

Since the Industrial Revolution, the U.S. has been a major exporter and consumer of coal, oil, and natural gas. The infrastructure exists to support these sources, and the price remains low. In a country dominated by our energy needs, people are highly motivated to keep their energy prices low and fossil fuels are consistently cheap. The inconvenient reality is, however, that the United States imports a significant amount of its oil. In 2015, the U.S. imported 37.9% of its oil, and 14.3% came from Saudi Arabia (Rapier, 2016). Although this is a reduction from the

import levels of the 1970s, the United States is still subject to international fluctuations in oil prices which can represent a national security threat.

American reliance on foreign sources means that the U.S. economy is susceptible to market fluctuations, the same issue the country faced during the 1973 OPEC Oil Embargo. Despite this, we still import roughly the same proportion of oil from the Middle East today. In fact, studies estimate that American dependence will increase in the coming years (Bang, 2010). From a national security perspective, the Middle East is an extremely volatile area of the world, particularly for the United States. After years of intervention, anti-American sentiment is strong in many of the region's oil producing countries. This dependence is an obvious soft spot for enemies, and there is a potential for war over access to oil resources. For example, the Gulf War in 1991 posed a serious threat to global oil supplies, and the U.S. considered military intervention to be a viable option to maintain security (Bang, 2010).

The call for "energy independence" has existed for decades, across party lines, but has yet to be achieved. Knowing this, it must be possible to frame renewable energy policy as a viable policy alternative to solve this issue. This approach was employed in the passage of the Energy Independence and Security Act of 2007, as discussed in Chapter 3, which sought to increase energy efficiency and renewable energy usage through updated fuel economy standards, renewable energy production, energy efficiency standards for residential and commercial appliances, and to repeal tax incentives for fossil fuels (Bang, 2010). This act had potential for compromise between concerns about energy security and concerns about climate change. By framing the two issues as linked, policymakers on both sides of the aisle appealed to their constituents. For Republicans, national security is the greater concern, while for Democrats, climate change mitigation is critical. Suggesting that increasing usage of renewable energy could

help to mitigate the effects of both problems was a politically savvy move for Congressmen of each party. As previously discussed, the version of the Act that passed in Congress was hardly a radical change, but it did indicate that renewable energy reform is possible when it is strategically framed through the lens of a more salient issue like national security.

As with national security, issues of the economy and employment are salient on a national level, but energy policy can be framed as an economic opportunity. The economic implications of switching to renewable energy are widespread, as the choice could be pricey not only for the owners of large oil companies, but also for the blue-collar employees responsible for extraction, and for the customer. In the short term, jobs would be lost and electricity prices would rise. The influential oil lobby has successfully framed a transition towards renewable energy as fundamentally an economic burden. What is not mentioned, however, is the massive potential for job creation in the green energy sector. A 2016 study by Goldman Sachs suggests that 80,000-100,000 jobs will be created in the oil industry in the next two years solely based on current levels of production. If domestic oil production is increased, even more jobs will be created (DiChristopher, 2016). On the other hand, investing in renewable energy technologies will create "green" jobs. Between 2013 and 2014, the number of green job openings in the U.S. increased from 3.6 million to 3.8 million (Hettipola, 2015). In the renewable energy sector, there was a 16 percent increase in jobs between 2013 and 2014 (Hettipola, 2015).

Beyond job growth, the United States should be highly motivated to develop a competitive renewable energy industry. As the global market begins making an energy transition, the U.S. can become an international leader in green technology. According to some studies, the green energy industry may be a $1.4 trillion global market, and powers such as China, South Korea, and the European Union recognize this potential (Siddiqui, 2017). After Denmark began

producing wind turbines, they also began exporting them and becoming a 'first mover' in the wind industry has benefited Denmark economically. In 2014, Denmark exported DKK 84.4 billion, approximately USD $12.4 billion, in wind energy which represented 5% of Denmark's total exports ("A World-Leader"). If the U.S. does not invest early, the country will ultimately be forced to be a consumer rather than a producer. The U.S. has long been an international powerhouse of economy and innovation, but in recent years China has been gaining ground on the U.S.

Per a 2010 study, China was ranked first in the world for clean energy investment, while the U.S. was third (Freed & Walther, 2011). In 2010, China secured $47.3 billion for clean energy investment, while the U.S. only secured $21 billion, and 60% of all clean energy technology IPOs in the world came from Chinese companies (Freed & Walther, 2011). Notably, Chinese investment is advancing rapidly, while investment is stagnating in the U.S. From 2009 to 2010, China saw a 39% increase in investment, while the U.S. investment remained stagnated close to 2007 levels (Freed & Walther, 2011). By the numbers, China is poised to dominate the energy industry if the United States does not begin a more aggressive investment program. Unfortunately, the Trump Administration has promised an aggressive return to domestic coal and gas rather than furthering investment in renewable energy technologies. In fact, Trump's proposed budget includes a 43% reduction of the Department of Energy's advanced energy technology offices (Siddiqui, 2017). Chinese domination of the renewable energy industry could act as a disincentive for U.S. development of the industry, as American companies would be required to import the necessary technology (McCarthy, 2017). Therefore, failing to invest in renewables has far reaching implications. Not only will the U.S. miss out on a hugely lucrative industry to stimulate the economy and generate job growth, but the environment may suffer due

to a lack of incentive to transition to a different fuel supply. Considering the potential growth for the industry, investing in alternative fuel sources makes logical sense even if environmentalism is not the primary reason for the switch.

To create renewable energy reform in the United States, the issue must become salient enough to compete with Big Oil and business interests. As demonstrated, energy reform can be framed in a way that is consistent with the individualistic American model, but without generating public support to pressure politicians, no change will occur. Fortunately, we know that Americans already feel strongly about the environment. A 2017 Pew Research Center Poll found that 65% of American adults believe developing alternative energy sources should be America's top energy priority, as compared to 27% who believe expanding production of oil, coal, and natural gas should be the top energy priority (Kennedy, 2017). These opinions break down further along political lines, with 81% of Democrats, but only 45% of Republicans, listing alternative sources as the most important priority (Kennedy, 2017). On the other hand, actions speak louder than words; it is easy to claim support for the environment, and another to truly want change. Given that the United States does not have a strong social safety net, many Americans cannot afford to risk unemployment or a higher monthly utility bill for the sake of the environment.

Environmental interest groups like the Natural Resources Defense Council (NRDC) face this problem every day as they lead grassroots rallies and campaigns to raise awareness. Francis Beinecke served as NRDC President from 2006 to 2015, and her essay "How to Unleash Climate Action: Values, Politics, and the Inevitability of the Clean Energy Future" explains how her organization has worked to change American minds about clean energy and the environment. She emphasizes the importance of connecting with people, and taking the time to understand

them. The United States is diverse, and all Americans cannot be expected to respond the same way. She has found that Californians care most about air quality, people in Plainview, Texas respond well to connecting with Christian values, and people in Gary, Indiana care about job creation (Beinecke, 2015). By identifying specific, local complaints, grassroots environmental movements can tailor their narrative and ultimately sway public opinion. She concludes:

> Wherever I speak—to business leaders, Garden Club ladies, city mayors, fracking activists—I give the same charge: talk with people in your community about the threat of climate change, because you speak the same language and you can influence their values. Together you can demand action from leaders in local, state, and national government.
>
> I make this request because when we connect climate change to people's everyday concerns, when we help them envision a clean energy future, when we inspire them to act in their own lives, we create something even more powerful than behavioral change. We create citizen engagement.
>
> Right now, we need to channel that engagement toward supporting carbon limits. This is the single most important thing our nation can do to confront climate change. This is our chance to make a real and lasting dent in dangerous pollution. But this opportunity rests on political will and public support. We must create a ground- swell. If we do that, we can unleash societal and political change. And we can build the clean energy future we know is not only inevitable, but is vibrant, prosperous, and hopeful (Beinecke, 2015, p. 724).

Beinecke's real-world successes demonstrate how framing an issue in a personal way is very effective with the American public. I recommend that this strategy be employed across America by identifying the ways in which climate change impacts everyday individuals, and how investing in renewable energy can help mitigate these impacts. Given the normative values of Americans, an issue will likely only matter someone if they can selfishly understand how it impacts them.

CONCLUSION

Although the current state of renewable energy in Denmark is an ideal to which we can aspire, the United States as a nation cannot expect to follow the same path to get there. Danish energy policy is more of a final goal than a realistic policy model for the United States to follow. The underlying structural and normative conditions of the two nations are disparate, and this thesis has worked to demonstrate that these factors are the critical drivers of the policymaking process. What works for one nation, will not necessarily work for another. The Danes are proudly Danish, with a strong sense of community and a deep faith in their government. They view success as a shared good, and believe strongly in an egalitarian community with a high quality of life. For the Danes, renewable energy and environmentalism are a clear component of their quality of life, and the OPEC oil crisis simply served as the push the nation needed to aggressively and successfully convert their energy supply.

In contrast, Americans are individualistic by nature. It is what makes us a competitive, resilient global power composed of millions of different perspectives. As a large nation, consensus on any issue is rare and, unfortunately, this means that finding solutions to ubiquitous issues like climate change and energy security can be difficult. That is why the best, and perhaps only, way to transition to renewable energy in the United States is to connect with people on an individual level. Painting the country with a broad brush is not the answer; travelling, talking, and connecting to real Americans with real concerns will break down the long-held barriers to energy reform. Climate change is real, and it is caused by human activities, but the effects of climate change manifest in different ways across the nation. While Los Angeles is suffering from smog, the air in Boston is clean and safe. While Miami is inundated with rising seas, Middle America is land-locked. Individually minded Americans may struggle to sympathize with effects

that have no direct relevancy to them. It is critical to understand the issues and culture that directly characterize a given area, and to frame renewable energy as a solution for these problems individually. Ultimately, that is the objective of this thesis: rather than a specific policy recommendation, I offer a method to reframe the issue of energy policy in a way that is salient with the American public. Generating support and understanding for a topic is the first critical step to creating successful policy.

If climate change is understood as a problem with individual impacts, and renewable energy is viewed as a solution that could offer clear economic and personal benefits, individual Americans may begin to appreciate the gravity of their situation. Based on what we know about America, the self-concerned American may be far more motivated to contact their representatives and communicate their support for renewable energy. Then, united by a common concern for national security and the economy, members of Congress across the aisle could feel safer voting for renewable energy legislation. Although the current presidential administration is staunchly anti-environment, previous Republican presidents (especially Reagan) have worked to roll back important environmental legislation, but the regulations have historically returned with later administrations. While Donald Trump views environmental matters principally through a businessman's lens, members of Congress are still responsible to their constituents. Each of these steps has occurred before, and it is time to piece them together to make meaningful change at a federal level. It will be a slow process, but Americans are receptive to incremental changes. Perhaps one day the United States will be looked at as a model for environmentalism and renewable energy, just as Denmark is today.

Bibliography

7 million premature deaths annually linked to air pollution. (2014, March 25). Retrieved May 03, 2017, from http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/

About Us. (n.d.). *Organization of Petroleum Exporting Countries*. Retrieved May 03, 2017, from http://www.opec.org/opec_web/en/17.htm

Andersen, J. G. (1992). Sources of welfare-state support in Denmark: Self-interest or way of life?. *International Journal of Sociology*, *22*(4), 25-48.

Andrén, N. B. E. (1964). *Government and Politics in the Nordic Countries: Denmark, Finland, Iceland, Norway, Sweden*. Almqvist & Wiksell.

Aschwanden, C. (2015, December 04). A Lesson from Kyoto's Failure: Don't Let Congress Touch A Climate Deal. Retrieved May 04, 2017, from https://fivethirtyeight.com/features/a-lesson-from-kyotos-failure-dont-let-congress-touch-a-climate-deal/

Associated Press. (2016, August 11). Los Angeles and Bakersfield top list of worst air pollution in the nation. Retrieved May 03, 2017, from http://www.latimes.com/local/lanow/la-me-air-pollution-report-20160420-story.html

Baldassarri, D. (2011). Partisan joiners: associational membership and political polarization in the United States (1974–2004). *Social science quarterly*, *92*(3), 631-655.

Bang, G. (2010). Energy security and climate change concerns: Triggers for energy policy change in the United States?. *Energy Policy*, *38*(4), 1645-1653.

Bang, H. P., Box, R. C., Hansen, A. P., & Neufeld, J. J. (2000). The state and the citizen: Communitarianism in the United States and Denmark. *Administrative Theory & Praxis*, *22*(2), 369-390.

Barboza, T. (2014, April 24). L.A., Central Valley have worst air quality, American Lung Assn. says. Retrieved May 04, 2017, from http://www.latimes.com/science/la-me-0430-air-pollution-20140430-story.html

Barboza, T. (2016, August 11). SoCal hit with worst smog in years as hot, stagnant weather brings surge in hospital visits. Retrieved May 03, 2017, from http://www.latimes.com/local/lanow/la-me-ln-summer-smog-20160805-snap-story.html

Barrett, M. (2015, November 20). Explained: Denmark's crazy car registration tax. Retrieved May 04, 2017, from https://www.thelocal.dk/20151120/whats-the-deal-with-denmarks-car-registration-tax

Baumgartner, F. R., Breunig, C., Green-Pedersen, C., Jones, B. D., Mortensen, P. B., Nuytemans, M., & Walgrave, S. (2009). Punctuated equilibrium in comparative perspective. *American Journal of Political Science*, *53*(3), 603-620.

Beeler, C. (2016, August 10). The US gets its first offshore wind farm, with a lot of help from Europe. Retrieved April 25, 2017, from https://www.pri.org/stories/2016-08-10/us-gets-its-first-offshore-wind-farm-lot-help-europe

Beinecke, F. (2015). How to Unleash Climate Action: Values, Politics, and the Inevitability of the Clean Energy Future. *Social Research: An International Quarterly*, *82*(3), 713-724.

Bellah, R. N. (1986). *Habits of the heart: individualism and commitment in American life*. New York: Perennial Library.

Bicycle Culture. Denmark.dk: the Official Website of Denmark. Retrieved from http://denmark.dk/en/green-living/bicycle-culture

Breiting, S., & Wickenberg, P. (2010). The progressive development of environmental education in Sweden and Denmark. *Environmental Education Research*, *16*(1), 9-37.

Brown, R. D., & Bruce, J. M. (2008). Partisan-Ideological Divergence and Changing Party Fortunes in the States, 1968—2003: A Federal Perspective. *Political Research Quarterly*, *61*(4), 585-597.

Buka, I., Koranteng, S., & Osornio-Vargas, A. R. (2006). The effects of air pollution on the health of children. *Paediatrics & Child Health*, *11*(8), 513–516.

California Renewable Energy Overview and Programs. (n.d.). *California Energy Commission*. Retrieved May 04, 2017, from http://www.energy.ca.gov/renewables/

Cape Wind. (n.d.). Retrieved April 24, 2017, from https://www.capewind.org/

Carlisle, J., & Smith, E. R. (2005). Postmaterialism vs. Egalitarianism as Predictors of Energy-related Attitudes 1. *Environmental Politics*, *14*(4), 527-540.

Celinska, K. (2007). Individualism and collectivism in America: The case of gun ownership and attitudes toward gun control. *Sociological Perspectives*, *50*(2), 229-247.

The Center for Responsive Politics. (n.d.). Retrieved March 10, 2017, from http://www.opensecrets.org/industries/summary.php?cycle=2016&ind=E01

Coffey, D. J. (2011). More than a dime's worth: using state party platforms to assess the degree of American party polarization. *PS: Political Science & Politics*, *44*(02), 331-337.

Corbett, M. (2011). Oil Shock of 1973–74. Retrieved May 03, 2017, from https://www.federalreservehistory.org/essays/oil_shock_of_1973_74

Dance, S. (2017, March 28). Trump tosses Obama plan to cut greenhouse gases, embraces coal. Retrieved April 16, 2017, from http://www.baltimoresun.com/features/green/blog/bs-md-trump-climate-20170328-story.html

Danish Energy Agency. (1998). *Combined Heat and Power in Denmark: Danish energy policy*. København, Denmark.

Danish Wind Industry Association . (n.d.). Retrieved February 24, 2017, from http://www.windpower.org/en/policy/offshore.html

Davenport, C. (2017, March 09). E.P.A. Chief Doubts Consensus View of Climate Change. Retrieved May 04, 2017, from https://www.nytimes.com/2017/03/09/us/politics/epa-scott-pruitt-global-warming.html

Denmark's Constitution of 1953. (1953.). *The Constitution Project*. Retrieved March 10, 2017, from https://www.constituteproject.org/constitution/Denmark_1953.pdf?lang=en

DeSilver, D. (2016). U.S. voter turnout trails most developed countries. Pew Research Center. Retrieved February 23, 2017, from http://www.pewresearch.org/fact-tank/2016/08/02/u-s-voter-turnout-trails-most-developed-countries/#

DiChristopher, T. (2016, July 08). Oil and gas industry could hire 100,000 workers – if it can find them. Retrieved May 04, 2017, from http://www.cnbc.com/2016/07/08/energy-jobs-oil-and-gas-industry-could-hire-100000-workers--if-it-can-find-them.html

Doherty, C. (2014, June 12). 7 things to know about polarization in America. Retrieved May 04, 2017, from http://www.pewresearch.org/fact-tank/2014/06/12/7-things-to-know-about-polarization-in-america/

Dunlap, R. E., Xiao, C., & McCright, A. M. (2001). Politics and environment in America: Partisan and ideological cleavages in public support for environmentalism. *Environmental politics*, *10*(4), 23-48.

Eilperin, J., & Mufson, S. (2016, December 14). Trump taps former Texas Gov. Rick Perry to head Energy Department he once vowed to abolish. Retrieved May 04, 2017, from https://www.washingtonpost.com/news/energy-environment/wp/2016/12/13/trump-taps-

former-texas-gov-rick-perry-to-head-energy-department-he-once-vowed-to-abolish/?utm_term=.cbcd2db7876d

Eurobarometer. (2008). Attitudes of European citizens towards the environment. *European Commission*, *295*. Retrieved April 24, 2017, from http://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs_295_en.pdf

Expansion of the Metro – 'Cityringen'. (n.d.). Retrieved April 27, 2017, from https://www.trm.dk/en/topics/the-copenhagen-metro/expansion-of-the-metro-cityringen

Farrah, R. (2016, September 06). The Guardian: Origins of the EPA. Retrieved April 19, 2017, from https://archive.epa.gov/epa/aboutepa/guardian-origins-epa.html

Freed, J., & Walther, R. (2011, July 7). By the Numbers: China, the U.S., and Clean Energy Finance and Innovation. Retrieved May 03, 2017, from http://www.thirdway.org/one-pager/by-the-numbers-china-the-u-dot-s-and-clean-energy-finance-and-innovation

Fuller, J. (2014, June 02). Environmental policy is partisan. It wasn't always. Retrieved May 04, 2017, from https://www.washingtonpost.com/news/the-fix/wp/2014/06/02/support-for-the-clean-air-act-has-changed-a-lot-since-1970/?utm_term=.d6e6c1e8f87d

Ghosh, A. (1984). *OPEC, the petroleum industry, and United States energy policy*. Rutgers Univ., News Brunswick, NJ.

Gillis, J. (2016, September 03). Flooding of Coast, Caused by Global Warming, Has Already Begun. Retrieved April 12, 2017, from https://www.nytimes.com/2016/09/04/science/flooding-of-coast-caused-by-global-warming-has-already-begun.html

Global Greenhouse Gas Emissions Data. (2017, April 13). Retrieved May 04, 2017, from https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data#Country

Goldenberg, S. (2009, January 16). The worst of times: Bush's environmental legacy examined. Retrieved May 04, 2017, from https://www.theguardian.com/politics/2009/jan/16/greenpolitics-georgebush

Gwartney, J., Lawson, R., & Hall, J. (2016). Economic Freedom of the World. Retrieved May 04, 2017, from https://www.cato.org/economic-freedom-world

Hettipola, S. (2015, November 6). Fact Sheet: Jobs in Renewable Energy and Energy Efficiency (2015) (L. Small, Ed.). Retrieved May 04, 2017, from http://www.eesi.org/papers/view/fact-sheet-jobs-in-renewable-energy-and-energy-efficiency-2015

Hobolt, S. B., & Klemmemsen, R. (2005). Responsive government? Public opinion and government policy preferences in Britain and Denmark. *Political Studies*, *53*(2), 379-402.

Iacono, C. (2016, February 25). "The Myth of Scandinavian Socialism." Foundation for Economic Education. Retrieved February 24, 2017, from https://fee.org/articles/the-myth-of-scandinavian-socialism/

Inequality: Income inequality. (2016). *Organization for Economic Co-operation and Development*. Retrieved May 04, 2016, from https://data.oecd.org/inequality/income-inequality.htm

Jerrett, M., Burnett, R. T., Ma, R., Pope III, C. A., Krewski, D., Newbold, K. B., ... & Thun, M. J. (2005). Spatial analysis of air pollution and mortality in Los Angeles. *Epidemiology*, *16*(6), 727-736.

Kaplan, M. (2010). Denmark's Achievement of Energy Independence: What the United States Can Learn. *Cardozo J. Int'l & Comp. L.*, *18*, 723.

Kay, K. (2001, January 29). Oil and the Bush cabinet. Retrieved March 10, 2017, from http://news.bbc.co.uk/2/hi/americas/1138009.stm

Kennedy, B. (2017, January 23). Two-thirds of Americans give priority to developing alternative energy over fossil fuels. Retrieved May 03, 2017, from http://www.pewresearch.org/fact-tank/2017/01/23/two-thirds-of-americans-give-priority-to-developing-alternative-energy-over-fossil-fuels/

Konisky, D. M., & Woods, N. D. (2016). Environmental Policy, Federalism, and the Obama Presidency. *Publius: The Journal of Federalism*, pjw004.

Kosiara-Pedersen, K., & Little, C. (2016). Environmental politics in the 2015 Danish general election. *Environmental Politics*, *25*(3), 558-563.

Linnet, J. T. (2011). Money Can't Buy Me Hygge: Danish Middle-Class Consumption, Egalitarianism, and the Sanctity of Inner Space. *Social Analysis*, *55*(2), 21-44.

Linnitt, C. (2013, October 27). The Most Expensive Onshore Oil Spill in U.S. History. Retrieved May 03, 2017, from http://www.huffingtonpost.ca/carol-linnitt/americas-worst-onshore-oil-spill_b_3819143.html

Lipton, E. (2014, December 06). Energy Firms in Secretive Alliance With Attorneys General. Retrieved May 04, 2017, from https://www.nytimes.com/2014/12/07/us/politics/energy-firms-in-secretive-alliance-with-attorneys-general.html?_r=0

Little, J. B. (2009, March 1). The Ogallala Aquifer: Saving a Vital U.S. Water Source. Retrieved May 03, 2017, from https://www.scientificamerican.com/article/the-ogallala-aquifer/

Love, C. (2014, January 22). Case Study: Cape Wind Project. Retrieved April 25, 2017, from http://www.nationalgeographic.org/news/case-study-cape-wind-project/

Lowry, W. R., & Joslyn, M. (2014). The Determinants of Salience of Energy Issues. *Review Of Policy Research*, *31*(3), 153-172.

Mahoney, C. (2007). Lobbying success in the United States and the European Union. *Journal of Public Policy*, *27*(01), 35-56.

Massachusetts Presidential Election Voting History. (n.d.). Retrieved April 25, 2017, from http://www.270towin.com/states/Massachusetts

Mayer, L. R. (2008, August 1). Big Oil, Big Influence. Retrieved March 10, 2017, from http://www.pbs.org/now/shows/347/oil-politics.html

McBryan, J. (2009). Denmark Energy Policy: Success in Achieving Energy Independence and Establishing an International Wind Energy Industry. *University of Florida Journal of Law & Public Policy, 20(2)*, 329-345.

McCarthy, S. (2017, January 06). U.S. and Canada falling behind China in race for renewable energy. Retrieved May 03, 2017, from http://www.theglobeandmail.com/report-on-business/international-business/asian-pacific-business/us-and-canada-falling-behind-china-in-race-for-renewable-energy/article33520129/

McPhate, M. (2017, February 06). California Today: Tackling Los Angeles's Deadly Smog. Retrieved May 04, 2017, from https://www.nytimes.com/2017/02/06/us/california-today-los-angeles-air-pollution.html

Mendonça, M., Lacey, S., & Hvelplund, F. (2009). Stability, participation and transparency in renewable energy policy: Lessons from Denmark and the United States. *Policy and Society*, *27*(4), 379-398.

Miller, P. R., & Conover, P. J. (2015). Red and blue states of mind: Partisan hostility and voting in the United States. *Political Research Quarterly*, *68*(2), 225-239.

Most Polluted Cities. (n.d.). Retrieved May 04, 2017, from http://www.stateoftheair.org/2015/city-rankings/most-polluted-cities.html

Mufson, S. (2012, August 06). Keystone XL pipeline may threaten aquifer that irrigates much of the central U.S. Retrieved May 03, 2017, from https://www.washingtonpost.com/national/health-science/keystone-xl-pipeline-may-threaten-aquifer-that-irrigates-much-of-the-central-us/2012/08/06/7bf0215c-d4db-11e1-a9e3-c5249ea531ca_story.html?utm_term=.71677961d48d

Nardelli, A. (2015, June 16). Danish elections 2015: a guide to the parties, candidates and electoral system. Retrieved May 04, 2017, from https://www.theguardian.com/world/2015/jun/16/danish-election-guide-parties-candidates

Olsen, J. M., & Rising, M. (2014, June 24). How Denmark's welfare program has narrowed its wealth gap to one of the smallest in the world. Retrieved May 04, 2017, from http://business.financialpost.com/news/economy/how-denmarks-welfare-program-has-narrowed-its-wealth-gap-to-one-of-the-smallest-in-the-world

OPEC Share of World Crude Oil Reserves. (n.d.). Retrieved May 03, 2017, from http://www.opec.org/opec_web/en/data_graphs/330.htm

Park, S. (2015). State renewable energy governance: Policy instruments, markets, or citizens. *Review of Policy Research*, *32*(3), 273-296.

Phillips, B. (2017, February 1). Oil Pipelines and Spills. Retrieved April 12, 2017, from http://cla.auburn.edu/ces/energy/oil-pipelines-and-spills/

Ralston, J. J. (2015). The Unscientific Determinants of Voting on a Controversial Scientific Issue: An Evaluation of Biofuels Policy in the US Congress. *Review of Policy Research*, *32*(3), 323-344.

Rapier, R. (2016, May 23). Where America Gets Its Oil: The Top 10 Foreign Suppliers Of Crude To The U.S. Retrieved May 03, 2017, from https://www.forbes.com/sites/rrapier/2016/04/11/where-america-gets-its-oil-the-top-10-suppliers-of-u-s-oil-imports/#196a419264c3

Rosenbaum, W. A. (2008). *Environmental politics and policy*. Cq Press.

Ross, K., Chmiel, J. F., & Ferkol, T. (2012). The impact of the Clean Air Act. *The Journal of Pediatrics*, *161*(5), 781–786. http://doi.org/10.1016/j.jpeds.2012.06.064

Rüdiger, M. (2014). The 1973 Oil Crisis and the Designing of a Danish Energy Policy. *Historical Social Research / Historische Sozialforschung, 39*(4 (150)), 94-112. Retrieved from http://www.jstor.org.ezproxy.trincoll.edu/stable/24145529

Ruggeri, A. (2017, April 4). Miami's fight against rising seas. Retrieved April 12, 2017, from http://www.bbc.com/future/story/20170403-miamis-fight-against-sea-level-rise

Scientific Concensus: Earth's Climate is Warming. (n.d.). NASA. Retrieved May 4, 2017, from https://climate.nasa.gov/scientific-consensus/

Shum, R. Y. (2015). Where constructivism meets resource constraints: the politics of oil, renewables, and a US energy transition. *Environmental Politics*, *24*(3), 382-400.

Siddiqui, F. (2017, March 22). Waving the White Flag on American Energy Innovation. Retrieved May 03, 2017, from http://www.thirdway.org/memo/waving-the-white-flag-on-american-energy-innovation

Sill, M. (1986). National responses to the energy crises of the 1970s: Belgium and Denmark. *Geography: Journal of the Geographical Association*, *71*(1), 65.

Sovacool, B. K. (2013). Energy policymaking in Denmark: implications for global energy security and sustainability. *Energy Policy*, *61*, 829-839.

State Policies: Support for Renewable Energy. (n.d.). Retrieved May 04, 2017, from https://www.epa.gov/statelocalclimate/state-renewable-energy#State%20Policies%20to%20Support%20Renewable%20Energy

Thrush, G., & Davenport, C. (2017, March 15). Donald Trump Budget Slashes Funds for E.P.A. and State Department. Retrieved May 04, 2017, from https://www.nytimes.com/2017/03/15/us/politics/budget-epa-state-department-cuts.html

Tomain, J. P. (2015). Democratization of Energy, The. *Vand. J. Transnat'l L.*, *48*, 1125.

U.S. Constitution

The United Nations Security Council. (n.d.). Retrieved March 10, 2017, from http://www.un.org/en/sc/about/

Vasseur, M. (2016). Incentives or Mandates? Determinants of the Renewable Energy Policies of US States, 1970-2012. *Social Problems*, spw007.

Vernon, R. (Ed.). (1976). *The Oil Crisis*. New York: Norton.

What is U.S. electricity generation by energy source? (2016, April 1). *U.S. Energy Information Administration.* Retrieved from https://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3

Wiking, M. (2016, January 20). "Why Danes Happily Pay High Rates of Taxes." *U.S. News & World Report*. U.S. News & World Report. Retrieved May 04, 2017, from https://www.usnews.com/news/best-countries/articles/2016-01-20/why-danes-happily-pay-high-rates-of-taxes

Wood, C. (2017, January 27). Why a red state is the No. 1 wind energy producer in America. Retrieved April 25, 2017, from http://www.csmonitor.com/Environment/2017/0127/Why-a-red-state-is-the-No.-1-wind-energy-producer-in-America

The World Factbook: DENMARK. (2017, January 12). *Central Intelligence Agency*. Central Intelligence Agency. Retrieved February 24, 2017, from https://www.cia.gov/library/publications/the-world-factbook/geos/da.html

The World Factbook: UNITED STATES. (2017, January 12). *Central Intelligence Agency*. Central Intelligence Agency. Retrieved March 10, 2017, from https://www.cia.gov/library/publications/the-world-factbook/geos/us.html

A World-Leader in Wind Energy. (2015, November). Retrieved February 24, 2017, from http://denmark.dk/en/green-living/wind-energy/