Climate Change Policy in Canada and Germany: A Comparative Analysis

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FOREWORD

This major research paper related to my plan of study in many respects: In general I have developed an understanding of the science of climate change, and have learned about policies and strategies that exist to address climate change mitigation. An analysis of Germany's climate change policy particularly has provided me with a deeper understanding of renewable energy policies in relation to achieving targets set out by climate change policies. In addition to this, this paper has contributed to my understanding of the role each level of government has to play in issues about the environment in Canada, in particular writing this paper has provided me with a deep understanding of the role that the federal government has to play in climate policy versus the role of the provinces. I have also developed a deeper understanding of the policy process through analyzing how Canada and Germany have both approached climate policy agenda setting and formulation. Overall, the research and writing that went into developing this paper meet the expectations set out in my plan of study.

ABSTRACT

Climate change is an important issue. This paper will look at the climate change policy of Canada and Germany. In particular borrowing from Hessing et al.'s analysis of resource and environment policy by way of looking at the dynamics of policy networks, I will compare the climate change policy of Canada and Germany. Policy network analysis looks at the intersections of state and societal actors, and helps us to understand why we might see significant policy change and progression on the one hand or no change and only incremental progress on the other. Canada has gained a reputation for being a laggard when it comes to its national climate policy, whereas Germany has been praised for its more progressive approach and ambitious commitments to climate change policy. Using a framework inspired by Dr. Mark Winfield, in combination with policy network analysis, this paper will analyze Canada and Germany's climate policy through an analysis of their institutional frameworks, political economic context, societal forces, and the ideas and discourses around the matter. The aim of this paper is to provide an analysis of the key problem areas for Canada's climate change policy, through a comparison of Germany's more progressive action on climate policy.

In chapter one I will introduce the importance of climate change policy. In chapter two I provide an explanation of the significance of climate change and the science behind it. In chapter three I look at climate policy in Canada through an intuitional, political economic, societal and ideational framework in the context of policy networks and argue that jurisdictional ambiguity and the strong relationships between the state and economic interests have placed a significant barrier on moving forward on climate change. In chapter four, I apply this same framework to the German context and argue that the close ties between non-economic actors such as environmental groups and state officials, along with the overall general agreement within the climate policy community that action on climate change is required, has helped to foster a progressive climate change policy in the country. In chapter five I tie my arguments for each country together to highlight the key differences in the interactions of institutions, economic interests, societal actors, and the general ideas about climate change.

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CHAPTER ONE: INTRODUCTION

The importance of a national climate change policy

The problem of climate change is important and worth researching because climate change is increasingly becoming known as one of the greatest challenges of our time. It is an issue that extends beyond national borders, which adds to the complexity of coordinating a sound climate change policy and moving forward. Given the global context of this problem, working together internationally is important in order to set global targets that nations can work towards. However, every country is unique with their own individual challenges, so it is important that individual countries work towards national climate change policies in order to meet agreed upon global targets.

In light of the past United Nations Framework Convention on Climate Change Conferences, climate change policy in Canada has made very little progress, and a lot of the time, the issue has been largely disregarded, especially in the past decade under the conservative government of Stephen Harper. Canada has done poorly on environmental performance compared to OECD countries, particularly in terms of climate change and energy efficiency. This has mainly been due to Canada's resource-intensive economy. For a long-time, environmental policy in Canada has been a debate over the economy vs. the environment, with the belief that you can either have a developed economy or a clean environment, but not both. This is not the case however, and many countries have been able to achieve sustainable development, protecting the environment without hurting the economy.

Coordinating a national climate change policy is a common challenge amongst all nations, but it is especially challenging amongst federated systems that combine self-rule with shared rule. Federations must balance divergent and shared interests, and often face collective action dilemmas as problematic as those that operate between

states. Through a comparison of two federated states: Canada and Germany, I wish to examine why Canada has lagged while Germany has largely been a leader on the climate policy front. Through a comparative policy network analysis of both countries, I wish to seek how coordination between nation states can be attained and sustained.

The remainder of this paper will begin by explaining the significance of climate change and the science behind it. It will then go on to provide an analysis of both Canadian and German climate change policy, through an analytical framework which includes four key factors in policy network analysis: institutional framework, political economic context, societal forces, and ideas and discourses. This framework is used because policy decisions and policy changes are usually a product of the interaction of these four key areas. It is important to consider the institutional context of a country's political structure within which governments operate, in order to understand why/how certain decisions get made. Taking a look at climate change policy through the lens of the political economic context, will help us to understand action on climate change policy, by the way in which multiple and often conflicting interests are affected and impacted differently by economic transactions, recognizing that actors are differentially situated with respect to the costs and benefits of those exchanges. Societal forces such as interest groups and non-state actors, the media, and public opinion, usually help to shape the discourses around climate change in a country, therefore it would be beneficial to look at how societal forces are shaping climate change policy. Lastly, an analysis of the ideas in a nation and its leader can have a significant impact on climate change. For example, is the issue viewed in terms of climate vs. the economy, or can we address both together? Questions like this will have significant implications for policy. The aim of this paper is to provide an analysis of the key problem areas for Canada's climate change policy, through a comparison of Germany's more progressive action on climate policy.

Policy Analysis and the Policy Network

This paper draws heavily from the work of Hessing, Howlett, and Summerville (2005) and their contribution to Canadian natural resource and environmental policy; more specifically their emphasis on the importance of policy networks in relation to policy analysis. A crucial component of policy analysis involves investigating policy actors and their interests. This section of the paper will examine the framework for environmental policy analysis used by Hessing et al. (2005): the policy cycle model in combination with network policy analysis. Environmental policy in Canada has been heavily influenced by a strong resource sector and as a result has been affected by the jurisdictional capacities in the country. Before exploring Hessing, Howlett, and Summerville's work, a brief exploration into environmental policy in general, from a traditional perspective to the current situation will take place below.

In Canada jurisdictional complexity has complicated environmental policy making in a federal system. There is no explicit reference made to environment in the constitution and therefore, national and provincial governments have interpreted the division of powers. The federal government uses the peace, order and good government as a basis to act, and the provincial governments use the ownership of resources, civil law, property, and civil rights outlined by the constitution (Skogstad and Kopas, 1993; Doern and Conway, 2008). This creates jurisdictional ambiguity over environmental matters between the federal and provincial governments. Traditionally, this has led to federal guidelines and provincial enforcement, particularly since provinces have close ties with economic actors; they are reluctant to enforce coercive regulation, which explains why the federal government only provides guidelines.

As environmental issues began to rise in the early 1970s, economic actors played a powerful role in policy-making, as they had close ties to provincial

governments. Since Canada's history has traditionally been organized around resource exploitation, there has been a very close association between government and business. Both the federal and the provincial governments held a bias towards economic development activities and as such, often times were in agreement with industry representatives. This resulted in weak regulations on industry. Over the years however, environmental policy making has become more open, to include actors beyond just industry and government officials, such as the general public and environmental groups. After 1990 the role of the public started to become more prominent because the threat of more severe environmental problems began to increase, a loss of faith in government to act due to their close relations with economic interests, and with the help of the court system (Skogstad and Kopas, 1993).

Court decisions in the early 90s resulted in the creation of a greater role for federal-level governance under areas that were considered to be exclusively under provincial jurisdiction. For example, in natural resource development that impacted areas of federal jurisdiction, and for which the federal government contributed towards financially, are subject to a federal environmental impact assessments. In the presence of such court rulings, and with the passage of the Canadian Environmental Protection Act (CEPA) in 1988, the federal-provincial relationship became more tense, and the experience of intergovernmental conflict increased. Provincial governments strongly opposed court rulings that granted greater powers to federal government in fear that they would lose ownership and control over natural resources, and as a result economic development. As the environmental policy process began to open up, due the increase in public involvement and environmental groups, more scrutiny started to be placed on governments to act accordingly. This created what Stogstad and Kopas have referred to as 'competitive federalism' to the extent that the two levels of government (federal and

provincial) work towards obtaining public support by providing policies that the public would like to see (1993).

In light of intergovernmental conflicts, the federal government has attempted to manage this conflict through co-operative federalism and federal self-restraint. Institutional mechanisms such as councils and committees provide a basis for cooperation among different levels of government. The Canadian Council of Ministers of the Environment (CCME) for example has played a crucial role in facilitating intergovernmental consultation and cooperation on environmental policy matters. In addition to this the federal government exercised a certain level of constraint in response to the provinces concerns that it was reaching too far into provincial jurisdiction. The federal government in this situation eases tensions with the provincial governments by ensuring that it would not act unilaterally, and also by reducing the scope of environmental assessments done at the federal level (Skogstad and Kopas, 1993). As a result, competitive federalism exists in combination with cooperative federalism. This has created complications with environmental policy making, as governments struggle to manage accountability to the public, and at the same time maintain cooperation between national and sub-national levels. The policy cycle can be used to help better understand these complexities within environmental policy-making.

The policy cycle is heavily influenced by Harold Laswell's model in which he isolated each state of the process for examination before putting the entire picture together (Howlett and Ramesh, 2003). Laswell's model informed later models which saw policy making as a process of applied problem solving. Hessing and Ramesh describe this process in 5 stages: "(1) recognition of a problem, (2) proposal of a solution to the problem, (3) choice of a solution, (4) putting the solution into effect, and (5) monitoring the effects of the solution upon the problem" (2003). Through this approach it is clear that the policy process is an ongoing cycle, and in parallel to this process is the policy

cycle which includes the following 5 stages: agenda setting, policy formulation, decision making, policy implementation, and policy evaluation. A sequential cycle such as this one, in the analysis of environmental policy is beneficial since it reduces the complexities of public policy making, by dividing it up into stages and sub-stages. Each of these stages can be looked at alone or in relation to one another. This process also allows for an examination of all the actors and institutions involved with a policy, beyond just governmental agencies (Howlett and Ramesh, 2003).

The policy cycle model has also been beneficial in identifying key characteristics of policy making at different stages of the process. This approach provides a common basis for comparison of the policy process and actors, therefore a basis for different sectors and different levels of government for example, to be examined in a similar manner. There are criticisms of the policy cycle model which argue that it is too systematic of an approach to problem solving, and that stages do not follow the logic of applied problem solving resembled in the policy cycle, instead, stages can be skipped or followed in varying orders (Hessing et al., 2005). Despite this, it is important to remember that the model is meant to be simple; it is not intended to capture all the complexities of public policy, but it does allow for policies to be reduced to analytical purposes to aid in investigating the complexities as they are uncovered. Therefore the policy cycle is useful to help us understand as Hessing et al. (2005) describe it: “the dynamic nature of public policy making and to organize the complex relations binding actors, institutions, and policy instruments.” A look at the policy process as a whole helps to uncover a pattern of policy development and change.

Generally studies reveal two typical patterns of policy change. One pattern reveals a relatively “normal” or a continuity of past policies, in other words there is limited policy change which can be attributed to having the same set of actors involved in the policy process over a long period of time (Hessing et al., 2005). This can be the result of

“policy monopolies” which Frank Baumgartner and Bryan Jones argued are created by subsystems, “in which interpretation and approaches to problems are generally fixed” (Hessing et al., 2005). If these monopolies are broken by new members in the subsystem, policies can change. This brings us to the second pattern of policy change, which indeed involves a more substantial change and is usually referred to as a change in policy paradigms. Peter Hall establishes policy paradigms as “the broad goals begin policy, the related policy or puzzles that policy makers have to solve to get there, and, in large measure, the kind of instruments that can be used to attain these goals.” It can be referred to as a set of ideas within a policy subsystem; therefore a change in policy development can be linked to a change in the composition and membership of a subsystem. Shifts in material interests, different combinations of economic actors, changing economic relations and activities - all have a significant impact on how policies can change. Therefore a crucial part of policy analysis should begin by investigating policy actors and the intersection of their interests.

Policy subsystems as defined by Hessing et al. (2005) are “comprised of groups of actors bound together by some combination of material interests and policy ideas.” Democratic political subsystems are generally thought to be accountable to, and represent their citizens; this however, is not always the case. Ideally in environmental policy making, the public influenced elected representatives initiate government action, through lobbying, public education, and media campaigns. Public involvement however, faces barriers such as a lack of accountability of elected officials, the complexity of issues and problems to be solved, and access to financial and technical resources. It is more likely that the institutional and economic advantages seen by actors with financial interests overpower actors with non-financial interests. To more critically analyze these intersections, an analysis of policy subsystems should take place. Hessing et al. use two

components of subsystems to understand the interactions of actors in the policy process: 1) policy communities, and 2) policy networks.

Policy networks are connected by similar material interests, whereas in policy communities, this material and financial interest does not exist, but policy actors are connected by common policy knowledge. Hessing el al., (2005) describe the dynamic of the policy community and policy networks: “the policy network, represents a subset of the actors in the policy community that are connected by their interests and, more importantly, directly or indirectly connected to the decision-making process.” Therefore policy networks help us to understand the interests and the policy process, which links political economy and policy analysis. Those involved in policy networks are state actors such as those within the executive and legislature, and societal actors such as industry, interest groups, NGOs, the public, and mass media. The interaction of state and societal actors in the policy making process characterizes policy networks. Hessing et al., use the policy cycle model and look at policy networks within the five stages of the model to understand resource and environmental policy in Canada.

Policy networks can be classified by the number and type of participants and their relations with one another. Hessing et al. recognize eight subsystems which policy networks can be classified in, depending on whether the networks are state directed or society dominated, as well as on the number of societal groups that are involved in the network. In some cases issues take place solely within the state and therefore are classified as bureaucratic networks, in which interactions exist between state officials only. More commonly however, societal groups are involved in these interactions. Pluralistic networks for example, are state directed but involve interactions with at least three or more societal groups. In cases where there is only one other societal actor beyond the state, the societal actor is usually a business interest. In this case if the state directs the business interest the network is categorized at a clientelistic network, and if

the reverse is true, wherein the business interest dominates the state, this is referred to as a captured network. Of the eight taxonomies of policy networks, pluralistic networks are most common in the environmental policy process.

When examining policy networks within resource and environmental policy, Hessing et al. find that significant change has not, and is unlikely to occur in the near future. In this pluralistic policy network, non-economic and economic interests, as well as the media interact with one another, as well as with state actors. Non-economic interests such as environmental NGOs use fundraising and public education as techniques to spread potential ecologically sound solutions to Canada's environmental problems. The media has a crucial role to play here with helping to highlight events, and educational campaigns. However, the media prefers to highlight specific events rather than chronic problems, such as environmental degradation which requires long term policy options. Media outlets are also connected to economic interests, and run advertising campaigns in favour of these interests. This also makes it difficult for non-economic interests to affect policy formulation. Economic interests such as industry are at an advantage, not only financially, but they also have considerable expertise on policy making and policy procedures. Industry groups tend to be well established and have clear goals, therefore when policy windows arise; they are usually well prepared to offer solutions. In addition to industry actors, state actors play a significant role in policy formulation. Particularly, the executive comprised of the prime minister and his/her cabinet members who act as key players in policy making through powers granted to them by the constitution to govern the country. If the government is dominated by, or has close relations with other policy subsystems, such as industry members, Hessing et al., find that these interactions result in an incremental approach to policy making, based on bargaining, rather than a comprehensive rational approach.

Overall, Hessing et al. find that depending on how much access to the policy arena, and decision making power that subsystem members have, will determine how members are represented in the policy process. For example, productive actors such as businesses or industry who have a direct economic interest tend to be at an economic and institutional advantage, providing them with access to the policy arena and decision making power, and as a result are able to overcome the disadvantages that might be faced by public interest groups. Therefore, Hessing et al. find that when you have in-cohesive policy networks that are operating across different areas creating an arena of fragmentation, it is difficult to promote rational outcomes. Since policy networks provide an arena for consultation and exchange of information, and an area to negotiate decisions, when you have a complex network structure, and a high level of institutional constraint, the result is incremental adjustments to policy making rather than real change. As a result, major disagreements in Canadian resources and environmental policy have shaped the politics of policy making in this sector.

The analysis of resource and environmental policy undertaken by Hessing et al., informs this paper, and thus an analysis of policy networks in the climate change policy process can help us to understand its success or failure. In chapter three I look at climate policy in Canada through an intuitional, political economic, societal and ideational framework in the context of policy networks and argue that jurisdictional ambiguity and the strong relationships between the state and economic interests have placed a significant barrier on moving forward on climate change. In chapter four, I apply this same framework to the German context and argue that the close ties between non-economic actors such as environmental groups and state officials, along with the overall general agreement within the climate policy community that action on climate change is required, has helped to foster a progressive climate change policy in the country. In chapter five I tie my arguments for each country together to highlight the key differences

in the interactions of institutions, economic interests, societal actors, and the general ideas about climate change.

CHAPTER TWO: CLIMATE CHANGE BACKGROUNDER

How climate change became a prominent issue

Today the debate over anthropogenic climate change is largely settled, with majority of scientists in agreement that it may be one of the greatest environmental, social, and economic threats facing the planet. Despite being subject to uncertainties, climate science is well established and understood. The intergovernmental Panel on Climate Change (IPCC), which was set up in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), has consistently provided increasingly clear statements about the scale, impacts and future risks of recent climate change (IPCC, 2013; Compston and Bailey, 2008).

The concern of global warming has been around for a long time. Over a century ago, Swedish scientist, Svante Arrhenius put forward the greenhouse warming theory, by studying how changes in the levels of carbon dioxide in the atmosphere could alter surface temperature (Arrhenius, 1896). He found what scientists today have similarly found, which is that an increase in carbon dioxide content in the atmosphere, causes increases in the temperature. This was later confirmed by a scientist from the University of California, San Diego, Charles David Keeling. Keeling began collecting data of carbon dioxide content of our air in 1958 by taking continuous measurements at the Mauna Loa Observatory in Hawaii, and at the South Pole. By 1960 Keeling had discovered a yearly increase in carbon dioxide which was consistent with the amount of fuels burned each year (Keeling, 1960). This data, which is commonly referred to as the Keeling curve is “one of the undisputed facts in the climate change controversy, and led to the initial

growth of scientific concern in the late 1960s and early 1970s" (Bodansky, 2001).

Atmospheric measurements of carbon dioxide continued with improved computing power and more sophisticated computer models, leading to more accurate global warming predictions. In addition to the carbon dioxide content, scientists in the mid-80s began to recognize various other atmospheric trace gases that were also contributing to the greenhouse effect, such as methane and nitrous oxides. With greater certainty, scientists began to conclude in the late 70s to early 80s that anthropogenic climate change was in fact real, and that it would have negligible effects (Bodansky, 2001; National Research Council, 1979, viii).

The scientific evidence of an increase in carbon dioxide contributing to global warming has helped to bring the issue of climate change to the public and political sphere. However, with further pressure from a group of scientists who had close ties to WMO and UNEP, were acting as knowledge brokers, and they were able to effectively communicate the issue. As a result, climate change emerged as an issue on the international agenda (Bodansky, 2001). Moreover, the late 80s was a time when environmental issues were generally at the forefront of public concern due to the discovery of the depleting ozone layer caused by chlorofluorocarbons (CFCs), deforestation, loss of biodiversity, pollution of the oceans, and problems with hazardous waste. This led to the UNCED process and the publishing of the Brudtland Report, *Our Common Future*, in 1987. This report placed a great emphasis on sustainable development, and helped to spread the message to the public about issues of the environment and sustainability. For this reason, making the connection between human activities altering the environment was becoming easier to make and increasingly well known. And finally, when North America was hit with a heat wave and drought in 1988, greenhouse warming had become even more prominent in the U.S. and Canada, and as a result of all these factors, the first conference on reducing global CO2 emissions was

held in Toronto in 1988. From this point forward, international conferences on climate change began to take place regularly, most famously the United Nations Framework Convention on Climate Change (UNFCCC), holds an annual Conference of the Parties (COP), in which member states come together to agree on ambitious greenhouse gas emissions reduction targets, and discussions on how best to move forward on the issue of climate change.

A scientific primer

As discussed above, the science of climate change has been researched and studied for a long time, beginning over a century ago with Svante Arrhenius' work. Since then it has come a long way; the debate over the science of anthropogenic climate change is over with 97% of the scientific community now in agreement that human induced climate change is a real and a serious issue (Anderegg, et al., 2010; John Cook et al., 2013; Powell, 2013). Such a consensus comes despite some of the scientific uncertainties that are inherent within the climate change phenomenon. It is crucial for the general public to understand the basics of the science of climate change in order to appreciate the severity of this problem.

The Atmosphere and Oceans are getting warmer:

At the current moment we are faced with the reality of a warming atmosphere and oceans, diminishing snow and ice cover and a rising sea level. The last three decades have shown increasingly warmer surface temperatures since the late 1800s [see figure 1] (Kennedy, 2013). "The ocean is the largest solar energy collector on Earth" and covers 70% of the Earth's surface (Dahlman, 2015), therefore as atmospheric temperatures rise, oceans absorb the heat and thus become warmer. As a result, the average global ocean heat content has been increasing worldwide since the late 1800s (IPCC, 2014). There has been a significant increase in the ocean heat content of the

upper layers of the ocean in the past two decades, as displayed in Figure 2 (NOAA, 2016; Dahlman, 2015). This increase in the ocean heat content has effects on the Earth's cryosphere which, consists of all the frozen water that is part of the Earth's system, for example ice sheets, glaciers and snow cover. Over the last two decades we have seen the glaciers shrink worldwide, Greenland and Antarctic ice sheets have declined in mass, and the spring snow cover in the Northern Hemisphere has been shrinking (IPCC, 2014). As a result of such trends, like an increase in melting snow and ice, and expanding oceans from increased ocean heat content, the global mean sea level rose by 0.19 m from 1901 - 2010, and is continuing to rise (Kopp et al., 2016; Rietbroek et al., 2016; IPCC, 2014).

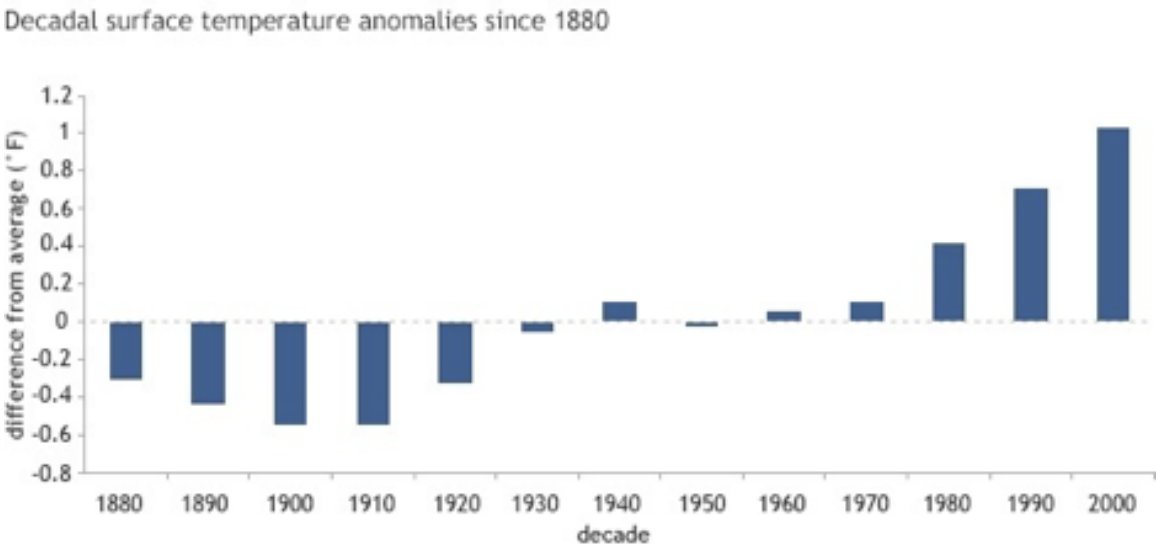

Figure 1. The graph above shows that during the last 3 decades, each successive decade has been warmer than the next. (Caitlyn Kennedy, 2013)

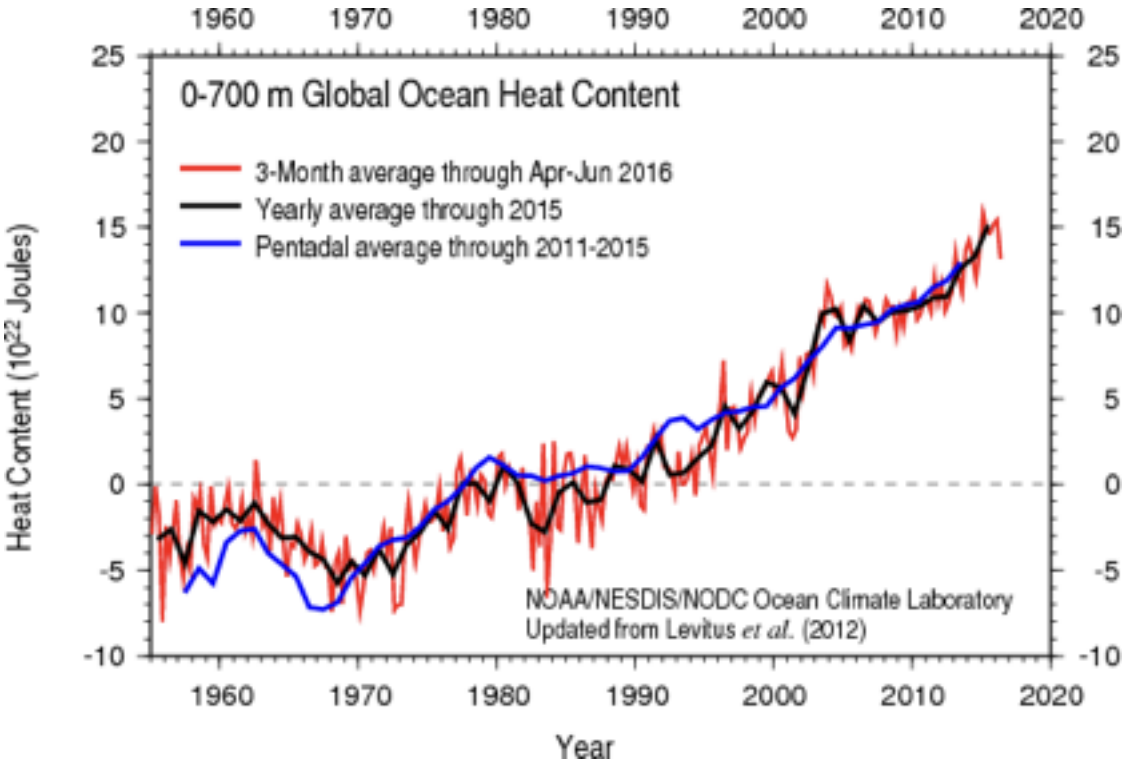

Figure 2. The graph above shows the global average ocean heat content from 1955 to 2010 in the top 700 m of the ocean. The graph is provided by NOAA's Ocean Climate Laboratory (2016), which was updated from Levitus et al. (2012).

Earth's Energy Budget and Climate Feedbacks

In order to accurately account for the Earth's climate, we must look to the Earth's energy budget. The Earth has an energy budget, which accounts for the amount of energy from the sun that enters and leaves the climate system; this flow of incoming and outgoing energy in the form of solar radiation, is the Earth's energy budget. In order to maintain a stable temperature on Earth, the amount of incoming and outgoing solar radiation must be equal. When the Earth's radiative equilibrium is out of balance, due to changes to the Earth's climate system that affect the amount of energy that enters or leaves the system, this can result in temperatures to rise or fall. The destabilizing mechanisms in this process are referred to as climate forcings. There are natural climate forcings and human caused climate forcings. Natural climate forcings include changes in the brightness of the sun and Earth's orbit, and significant volcanic eruptions. While

human caused forcings include particle pollutions such as aerosols, deforestation, increase in carbon dioxide and other greenhouse gases. These climate forcings have an effect on the amount of sunlight that is absorbed on Earth and reflected back to space, contributing to the rise and fall of temperatures. For example, natural climate forcings such as large volcanic eruptions eject particles into the stratosphere, which reflect incoming sunlight and cool the Earth's atmosphere. On the other hand, a human-caused climate forcing such as increased concentration of atmospheric carbon dioxide absorb incoming sunlight, which causes less heat to radiate back to space and therefore warm the Earth's atmosphere.

The above-mentioned climate forcings can trigger feedbacks in the climate system, which either diminish or intensify the original forcing. There are positive and negative feedbacks that exist in the climate system, which help us to determine the structural stability of our climate system. Positive feedbacks are those mechanisms, which amplify either the cooling or the warming of the climate, whereas negative feedbacks are those mechanisms which result in an opposite effect of the initial forcing. For example, ice albedo is a positive feedback mechanism because as the climate cools there is increased ice and snow cover, which increases the amount of solar that is reflected back into space, and therefore there is a further increase in cooling. Another example of a positive feedback is water vapour, which is one of the strongest greenhouse gases in the atmosphere. As the temperature increases, there is an increase in evaporation from the oceans, which adds more water vapour into the atmosphere, and since water vapour is a greenhouse gas, it further increases the surface temperature by trapping the increased heat. Increased evaporation from the oceans caused by an increase in surface temperature can also be a negative feedback. For example, the increased evaporation from the oceans might cause more low-level clouds to form, which reflect more sunlight back into space, causing a slight decrease in surface temperature.

The ocean plays a crucial role in stabilizing the Earth's climate system because; it has the "ability to store and release heat over long periods of time" (Dahlman, 2015). This is a natural process in the Earth's system, where by the ocean absorbs energy from the sun and stores it as heat without causing an increase in atmospheric temperature. The heat is absorbed at the surface of the ocean, but later ocean currents, and waves move this heat deeper into the water and around the world. The heat capacity of oceans is much higher than the atmosphere, and therefore can absorb large amounts of heat energy at only slight increases in temperature; this helps to alleviate some of the warming in the atmosphere (NOAA, 2016). The problem however, occurs because there has been a significant increase in the heat content at the upper levels of the ocean, which has been absorbed through excess heat from the atmosphere. This excess heat is accumulating as a result of an increase in greenhouse gases that are preventing heat from escaping the Earth's atmosphere. This increase in heat content at the oceans surface is an important factor in understanding the global climate. Since heat from the ocean eventually re-enters the Earth's system, the ocean has the ability to continue to warm the Earth even decades after the heat was absorbed. Therefore, even if we were to halt the release of anthropogenic greenhouse gases into the atmosphere, warming will continue due to the increased ocean heat content. Consequently, it is important to keep track of how much heat energy the ocean absorbs and releases in order to understand and model global climate.

Why are the Ocean and Atmosphere Getting Warmer?

The main source of warming on Earth is light from the sun, but the observed warming that has been taking place has not been the result of the variation in the amount of incoming sunlight. Instead, it has largely been caused by the increasing atmospheric content of carbon dioxide and amplified by an increase in water vapour and

methane. As mentioned above, it was Charles David Keeling who, in 1958, first began keeping a record of the amount of carbon dioxide content in our air, on a monthly basis, measuring it in parts per million by volume (ppmv), at the Mauna Loa Laboratory on the Pacific island of Hawaii. His son Ralph Keeling, continued to collect this data and as of March, 2016, the average value of carbon dioxide was 406 ppmv.

The main source of increasing carbon dioxide in the atmosphere is the burning of fossil fuels (IPCC, 2014). As the population grows the amount of fossil fuels we burn increases, which causes the release of more carbon dioxide. Carbon dioxide heats the atmosphere by creating a barrier for infrared radiation to escape back into space. Instead, the infrared radiation gets trapped, and warms the atmospheric carbon dioxide molecules. The heated carbon dioxide then collide with and warm nitrogen and oxygen molecules which account for 99% of the air. If we had no GHGs however, too much heat would escape to space and it would be too cold for life to survive on Earth. Therefore, the higher the CO2 content the more infrared radiation that gets trapped and the more warming there will be. Furthermore, as the air becomes warmer it holds more water vapour, which as mentioned above is another greenhouse gas therefore contributing to further warming. Methane is another greenhouse gas which absorbs infrared radiation at greater volumes than carbon dioxide; however, methane releases the heat much faster than carbon dioxide. Methane is still a concern, because as the climate is warming, there is uncertainty around the amount of Methane that will be released in a short period of time, which will greatly amplify warming.

CHAPTER THREE: CLIMATE CHANGE POLICY IN CANADA

Institutional Framework

Governance Structure

In Canada the political structure operates within a constitutional order, in addition to a set of international treaties, organizations, and agreed upon rules, between sovereign states that set the parameters in which these states will operate. The constitution sets out the fundamental rights of citizens and determines the distribution of powers among state actors, as well as the relationship between the state and its citizens (Olive, 2016). It is the Constitution which defines the responsibilities of the federal and the provincial governments, which results in inherent complications for environmental policymaking; this will be discussed further below. In addition to the Constitution, Canada operates within a parliamentary democracy; in which elected and appointed officials make decisions. Canada's parliamentary democracy is made up of three branches of government: the executive, legislative and judicial branch.

The executive includes the monarch as the head of state; her representative in Canada, the governor general; and the prime minister as well as his cabinet and bureaucracy. Although the monarch and governor general hold largely symbolic roles, the prime minister and his cabinet are responsible for making policy and laws, whereas the bureaucracy's main role is to administer those policies. The legislative, commonly referred to as Parliament includes the House of Commons and the Senate. The House of Commons is comprised by elected officials known as Members of Parliament (MPs). The political party that holds the most seats in the House of Commons is the party that will form government, and the party with the most seats holds the majority in the House of Commons and therefore, it becomes very easy to pass legislation. For example when voting on a bill the governing party, if it is a majority, already has enough votes to pass

the bill. The House of Commons is intended to be representative of the Canadian population, and therefore aims to raise issues and represent the needs of the population in a fair manner. The Senate is also included in the legislative, which consists of 105 members appointed by the governor general at the recommendation of the prime minister. The Senate should be representative of the region, and therefore Ontario, Quebec, the Maritimes, and the Western provinces are each granted 24 seats, each of the territories are granted 1 seat each and Newfoundland and Labrador has 6 seats. Although, the Senate does not have any party affiliation, since the prime minister selects the senators, he is likely to select members affiliated with his party. Similar to the House of Commons, the Senate has the same legislative responsibility. In order to become law, a bill has to pass through both the House of Commons and Senate. Lastly, the judiciary, although it is not part of parliament, it does play a crucial role in confirming the constitutionality of laws and policy, and includes the Supreme Court of Canada, the federal and provincial court systems, and military courts. These three branches work together to create, enact, and enforce law in Canada, and therefore are important to understand climate change policy.

Multilevel Governance

Canada is a federal country, which means power is divided between the national and subnational levels of government. As mentioned above the Constitution has set out the law making powers of each level of government, so that neither level can make changes to the other level's powers, without the full consent of Parliament and all of the provinces (Olive, 2016). That said however, the Constitution Act, 1867, is not clear at identifying power over matters related to the environment. Section 91 of the Constitution does provide some clear authority over the environment to the federal government. For example, the federal government holds authority over matters related to navigation and

shipping, seacoasts and fisheries, International boarders, trade and commerce, international relations, and criminal law, including jurisdiction of all federal lands and activities. The 1867 Constitution also grants federal government the power to make laws for the “peace, order, and good government of Canada” (POGG), in which case the federal government can override provincial powers in the case of a “national crisis”, but the constitutional law remains unclear with this. Section 92 of the Constitution grants clear environmental powers to the provinces, which include the management and sale of public lands, property and civil rights, and matters of a merely local or private nature. Upon updating of the constitution in 1982, provinces also gained clear jurisdiction of non-renewable natural resources, forestry, and electric energy (Olive, 2016). Although at face value from the Constitution, it may seem like the national and subnational relationship with the environment is clear, in reality this is far from the case in Canada. Often times, jurisdiction overlaps, for example in the case of water, the federal government has jurisdiction over fisheries, navigation, and international waters, and the provinces have jurisdiction over water resources and supply, complicating the relationship between which level of government holds jurisdiction over water.

When we look at the division of powers between the provinces, we can see that Ontario and Quebec hold the greatest influence in federalism by virtue of their population - 60% of Canada’s population is concentrated in these two provinces alone. Therefore, Ontario and Quebec hold the most seats in Parliament and as a result, their interests are often predominately influential when it comes to guiding Canadian policy. Consequently, Western and Eastern provinces largely rely on their provincial governments to meet their needs and interests. In 2006 however, when Stephen Harper was elected as Prime Minister of the conservative party, he brought in open federalism, which provided greater independence to provinces by shifting more power from the federal towards the provincial governments moving away from a more collaborative approach to governance

(Olive, 2016). This was great news for the Western and Eastern provinces that often primarily looked towards provincial governance, as there would now be less federal level oversight.

International Context

Beyond federal and provincial policy-making powers in Canada, various other actors exist that play a role in policy-making in the international and municipal arenas. For example, at the international level, the United Nations (UN), the North American Free Trade Agreement (NAFTA), and the United States (US) have implications for climate change policy making in Canada. Although no other country or international organization can make laws for Canada, they can surely influence decisions made within Canada, since as an industrialized country, it participates heavily in the international arena. At a more local scale, municipalities are granted certain powers by provinces in the areas of transportation, energy use, and water use, and therefore influence environmental policy (Olive, 2016).

Analysis

This section will analyze the above-mentioned institutional factors specifically with respect to climate change. Federalism in Canada has placed a significant barrier to climate change policy in this country. The federal-provincial relationship with regards to climate change has markedly lacked coordination. Although the Constitution gives jurisdiction to federal and provincial governments through section 91 and 92, it does not clearly mention of who has jurisdiction over the environment. Section 132 of the Constitution gives the federal government authority to sign international treaties, and therefore was able to, without consultation with the provinces, sign the Kyoto Protocol and make international commitments to reduce GHG emissions. The provinces, however have jurisdiction over most of the resources on Crown land under Section 109 of the

Constitution, and have jurisdiction over non-renewable resources under Section 92A, and therefore, they will have a significant role to play in ensuring federal level GHG emissions reduction commitments (Hessing et al., 2005).

In recognizing the crucial role both levels of government play towards action on climate change, a system for policy co-ordination has been in place in the form of the Canadian Council of Ministers of the Environment (CCME) and the Canadian Council of Energy Ministers. An extensive system of federal-provincial committees, report to both of these Councils in hopes of achieving policy coordination. In all of the mechanisms that involve efforts to reach some form of policy coordination, decision making is consensual, which means any one jurisdiction can veto and therefore weaken the ability of the institutional system to facilitate negotiated agreements (Gordon and Macdonald, 2009). The CCME “is the primary minister-led intergovernmental forum for collective action on environmental issues of national and international concern” (CCME, 2014).

Two committees that attempted to act as a tool for coordination, in 1992-1997 the Joint Ministers Meeting (JMM), and in 1998-2002 the National Climate Change Process (NCCAP), both failed and an agreement to ratify the Kyoto Protocol in 2002 could not be reached (Gordon and Macdonald, 2009). Since then there has been no real effort to coordinate federal and provincial climate policy, although recent efforts through the mechanism of the First Ministers meeting, may change this path. The agenda items for First Ministers meetings with the Prime Minister and provincial and territorial Premiers, have historically been policy fields other than climate change, such as health and aboriginal affairs for example, and have been inconsistent with having regular meeting. Before the change in government in 2015, the last First Ministers meeting was held in 2009 and its focus was the financial crisis. In 2015 the Trudeau government made a commitment to have regular annual First Ministers meetings, and climate change was the main topic of discussion. Therefore we may begin to see a shift in climate change

policy coordination; however, it is too early to tell exactly how effective this will be.

In addition to federal-provincial barriers, friction between federal ministries in the past has also made it difficult to achieve a coherent national climate change policy. Particularly, the departments of Environment Canada and Natural Resources Canada (NRCan) have differed in their preferred approach to moving forward on emission reduction targets. For example, during the time of the National Action Plan on Climate Change (NAPCC) in 1993-1995, then Environment Minister, Shiela Copps preferred emission reductions, whereas, NRCan Minister Anne McLellan, preferred a more voluntary approach which was favoured by the petroleum industry and conservative government in Alberta (Gordon and Macdonald, 2009).

In the international arena, Canada has institutions in place to establish coordination with the US, and have made commitments under international frameworks most notably the UNFCCC. Although thus far, commitments have been made on a voluntary basis and due to the lack of federal consultation with the provinces prior to making such commitments, Canada has never been able to achieve their GHG reduction commitments. In the case of the US, Canada has a vested interest to coordinate climate policy with their international counterparts, for the sake of international trade and to remain competitive in the economic market. Due to this fear of crippling it's competitiveness and in turn the economy Canada's federal government has largely placed an emphasis on voluntary approaches to reducing emissions (Macdonald and Smith, 2000).

Overall, since the Canadian Constitution gives jurisdictional responsibility over natural resources to provinces, it is not fully clear whether emissions related to these resources should be the sole responsibility of the provinces or whether it should be a shared responsibility between provinces and the federal government. It is however certain that climate change policy in Canada will require the full cooperation of federal

and provincial governments, as well as between interdepartmental divisions such as Environment and Climate Change Canada and Natural Resources Canada. Although the federal government might have the final say during international agreements, it is largely in the hand of the provinces, whether or not those commitments will be implemented. Therefore it is in the best interest of the federal government to work closely with the provinces.

Political Economic Context

The political economic context of climate change policy in Canada helps to further explain the failure of the ability of institutions to reach a coordinated policy for the country. Knowledge of Canada's geography can help to explain some of the challenges faced by the federal government. Canada's population is largely clustered around major cities located along the southern most parts of the border. Over half of the country's population resides in Ontario and Quebec, combined these provinces have 61.5% of Canada's total population (Stats Can, 2016). The Western provinces have 31.6% of the population, and the Atlantic provinces have just 6.6% of the total population (Stats Can, 2016). Since seats in the House of Commons are distributed among the provinces in proportion to the population, majority of seats represent the interests of only a few provinces. This is important to consider, particularly in the context of natural resources. In addition to the distribution of the population, the regional economies of the provinces also vary. The natural resource industries in Canada have historically been a significant contributor to the country's economic activity, and many areas of the country remain dependent on them today. In the west coast and the Atlantic provinces we find fishery and forestry, agriculture and fossil fuels in the prairies, and manufacturing in the Ontario-Quebec St. Lawrence river corridor (Gordon and Macdonald, 2009).

As a result of varying economies across provinces, different regions rely on

different sources of energy. Energy has a crucial role to play in climate change mitigation, because energy, specifically from fossil fuels such as oil, natural gas, and coal is a major contributor to GHG emissions and therefore, climate change. In this sense energy policy and climate change policy are closely linked, with energy policy having significant ramifications for climate change policy and vice versa. As mentioned earlier, provinces have full jurisdiction over their natural resources and therefore, with such a diverse set of interests and economies, working closely with provinces to achieve a unified national climate change policy has thus far proved to be a difficult task.

Due to varying regional economies, the geography of Canada's GHG emissions is highly variable between provinces with Alberta contributing the most to the national growth in GHG emissions (ECCC, 2016). This variation largely stems from the energy sector. Quebec and Manitoba generate electricity through hydroelectric power, and therefore have relatively low per capita GHG emissions. Oil producing provinces like Alberta, Saskatchewan and Newfoundland have much higher per capita GHG emissions and therefore are more reluctant to commit to national GHG emission reductions because economically, these provinces are more vulnerable to rigorous climate change policy.

Sub-national Contributions to GHG emissions

Provinces and territories have varying degrees of GHG emission targets, some are more ambitious than others, but all are unique to their economic and political situations. Below is a brief synopsis of GHG emission contributions of the provinces and territories.

British Columbia (BC) is the fifth largest emitter of GHG emissions in absolute terms, contributing to 9% of national emissions as of 2014 (Pembina, 2016). BC's biggest emitting sectors include oil and gas at 33%, waste and other at 22%, and waste, coal production, light manufacturing, construction and forestry at 17%. BC has been

known to be fairly progressive in terms of implementing climate policies, and has decreased emissions 4% from 2005 to 2014 (ibid). It was one of the first provinces to implement climate policies including introducing a provincial carbon tax, commitments to improved energy and conservation and renewable energy development, and committing to a carbon neutral public sector (ibid).

In Canada, Alberta is the largest contributor to GHG emissions in absolute terms, and the second largest emitter per capita, contributing to more than 37% of Canada's total emissions (Pembina, 2016). A majority of the emissions from Alberta are from the oil and gas sector, which represents 48% of its total emissions. Electricity and transportation represent 16% and 11% of its emissions respectively (Pembina, 2016). Alberta has large deposits of bitumen, which is petroleum in the form of a thick, tar like black sand from which oil can be extracted from. Due to the large amount of bitumen in Alberta, the province is the largest exporter of oil in the country (CAPP, 2015), and the largest supplier of oil to the US (EIA, 2015). The process to extract oil from bitumen is highly carbon intensive and contributes to 8.5% of Canada's GHG emissions (Environment Canada, 2015, pt. 1, 63). The provinces total GHG emissions increased by 18% from 2005 to 2014; this was the largest increase in emissions across the provinces. Unlike BC, Alberta has been slower to implement climate change policies, and has made limited progress towards introducing policies to reduce emissions. In the past year however, under a new NDP government the province has released a "Climate Leadership Plan" in November 2015 which addresses some of its major emitting sources, but it does not include emission reduction targets (Pembina, 2016).

Saskatchewan, which borders Alberta, is another oil and gas producing province, and is the fourth largest emitter of GHGs in Canada. 34% of emissions in this province are from the oil and gas sector, 22% are from agriculture and 19% from electricity. Emissions here have also been on the rise since 2005, increasing 8% by 2014,

indicating a lack of progress made on any sort of climate change mitigation policies. Despite some progress on integrating and increasing renewable energy capacity, the province has not established a specific GHG reduction target.

The province of Manitoba only contributed about 3% to national GHG emissions in 2014. This low contribution to national GHG emissions is largely due to its heavy reliance on hydro-electric power for electricity generation. Manitoba's largest contributor of GHG emissions is the transportation sector at 35% of all the provinces emissions, followed by the agriculture sector at 31% and buildings at 14% (Pembina, 2016). Between 2005 and 2014 a 4% increase in GHG emissions has been observed, but since 2015 the province has committed to concrete emission reduction targets for 2030 and 2050. In order to reach their targets however, Manitoba must implement more aggressive measures in the transportation industry and consider a carbon pricing mechanism.

Ontario contributed to 23% of national GHG emissions in 2014, and is the second largest emitter (in absolute terms), but third lowest per capita. The largest GHG emissions come from the transportation sector accounting for 33% of the province's emissions, the buildings and emissions intensive trade export sectors account for 22%, and the iron, steel, chemicals and fertilizers industries account for 18%. Through the 2009 Green Energy and Green Economy Act and the 2014 phase out and ban of coal-fired electricity generation, since 2005-2014 emissions in Ontario have decreased 19%. Moving forward, the province has plans to put a price on carbon through an international carbon market, called the Western Climate Initiative (WCI) and legally binding emission reduction targets.

Quebec like Ontario is a large emitter of GHG emissions in absolute terms, but happens to be the lowest emitting province on a per capita basis. Quebec contributed 11% of emissions to the country in 2014, with 37% coming from the transportation

sector, 21% from emissions intensive trade exposed industries, and 13% from waste, light manufacturing, construction and forestry. Quebec has one of the most ambitious GHG emission reduction targets, and has made significant process with its carbon cap and trade system which Quebec starting with California under the Western Climate Initiate through a bilateral agreement.

New Brunswick contributed only 2% to Canada's GHG emissions, however on a per capita basis the province was in the top 5 emitters in Canada in 2014. New Brunswick's electricity sector contributes to the most GHG emissions at 31%, then the transportation sector at 26% and the oil and gas industry at 19%. Despite an overall decrease in emissions of 27% from 2005-2014, in the absence of legislation to reduce industrial and transportation emissions, the province is on track for an increase in GHG emissions, reversing any progress made, and failing to meet provincial reduction targets (Hazlewood, 2015).

Nova Scotia contributed to 2.3% of Canada's total emissions in 2014, with the electricity sector, transportation sector, and buildings contributing 80% of the province's emissions today. Nova Scotia has seen the largest decrease in emissions at a 29% decrease between 2005 and 2014. The province has one of the most carbon-intensive electricity grids in Canada, since majority of electricity plants are fired by coal. Despite this, some progress has been made, with an introduction of a declining cap on emissions from the electricity sector, an increase in renewable electricity target of 40% by 2020, and increasing overall energy efficiency. Progress on emission reductions may be stalled however, as the Community Feed-in Tariff (COMFIT) program for renewable energy projects was discontinued in 2015. This program played a pivotal role in GHG emission reductions. Although the province has done a lot with implementing programs for energy efficiency and reduction, little has been done for the transportation sector, which could benefit from some sort of carbon pricing mechanism, not yet implemented in

the province.

Prince Edward Island (PEI) contributed to less than 1% of Canada's total emissions in 2014; however its emissions per capita are close to Ontario's. The transportation sector contributes to majority of emissions at 40%, and buildings and agriculture contributed to 22% of total emissions. From 2005 - 2014 the province saw a 13% decrease in emissions. PEI is also part of the New England governors and other Atlantic premiers climate reduction targets. Overall the province has been slow in adopting policies to reduce emissions from key emitting sectors, but it has shown national leadership on wind energy development, taking advantage of its unique wind energy potential. In order to alleviate emissions from transportation and buildings sector, PEI can also benefit from a carbon pricing scheme, which has not been implemented.

Newfoundland and Labrador contributes to 2% of national emissions, and is Canada's 3rd largest per capita emitter. Majority of emissions come from the transportation sector at 33%, oil and gas sector at 25% and electricity sector at 11%. From the time period of 2005 to 2014, emissions in the province rose 4%. Although in recent years, Newfoundland and Labrador has invested in energy projects that will contribute towards reducing emissions such as the Muskrat Falls hydroelectric project, the province has large offshore oil and gas finds as well as continued mining sector development, which will offset any progress made (IISD, 2014). Similar to the other Atlantic Provinces, Newfoundland and Labrador is involved in the New England governors and other Atlantic premiers climate reduction targets, and also does not have any sort of carbon pricing mechanism in place.

Canada's Territories, Yukon, Nunavut, and Northwest Territories contributed to less than 1% of the country's GHG emissions in 2014. Since climate change will begin to have a greater effect in the northern parts of the country first, the territories have taken adaptation and mitigation into serious consideration in climate plans. Between 2005 and

2014 the territories have seen a 16% decrease in emissions. Since emissions are relatively low, there has been great focus on adaptation measures. That said however, much of the electricity generated in remote areas comes from diesel, and much of the energy in the territories is sourced from fossil fuels; therefore the territories could significantly benefit from an increase in renewable energy projects.

Analysis

As we can see, provinces vary in their level GHG emissions and in their approaches to reducing emissions. Despite provincial jurisdiction over natural resources, the federal government shares jurisdiction over environmental matters with the provinces under the Canadian Environmental Protection Act (CEPA), and since matters of energy and climate are inherently linked, the federal government can interfere in provincial matters related to energy generation (Macdonald et al., 2015). Historically the federal government's role in climate change policy has been to commit to reduction targets at the UNFCCC Conference of the Parties. However, upon setting reduction targets, the federal government has largely left it to provinces to achieve the target with minimal involvement on their part. This has led to an uncoordinated set of policies and little progress has been made. Since climate change is a global collective-action problem, GHGs produced in one region will affect all regions. For example, if a province like BC has decided to reduce emissions and has set in place an ambitious program for GHG emission reductions, and a province like Alberta is ramping up oil sands production, any progress BC has made in reducing emissions for the Country will be offset by the actions of Alberta. Therefore, it is in the best interest for provinces to work together with the federal government towards a coordinated climate policy.

The federal government also holds authority over pollution regulation and authority over inter-provincial and international energy matters, which includes energy

infrastructure projects such as pipelines (Macdonald et al., 2015). Since the federal government does share jurisdiction on both policy matters (climate and energy) if it so chooses, it can step in to coordinate and address issues pertaining to both matters. Historically, however, the federal government has taken a back seat, giving the provinces autonomy and leadership in sorting out the issues. This is largely due to the fact that Canada is a strong decentralized federation in which the provinces have significant power, and therefore, for the sake of avoiding conflict the federal government has preferred not to interfere (Macdonald et al., 2015; Stevenson, 2000). Instead, previous federal governments have moved forward on climate change with largely voluntary instruments, and made it clear that no province shall incur undue burden as a result of implementing climate change measures. This will be further discussed below in the "Ideas and discourses" section, since much of this direction stems from ideas about resources and economy versus the environment.

International Context

In addition to the political-economic domestic concerns, there has also been concern over economic losses that would result if Canada deviates too far from US climate policy. Given Canada's abundant natural resources, and since the US is Canada's largest trading partner, any climate and energy policy choices in the US will have major economic and environmental implications for Canada. Much of Canadian policy has been driven by the US while taking a "back seat" to avoid suffering economically by unilaterally moving forward on climate change commitments (Macdonald & Smith, 2000). For this reason, historically we have seen Canada align any federal level climate change commitments with US policy. For example, during the negotiations leading up to the 1997 Kyoto Protocol meeting in Japan, both countries shared similar views in protecting their economies, and signed the Kyoto Protocol with

similar reduction targets. In the US however, the Senate greatly opposed the Kyoto targets and chose against ratification, deciding instead to move forward on the basis of voluntary instruments and expansion of climate science research. Canada, on the other hand, ratified Kyoto in 2002 under the direction of then Prime Minister Jean Chretien. Chretien's action on ratifying Kyoto can be attributed to the fact that he would be retiring soon, and would not have to implement it, and as a result, attempts at coordinating any type of energy or climate policy failed, which resulted in a significant increase in emissions largely due to economic interests of provinces (Rabe, 2007). Emissions continued to rise under Prime Minister Stephen Harper in 2006, and in 2011 when he saw that it was nearly impossible to meet Kyoto reduction targets, Canada formally withdrew from the Protocol. One of the reasons stated for doing so was that our neighbour to the south had not ratified (CBC, 2011). In this sense, Canada's climate policy has largely been driven my economic factors rather than concern for the environment. Historically, Canada's priorities have been on trade, international competitiveness and domestic debt reduction, and climate change policy has taken a back seat. Any discussions during conferences held for the purpose of working towards mitigating climate change, revolved around concern for the economic implications it would have.

Societal Forces

Interest Groups and Non State Actors

An environmental problem such as climate change, carries with it a number of different interests that exist "beyond the institutional realm of party politics" (Greenberg et al., 2011). Third-party interest groups can range from special interest groups within established power centres to push private interests, by swaying political campaigns, to public interest/advocacy groups, including NGOs and think tanks, which play key roles in

the “formulation, implementation and evaluation of government decisions and policies”, those key roles, as described by Mark Winfield are “knowledge creators”, “knowledge brokers”, policy entrepreneurs”, implementing policy and delivering services”, public information, education, motivation and engagement”, and “watchdogs” (2014). As knowledge creators and brokers, NGOs conduct original research and analysis, and translate scientific and technical information into every day, easy to understand language for the public. Also, as independent entities from the government, and holding expertise in public policy, NGOs are well positioned to act as “watchdogs” for government decisions and activities, and are able to provide evidence-based analysis and policy advice (Winfield, 2014). In this sense they serve an important purpose for both holding the government of the day accountable, and informing the general public.

In Canada, NGOs and think tanks such as the Pembina Institute, Environmental Defence, and the Suzuki Foundation play the above-mentioned key roles in the public policy process, informing the public on the progress of the federal government’s actions related to the environment, and the consequences or benefits of those actions. With a strong focus on energy issues, the Pembina institute has a goal of “maintaining a healthy environment, a stable climate and prosperous communities requires collaboration, evidence-based decision making and innovate solutions” (Pembina, 2016). Through research and analysis, consulting, convening dialogue and inspiring collaboration, and from evidence-based and solutions-focused perspectives, the Pembina Institute helps to ensure decision makers, journalists and the public are well informed on technical and policy issues (Pembina, 2016). Other groups have also had an important role to play in informing the climate change debate. The David Suzuki Foundation, for example has been a key environmental group known to influence the global warming debate, and has been “recognized as one of Canada’s most trusted science-based environmental NGOs” (Greenberg et al., 2011).

Advocacy groups under the Harper regime were threatened when the federal budget announced the Canada Revenue Agency (CRA), would be conducting a series of audits specifically on environmental groups in Canada. These audits were directed specifically towards environmental groups that spoke out and critiqued the government's economic strategy and decision to expand the oil sands. His government came out and said the purpose of the audits were to ensure that charitable organizations were not using funding for political activities. In fact, in the 2012 federal budget $8 million was dedicated to just that very purpose, even though environmental groups get legal advice to ensure that their activities are in line with CRA rules for charities (Winfield, 20140). These audits and investigations into environmental groups really constrained the ability for these groups to continue meaningful work, because with their credibility in question, funding opportunities were subject to uncertainty. As Mark Winfield has pointed out, "the government's actions reflect a lack of understanding of the role of non-governmental organizations in democratic governance, and the formulation, implementation and evaluation of government decisions and policies" (2014).

In addition to advocacy groups, there are special interest groups who usually have a special interest in industry such as the fossil fuel industry. They tend to use their powerful positions to sway public opinion. In Canada for example, Friends of Science, a Calgary-based supposedly, non-profit organization has argued that anthropogenic climate change is not real, and it is solar activity that is contributing to any warming that is happening. The group advocates educating the public of the causes of climate change through, "relevant, balanced and objective technical scientific information" in which they push climate change denial information. The caveat with this group is that it has close ties with the Alberta oil industry, and receives substantial corporate funding and funds through suspicious mechanisms. For example, Montgomery (2006), a freelance journalist, investigated the funding scheme of the organization and found that

contributors to the organization would first donate their money to the Calgary Foundation, which is a non-profit organization that provides funding from anonymous donors to charitable organizations. The Calgary Foundation would channel money through the University of Calgary Science Education Fund established by professor Barry Cooper, who is known to have spoken out against the Liberal party, and has close ties with the federal Conservative party. Money from the Science Education Fund has funded much of the Friends of Science groups work in criticizing climate change initiatives (Greenberg et al., 2011). Therefore, although the organization had said that it was non-partisan, the ideas that came out of this organization were highly influenced by the special interests of the Conservative party and oil industry.

Media

In Canada, Media has served an important purpose in reporting on the actions of federal governments, as well as on important scientific studies and issues surrounding climate change. Environmental Non-profit Governmental Organizations (ENGOs) have also been known to use media through public relations (PR) techniques in order to reach out to the public and policy makers (Greenberg et al., 2011). For example, David Suzuki has been a strategic user of public relation techniques, as a broadcaster for the CBC television program *The Nature of Things*, and with the use of advertisements which promote personal and government actions towards combating climate change (Greenberg et al., 2013). The Suzuki Foundation gets assistance with its PR from a Vancouver-based firm called James Hoggan & Associates. Hoggan not only counsels the Suzuki Foundation, but he is president of its board of directors. He believes that as a PR person that he has an obligation to play a constructive role in shaping environmental policy. He has particularly expressed his distaste with PR professionals that help to perpetuate doubt about climate change (Greenberg et al., 2011):

> There is a line between public relations and propaganda - or there should be. And there is a difference between using your skills, in good faith, to help reduce a battered reputation and using them to twist the trust - to sow confusion and doubt on an issue that is critical to human survival…
> And it is infuriating - as a public relations professional - to watch my colleagues use their skills, their training and their considerable intellect to poison the international debate on climate change - Hoggan

Hoggan's position is critical to understanding that the information we receive through media outlets can be easily swayed using specific public interest techniques. For example, as mentioned above the interest group, Friends of Science, had very specific special interests, and after falsely identifying as non-partisan, ran advertising campaigns that specifically attacked action on climate change in Canada, playing a part in influencing the federal level election (Greenberg et al., 2011).

Scientists in government have also used media as an outlet to publish much of their research work and findings, usually through prestigious journals, and credible outlets. In the past decade however, under the Harper regime scientists were banned from talking to media outlets directly, and PR professionals were hired to speak on their behalf. It was this silencing of scientists that led to massive protests in Ottawa. Scientists held demonstrations on Parliament Hill to display their frustrations, and this issue became widely acknowledged, thanks to media outlets that reported on it. Environmental advocacy groups accompanied scientists, leveraging public relations techniques to get their point across and inform the public of the actions of the government of the time.

The federal government, in turn, has also used media as an outlet to promote their policies. In particular, the previous federal government allocated $9 million on advertising their responsible resource development program. This campaign, led by Natural Resources Canada, promotes pipelines, safety measures such as double-hulled oil tankers and changes to environmental laws as part of the government's 2012 budget (Paris, 2012). The most important aspect of this campaign in terms of climate change

was that the federal government had weakened environmental laws through overhauls of the Canadian Environmental Assessment Act, the Navigable Waters Protection Act and the Fisheries Act, and began a campaign to promote responsible resource development to reassure the public in light of such drastic changes.

Public Opinion

In Canada, the public attitude of its citizens were looked at by Lachapelle et al. (2012), drawing on data from the 2011 National Survey of Canadian Public Opinion on Climate Change (NSCPOCC), in which data was collected through telephone surveys. When asked the question: “From what you have read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?” 80 percent of Canadians answered yes to this question, therefore a majority of Canada does believe that Climate change is real and the earth is getting warmer. It is important to note however, the regional differences in the belief of climate change. In Canada, the difference in perception seems to vary in terms of GHG emissions per capita. For example in the two most carbon intensive provinces of Saskatchewan and Alberta, the study found a much lower percentage of those who think climate change is happening. In addition to regional differences, political party affiliation affected the way respondents answered. Respondents who affiliated with the Conservative party were significantly less likely than supporters of all the other parties to agree to the overall increase in temperatures and global warming.

With the question of which level of government should endure the greatest responsibility over taking action on climate change, a majority of Canadians (89 percent) believe that the federal government has an important role to play in taking action on climate change, and should bear the greatest responsibility over this issue. That said, 88 percent of Canadians acknowledge that the provinces have either some or a great deal

of responsibility to take action regarding climate change. Therefore, these results are inconsistent with the reality of the situation, in that, the federal government has not taken the initiative that is expected of them by the public; it is however, consistent with the supporting action taken on behalf of provinces. Canadians are also likely to support provincial action on climate change despite neighbouring provinces not doing the same. This level of support for provincial action may help to explain the progressive actions by some provinces on moving forward on climate change polices, for example BC, with their province wide carbon tax. At the time of this survey, federal action on climate change policy had been very limited. However, we are beginning to see a shift with the federal level involvement in the past year with the recent Liberal government (Harris, 2016). They have begun to be more engaged in the process, in line with public opinion.

Ideas and Discourses

Ideas of the federal government of the day have great implications for action on climate change. For a long time in Canada, ideas about climate change have been viewed in terms of an economic and energy issue. These ideas about climate change vs the economy were prominent under the leadership of the previous Conservative governments in Canada.

Harper has opposed federal rules on the oil and gas industry unless the U.S. imposes regulations as well. In an interview with CBC reporter Peter Mansbridge he said “under the current circumstances of the oil and gas sector, it would be crazy economic policy to do unilateral penalties on that sector. We’re clearly not going to do it.” Harper was also opposed to any sort of carbon tax or carbon pricing scheme, despite numerous studies conducted and recommendations made by the National Roundtable on the Environment and the Economy (NRTEE). As cited on the NRTEE website, “NRTEE was established to bring in a new way we must think of the relationship between the

environment and the economy and the new way we must act". NRTEE was established by the Mulroney Government in 1988, and was the only independent arms-length advisory committee to the Government of Canada, consisting of expert stakeholders from a broad range of backgrounds such as leaders from industry, labor and academe who worked at the forefront to bring together environmental sustainability and economic prosperity. These multiple perspectives provided a unique opportunity to deal with the complexity and interdisciplinary nature involved with sustainable development and garner a greater influence on the federal government. Specifically designed to aid in moving away from traditional ways of thinking that saw the environment and the economy as separate issues, the NRTEE was key to moving forward on policy issues such as climate change.

In the 2012 federal budget, the Harper government made the decision to eliminate NRTEE. According to the federal budget document, the goal to be achieved by the elimination of NRTEE is part of a larger plan to reduce the deficit by 2015-2016 (Archived Budget, 2012). In addition to this "official" reason stated in the budget, in considering eliminating the NRTEE, the federal government had consistently been opposed to the idea of a carbon tax, which the NRTEE had been recommending, and therefore since their interests did not align, the easiest thing to do was to eliminate the roundtable altogether. This advice on climate change went against Harper's ideas about the economy and natural resource development. The elimination came after the Minister of the Environment; Peter Kent had tasked NRTEE to complete a report assessing Canada's progress on climate change action thus far. The report has been said to be one of the most comprehensive studies on where Canada is in terms of reducing GHG emissions. The report concluded the country is nowhere near on track towards meeting the Harper government's goal of reducing emissions by 17% by the year 2020 (Simpson, 2012). Upon elimination of the committee, the Environment Minister demanded that the

consent and reports be taken down form the NRTEE website. The NRTEE was the only external advisory group on issues of climate change, sustainability and economic policy for the federal government (Grandia, 2013). However, to the Harper government it was seen as a constraint to the government's economic interests and Foreign Affairs Minister John Baird responded to the advice after eliminating the NRTEE from the budget with: "I think the last thing the government needs to pay for is another report encouraging a carbon tax when Canadians have spoken up definitively that they do not want a carbon tax" (Woods, 2012).

Since 2006, the Harper government has either eliminated or decreased funding for many national networks doing work on climate science. Some of these initiatives included closing the Canadian Climate Impacts and Adaptations Research Network, and implementing a Media Relations Policy for the Ministry of the Environment. This policy banned scientists from being able to directly communicate with media, and that they are to answer any questions in writing that have first been examined and approved by senior managers in government (Young & Coutinho, 2013). The government also ended funding for the Canadians foundation for Climate and Atmospheric Sciences (Eindiguer, 2010). This shows a general trend under the Harper government of ending funding for research into the climate crisis, highlighting Harper's reluctance to act on climate change.

Conclusions

Hessing, Howlett and Summerville's (2005) analysis of policy communities and networks, helps to explain how concern over the economy has led to a reactive and incremental approach to climate policy. The climate policy community is largely divided between ideas about the economy and the environment. This influences the discourse within which policy options are formulated. Within the climate policy community, various

networks exist, such as the federal state, the provinces, industries, interest groups, NGOs and environmental groups. The dynamics within these networks can help to explain the success or failure of climate change policy in Canada.

From an institutional context, moving forward on climate change policy has been challenging in Canada for various reasons. Jurisdiction over the environment has not been clearly divided between the provinces and the federal government. Section 92 grants provinces the authority to manage non-renewable natural resources, forestry, and electric energy (Olive, 2012), however, the federal government holds the power to make laws for the peace, order and good government of Canada. Ultimately, providing the federal government to override provincial powers. The federal government has been reluctant to interfere with provincial matters however, due to the varying economies and interests of the provinces. Thus, the federal-provincial policy network with regards to climate change has markedly lacked coordination. Councils such as the Canadian Council of Ministers of the Environment and the Canadian Council of Energy Ministers, have attempted to achieve policy coordination. These councils however, operate on a basis in which decision-making is consensual. This weakens the ability of the institutional system to facilitate negotiated agreements, since any player can veto decisions to move forward on climate policy.

Commitments made by the federal government at the international level, are made on a voluntary basis, due to the lack of federal consultation with provinces. Although the federal government might have the final say during international agreements, it is largely in the hand of the provinces, whether or not those commitments will be implemented. Even through the federal government can step in to coordinate and address issues pertaining to climate and energy, historically the federal government has taken a back seat, due to the strong decentralized federation in which provinces have significant power. Therefore, for the sake of avoiding conflict the federal government has

preferred not to interfere. This has led to an uncoordinated set of policies and little progress has been made.

In terms of the political economic context, Canada's natural resources have greatly influenced climate change policy in this country. Canada has an abundance of natural resources, particularly in the form of energy from bitumen for oil to natural gas. Energy policy and climate change policy are closely linked as one implicates the other. Canada has struggled with balancing energy and climate policy, especially since, Canada's natural resources are closely linked to the country's economy. Therefore, climate policy has largely been driven by economic factors rather than concern for the environment. Particularly the policy network of industry groups has influenced provincial and federal governments, since they are equipped with financial resources, and their ideas about the economy are in line with that of decision-makers. On the other hand, environmental actors such as the Suzuki Foundations and think tanks such as the Pembina Institute who are also involved in the policy network, differ from decision-makers in the way they view the environment and the economy. Therefore, they are less likely to influence climate policy. These groups have however, played an important role in informing the public on climate and energy issues. Moving forward, with a new Liberal government in place, environmental groups might have a more significant role, and more influence in the decision making process.

CHAPTER FOUR: CLIMATE CHANGE POLICY IN GERMANY

Institutional Framework

Governance Structure

In Germany the government's structure is a result of the constitution, called the *Grudgesetz* meaning Basic Law. Although Germany's parliamentary system somewhat resembles the British system, the Basic Law created a federal system in which the states have a considerable amount of power. This is different from the United Kingdom model, which is a unitary system. Germany's Basic Law sets out the principles of human rights and the basis for the government of the people, and outlines the political and legal system of Germany. Much like Canada's constitution, Germany's Basic Law divides powers between the federal and state levels, and between the legislative, executive and judicial branches.

The executive branch consists of the President, the Federal Chancellor and his/her Cabinet, which consists of various Ministers. The President is the head of state and largely holds a ceremonial role, much like the monarch in the Canadian system. Unlike the monarch however, the President is elected for a five-year term, which can only be renewed once. The German President does have limited reserved powers, he or she nominates the Federal Chancellor for the Bundestag and the Chancellor's cabinet appointments. Although the President cannot dismiss the chancellor, upon the chancellor's request/recommendation he/she is able to dissolve the Bundestag, if for example, the Bundestag is not supportive of the Chancellor's policies. The President is also a representative of the country internationally and is involved in concluding international treaties. The Federal Chancellor is the head of government, empowered by the Basic Law, the Chancellor proposes candidates to the President for his/her Cabinet, and works with the Cabinet to determine policies. In order for the Chancellor to be

formally appointed by the President, he/she must first be elected by an absolute majority of votes in the Bundestag. Angela Merkel of the Christian Democratic Union (CDU) has been Federal Chancellor since 2005, she was re-elected in 2013.

The legislative branch is the German parliament which consists of the elected officials known as the Bundestag (similar to the Canadian House of Commons) and the appointed Bundesrat (upper House of the German Parliament), also referred to as the Federal Council. The Bundestag is elected by German citizens every four years. The Bundestag is responsible for enacting and amending legislation, electing the Federal Chancellor, approving the federal budget and scrutinizing its implementation by the Federal government among other things. The Bundesrat is composed of 69 appointed members representing the 16 states of Germany at the national level. The number of seats for each state is based on the population of a state, ranging from three to six seats per state. The Basic Law has granted the Bundesrat with some legislative and scrutiny powers. For example, the Bundesrat makes initial comments on draft law before it is submitted to Parliament for scrutiny and vote. The Bundesrat may also veto a bill that substantially affects the state interests. Since bills must be approved by both houses to become legislation, in cases where agreement cannot be reached, the Basic Law allows for covering a mediation committee (The Joint Conference Committee) with 16 members of the Bundestag and an equal number of the Bundesrat to resolve the difference between the two houses. The judicial branch consists of German's court system, which has two levels comprising the federal and state courts. The Federal Constitutional Court is the highest court dealing with constitutional matters.

Multilevel Governance

Germany is a good example of how multiple levels of government can work together to implement policies, from the EU level to the sub national level. As a federal

state, Germany shares legislative power with the 16 federal states, referred to as Lander. As previously mentioned, the Basic Law establishes legislative power for the Federal government and the 16 states (Neumann, 1996). It is the responsibility of the Lander to implement federal legislation under Article 83 of the Basic Law. The Lander are, however, represented at the federal level through the Bundesrat, which is made up of representatives from sub-national governments (Neumann, 1996). Legislation that is proposed by the Bundestag, requires the consent of the Bundesrat under Article 77 and 78 of the Basic Law (Neumann, 1996). This helps to ensure that the interests of the Lander are represented at the federal level. Generally, the Basic Law allows for overlap between the federal and state government, since under Article 71, in areas where the federal government has exclusive legislative power, they can extend this power to the Lander through the federal act if they chose to do so. Also, areas of "concurrent" legislative power under Article 22 in the Basic law grant powers to the Lander, only if the Federation has not exercised its legislative power. Although the Basic Law does not specifically set out legislation on matters pertaining to environmental protection, it does however mention matters related to air pollution control, waste management, nature conservation and water supply (Nachmany et al., 2015). These matters related to the environment are under concurrent legislative power. This transboundary nature of legislative responsibility between the two levels of government contributes to a cooperative relationship when implementing legislation (Neumann, 1996).

The Lander have a reputation for working closely with the federal government on issues of climate change. The subnational governments each have a comprehensive climate protection plan, in which they have implemented legislation required by the federal government. The Lander have influence on national climate policy through establishing their own GHG emissions reduction measures (in addition to national measures), and they are also able to use their veto power in the Bundesrat (lower

house), for instances in which they disagree with federal government initiatives. As mentioned above the Bundesrat is representative of the Lander, providing an area at the federal level for their concerns to be heard (Jenicke, 2010). In cases where the Bundesrat are not happy with a bill that is being introduced by the Bundestag, there is a mediation committee which is comprised by equal members of both chambers, that helps to resolve any differences over legislation (Nachmany et al., 2015).

Beyond national governance, Germany is in a unique position, in that its governance structure falls within the European Union (EU). The EU is made up of the European Commission, the European Parliament and the Council of the European Union. The role of the Commission is generally to “elaborate the drafts for pieces of legislation of the EU regulations, directives or decisions - and enter them into the EU legislation process” (Federal government, 2017). The Council of the EU represents the governments of the Member States, and has the final say in the EU decision-making process, however, the European Parliament can share equal powers with the council in certain political areas.

Germany has been known to be a very active player in the EU, often times becoming involved in legislation proposed by the Commission before initial deliberations are taken up by the Council. Germany is able to receive early warning signs of incoming European policy proposals through the Permanent Representation of Germany to the EU, which acts as a German embassy with the EU. Those that work in the Permanent Representation inform federal ministries of the plans that are underway by the EU Commission at an early stage. This puts the federal government in a good position to determine an appropriate negotiating strategy early on. When legislation has reached the decision-making phase, the German federal ministry involved with the particular topic of the legislation represents the federal government in Brussels (EU headquarters), and pushes a common position of the entire Federal government in negotiations at the EU

level. When differences between ministries arise, there are special boards that step in, such as the European Affairs Officers, who meet on an ad hoc basis to discuss European political affairs. There is also the round table of the European Affairs Directors-General of the federal ministries (headed by the Federal Foreign Office and the Federal Minister of Economics), who directly report to the secretary of the state, and provide a basis for co-ordination between ministries as well. In addition to this, the Federal Chancellery, which is an agency that serves the executive office of the Chancellor, is involved with the coordination of state and European affairs. The Director General of European Affairs within the Chancellery is the closest political advisor to the Chancellor on policy concerning EU.

In implementing European acts in Germany, any directives and regulations that are made at the EU level, must be applied. EU regulations are binding and therefore member states are required by law to apply them, whereas directives, while also intended for Member States to implement, are not legally binding. There is however a fine for non-complying members, or if directives are not implemented within a certain time period (The federal government, 2017). Since Germany is a federal state, and legislative powers are divided among the federal level and the Lander, EU policies which are subject to the jurisdiction of the Lander, are handled by the Lander or they have indirect input through the Bundesrat. However, since representation of Germany to the EU is within the federal government, any matter that does get assigned to the Lander, will go through the federal government, at which point they will have a say as to what gets transferred to the EU. Therefore, it is through the Bundesrat that the Lander have a say in European affairs, and it is the responsibility of the federal government to ensure that the Bundesrat are informed on any plans at the EU level, as soon as they are made aware of them. In addition to this however, the Lander do have representation offices in Brussels, which provides them with direct access to EU bodies and are able to represent

their interests. Another way in which they can provide their influence is through the Committee of the Regions (CoR), which is an advisory committee of the EU that represents local and regional authorities.

Analysis

This section will analyze the above mentioned institutional factors specifically with respect to climate change. Federalism in Germany has not placed a significant barrier towards climate change policy as it has in Canada. This is however due to the fact that Germany's constitution ultimately gives power over environmental legislation to the federal level. Therefore it is up to the federal level to create legislation and policies related to combating climate change, and it is the role of the lander to administer those policies. The Lander however, have autonomy in the way that the policies and legislation are administered, and therefore they have some autonomy in terms of setting GHG reduction targets. Generally, it does seem like in Germany there is more of a top down approach to climate change policy, which has not proved to be difficult, since the subnational governments have been quite accepting of the federal government's policies (Weidner and Mez, 2008). In addition to this the Lander and Federal government have a platform on which they are able to work together to outline climate targets, this is aided for example by the biennial Conference of Environmental Ministers and central state government working groups (Weidner and Mez, 2008), and has fostered a cooperative relationship between the two levels of government.

At the EU level, Germany's position on climate change aligns with that of the EU (Michaelowa, 2008). Both are progressive and determined to move forward on climate change policy. In fact, Germany has generally been a leader on climate change policy, often times encouraging ambitious reduction targets, and playing a key role in convincing less climate-policy minded member states to accept EU policies (Janicke,

2010). One of the most important initiatives aiming at combating climate change originated from the EU level, which was the Emissions Trading Scheme (ETS). As a result of the EU ETS Germany introduced its national allocation plan (NAP) for 2005-07. Germany was hesitant towards this initiative due to the negative response received from the automobile industry and energy producers, and so the NAP was fairly weak and favoured specific industries. The second NAP from 2008-2012 did not improve on the weaknesses of the previous plan, however, the EU Commission was able to step in and enforce the original climate policy targets set out for the ETS (Weidner and Mez, 2008; Janicke, 2010). The fact that Germany held the presidency for the EU in the first half of 2007 and the G8 presidency during 2007, also helped foster a political leadership role in international climate change. Therefore the EU plays a key role in keeping Germany, in line towards meeting climate change policy targets.

The first ministry for the environment was established in 1986, only after the Chernobyl nuclear accident, which demonstrated the need for environmental policy coordination at the federal level. This ministry was called “Federal Ministry for the Environment, Nature Conservation and Nuclear Safety”. This ministry is responsible for positioning the objectives and instruments of environmental policy followed by implementation of that policy (Neuman, 1996).

In 1986, after an influential magazine *Der Spiegel* published an article called ‘the Climate Disaster’ The Bundesrat (upper house) launched an initiative to create an advisory board for climate policy. This new issue of climate change was then put on the political agenda in 1987, when the Bundestag (lower house) set up an enquiry commissions called ‘Enquette Commission’ “Preventative Measures to Protect the Earth’s atmosphere”. The Enquette Commission was quite influential, in creating a ‘knowledge-base’ for understanding climate change and providing potential policy solutions for politicians and the public. The Commission had ambitious carbon dioxide

emission reduction targets (30% reduction by 2005), and helped to push Germany into a leadership role. By the time of the first Conference of the Parties of the UNFCCC in Berlin (1995), Germany put forward a carbon dioxide reduction target of 25% by 2005 (compared to 1990 levels) (Janicke, 2010). This set the stage for the government of the time to introduce the 'CO2 Reduction Programme' and set up the 'Interministerial Committee on CO2 Reduction' (IMA) which encouraged Ministries that were so used to working independently to work together (Michaelowa, 2008; Janicke, 2010). Further, Germany went on to ratify the UNFCCC as early on as 1993, and in 1997 continued with ambitious target of 21% reduction target for GHG emissions under the 1997 Kyoto climate change protocol.

Germany's federal structure and electoral system of proportional representation really helped to foster the rise of the Green Party. Once a party receives 5% of the total vote, that party achieves representation in parliament. In addition to easy access to political representation, German federalism and the electoral system promotes cooperation. Proportional representation makes it difficult for a single party to gain enough seats to form a majority government on its own, therefore coalition governments are a key feature of Germany's political system. This system of coalition governments fosters consensus politics and encourages negotiation between all levels of government (Weidner and Mez, 2008). This has strongly influenced Germany's policy making style in the areas of climate change. In fact, between 1998-2005 the coalition government of the Social Democratic Party (SDP) and the Green Party led by Chancellor Helmut Kohl, also referred to as the Red-Green Government, played an important role in making climate change a key priority for Germany. In particular, due to the unification of East and West Germany, economic issues had begun to rise, therefore shifting priorities. The Red-Green government however, listed climate policy as "Ecological Modernization" in the coalition treaty between the parties (Jenkins, 2010). The red-green government also

introduced the Renewable Energy Act in 1999, which helped to increase the obligatory tariffs to a level at which green power could grow at a faster rate. This coalition also set up the Climate Protection Programme in 2000, which introduced regulations and sectoral emission reduction objectives up to 2005, providing a basis for more ambitious climate policies.

Subsequently, the Grand coalition government of the Christian Democratic Party (CDU) and the Social Democrats (SPD), led by Chancellor Angela Merkel, continued on the leadership of climate change policy. They helped to evolve the previous government's concept of 'ecological modernization' to 'ecological industrial policy' focusing more on the industrial policy side of the problem. It was under this government that the national allocation plan was introduced (NAP) and the Integrated Energy and Climate Programme, was thought up in 2007 in Meseberg with a 40 percent GHG emission reduction target for 2020 (compared to 1990 levels) (Janicke, 2010). After the 2009 elections, although there was a change in the coalition, Angela Merkel remained Chancellor and German climate policy remains a top priority. Under this new coalition the Environment Minister Norbert Rotten of the CDU, emphasized their desire to being the most modern national economy when it comes to environmental policy (Janicke, 2010).

International legal and political cooperation over the environment is just as important as national-level environmental legislation. Germany has signed and ratified a number of multinational treaties under the United Nations. For example, the Convention on Long Range Transboundary Air Pollution, Geneva, 1979, along with its follow-up protocols: Geneva, 1984, concerning financing and monitoring; Helsinki, 1985, concerning the reduction of sulphur emissions; Sofia, 1988, concerning nitrogen oxides emissions control; and Geneva, 1991, concerning the control of VOC emissions. Germany has also signed and ratified the Vienna Convention for the Protection of the

Ozone Layer, 1985, along with subsequent Montreal Protocol, 1987, and the amendments to the Vienna Convention of London, 1990 and Copenhagen, 1992. And most directly relevant to climate change, Germany has signed and ratified the UN Framework Convention on Climate Change, 1992.

Political Economic Factors

The political economic context of climate change policy in Germany helps to further explain the relative success of institutions to reach a coordinated policy for the country. Some regional tensions do exist; however, there is not the same level of separatism and decentralized federalism that exists in Canada, in terms of agreeing upon climate action. In Germany, the Lander have their own constitutions, parliamentary system of government, and their own administration. As mentioned above, jurisdiction over the environment is shared between the national government and the Lander, and therefore, the Lander and the federal government have to coordinate policy development, before the Lander parliaments can take legislative action.

Germany is a highly industrialized country with high GHG emissions compared to other EU countries. Much of Germany's emissions are the result of the energy industry. It is important to look at Germany's energy sector, as it is one of the major sectors contributing to the increase in GHGs and as a result, has a significant role to play in climate change policy. Germany's energy story has been an interesting one. Germany has been going through an energy transition, referred to as *energiewende*. The goal of the energy transition is to phase out nuclear sources of power, reduce the dependency on imported sources and to lower carbon emissions. The rationale for energy transition came about due to the oil crisis of the 1970s and the nuclear disaster that occurred in Chernobyl. It was after the Chernobyl accident in particular, that there was a strong desire to transition. These events in conjunction with increased concerns over climate

change, and the country's commitments to reduce GHG emissions by 40% of 1990 levels by 2020, really pushed the energy transition agenda. The official goal of the energy transition is to reduce GHG emissions to 80-90% of 1990 levels by 2050, and phase out nuclear by 2022. The challenge that Germany faces with this transition however, is moving away from carbon-intensive coal as a source of energy.

Germany has a vast amount of coal reserves, and as of 2015 Germany's gross electricity generation of coal was 44%; 33% came from renewables, 15% from nuclear, 10% from natural gas, and 1% from mineral oil (Hoff, 2016). From the electricity that is produced from coal, 18% was from hard coal which is mainly imported, and 26% came from lignite. The use of hard coal has declined, but lignite remains a predominate from of energy due to the vast amount of lignite available in Germany. Lignite produces more carbon dioxide than hard coal, but transition from lignite has been a challenge since Germany is a leading producer of lignite, and it is one of the cheapest fossil fuels. In addition to this, the phase out of nuclear reactors since Chernobyl has created a demand for which coal was used to meet.

Despite a heavy reliance on coal, Germany's energy transition has experienced success in increasing its renewable energy supply. Unlike in Canada, Germany's natural resources are not solely within the jurisdiction of the subnational governments. Instead jurisdiction of resources and the environment is shared by the federal government and the Lander. Where it is mainly up to the federal government to initiate policies and it is up to the Lander to administer those policies. The Lander do get autonomy over how they choose to implement/achieve the policies set out by the federal government. One law in particular has considerably contributed to the increase in the share of renewable energy in Germany: the Feed-in Tariff. This new bill introduced in 1991 made it possible for producers of renewable electricity to feed into the grid, and utilities were required to pay them a "feed-in tariff" (Macdonald et al., 2014). This helped to accelerate wind

energy generation, particularly in the windy northern states. Later, another law to accelerate renewable energy sources took effect in 2000, and it ensured that only once renewable energy sources were exhausted on the grid, that other sources could be used.

Progress on the renewable energy sector has come about despite some tensions. In particular, at the federal level political economic tensions exist between the Ministry of Environment and the Ministry of Economy and Energy. The lead competency for climate change has been granted to the Ministry of Environment, however, the Ministry of Economy and Energy, holds the lead competency for energy. Since energy activities can greatly influence GHG emission reduction targets, the Ministry of Environment must work with the Ministry of Economy to achieve results (MacDonald, 2013). That said, the role of the Ministry of Environment has strengthened. For example, in 2002 renewable energy became a core responsibility of the Ministry of Environment. In addition to this, the administration of the EU Emissions Trading System (ETS) is the responsibility of the Environmental Federal Agency which is an arms-length agency of the Ministry of the Environment (MacDonald, 2013). The Ministry of Economy and Energy has close ties with the conventional energy sector, and therefore work to protect their interests, and protect their main energy resource: lignite. However, due to largely, institutional constraints such as a strengthened Environment Ministry, and the presence of the inter-ministerial working group, along with the political will to support renewable energy, the Ministry of Economy has not been very successful in their pushback of renewables.

At the sub-national level, tensions between the Lander are fairly low since there is not the same level of decentralization/separatism that is experienced in Canada. As previously mentioned, the Federal government has significant legislative powers in German climate and energy policy; the states however, can influence federal policy

through the federal legislative process. As a result, they are able to protect their regional economic development (Weidner and Eberlein, 2009). In some cases Lander are able to intervene and influence federal level policy/legislation. Since it is up to the Lander to implement and execute federal level policies, they enjoy a considerable amount of autonomy with administering policies. In terms of climate change policy, there has been little resistance on the part of the Lander. The federal government has put in place GHG emissions reduction measures based on suggested allocation of cost among sector and sub-national governments. Here it is important to note that the "reduction cost differential between highest and lowest per capita Lander is much less than between highest and lowers per capita costs of Canadian provinces" (MacDonald, 2014).

There is general agreement amongst all Lander that action on climate change is needed, and to do that an energy transition is required. In addition to the national climate policies all the Lander have their own climate change plans and activities. Despite, there being no formal obligation, all Lander, besides Lower Saxony have a climate protection plan in place. With respect to energy-related policy, the Lander exercise an important role through land use planning. The Lander have official development programs of spatial planning. As a result, this can have a significant impact on climate mitigation policy with respect to approval procedures of power plants and destination of areas for purposes of renewable energy, such as placement of wind power.

The Lander have generally been supportive of renewable energy policies, as they saw the potential to strengthen regional economies, and therefore sought economic interest in seeing federal action for promotion of renewable energy. In addition to federal climate policies, as mentioned above, Lander establish their own programs and plans, often updating their programs along with federal level changes. For example, in 2007 with the federal Integrated Energy and Climate program, nearly all the Lander (15 of 16) established quite ambitious targets and measures. The Lander also support their

regional economies through establishing regional platforms, providing a space for cooperation between economy and state actors to bring forward innovations. Therefore, in Germany allocation is not only seen as an issue of cost, but also as allocation of job creation and wealth through the development of new renewable energy technologies, and therefore seen as a benefit.

Although, conflict between Lander in Germany is not as great as in Canada, there has been some conflict at the Lander level. For example, in implementing the Feed-in Tariff program, utilities faced differing costs depending on the amount of renewable energy that was produced within their region. For example, in the maritime regions (especially Lower Saxony and Schleswig-Holstien), which produces/experiences much more growth in wind power, utilities faced higher reimbursement costs in those Lander (Jacobsson and Lauber, 2006). This consequently led to different electricity prices between the Lander, and resulted in competitive problems for energy intensive industries in the higher priced regions. This issue was addressed however by the Renewable Energy Act of 2000, through the nation-wide equalization scheme designed to ensure equal allocation of reimbursement charges. The utilities had pooled their revenues and subsidies, which removed electricity price differences between the Lander. In this situation, the federal government was able to step in to help address the distributive conflict among the Lander.

In addition to this, there was an apparent north-south divide in terms of renewable energy capacity (Jacobsson and Lauber, 2006). There were many more renewable energy plants built in the north compared to the south. The problem here was that under the Feed-in Tariff Act of 1991, electricity generators for renewable sources had to pay a subsidy. As a result, utilities in Lander that had many renewable source plants faced higher costs; this was in turn reflected in the price of electricity for the region. This problem was also addressed by the federal government with the Renewable

Energy Act, 2000, through aggregating the total feed-in tariff, and the cost distributed among utilities in proportion to total sales. In this case the federal government was able to step in, to make the cost of climate policy more equitable among the Lander.

Another situation in which Lander interests surfaced in relation to climate change policy is in relation to the EU Emissions Trading Scheme (ETS). Concern over the ETS which, originated at the EU level came about mainly by the energy intensive regions. Germany tried to block the ETS system during the decision-making phase. Lander that were to face higher costs as a result of the system, for example, those with a high share of coal production and energy insensitive industry were the most active in the decision-making process, in order to protect their interests. North Rhine-Westphalia in particular was active throughout this process, with attempts to ensure a common position amongst all the Lander, but failed to block the mandatory EU ETS due to Germany's strong leadership of the federal government at the EU level on climate change. Once the ETS has become mandatory, the Lander faced conflict with the federal government over the level of administrative responsibility of the ETS. Again, only the regions with heavy energy intensive industry were interested in administration of the system, whereas, the remaining Lander did not have the means/resources to administer the system and therefore, did not oppose administration by the federal government (Macdonald et al., 2014). As a result, the larger, energy intensive Lander could not convince the smaller Lander and so they were not able to gain a majority in the Bundesrat, and the administration of the ETS stayed with the federal government. Thus the federal government was able to ensure equal treatment of electricity plants, independent of regional economic or political interests.

Although, there has been general agreement on climate policy targets and goals, as well as on the need to transition to renewable energy sources in support of climate mitigation, the challenge that remains between the Lander is now related to the

development of effective network infrastructure for new and additional renewable energy sources. Different geographic, economic and demographic structures sometimes result in strategies that are not aligned. In the transition to renewable energy, Lander are motivated by competing for private investments, more tax revenue, distribution of returns and regional added value by developing renewable electricity generation (Ohlhorst, 2016). Due to differing economic and geographic structures, regional renewable energy priorities and strategies differ from one another. As a result, there is a risk for increased inefficiencies and costs, in particular, in relation to spatial distribution effects and the development of energy grids. The Lander have authority over regional, spatial and land use planning and therefore, decide which areas are to be designated for renewable energy activities. In this respect, a north-south divide can be observed.

All 16 regional states have their own targets for the share of renewable energy by 2021, and some are more ambitious than others. For example, Schleswig-Holstein, located in northern Germany has great wind power potential, and has a goal to produce three to four times the state's electricity consumption from renewables by 2020, and ideally would like to be a major exporter of renewable energy. The state of Mecklenburg Western Pomerania, also in northern Germany, has a high capacity for renewables from between eleven to fifteen gigawatts whereas, the state's consumption is only 1.1 gigawatts. This state will also look into exporting their excess renewable power. The surplus of electricity that will be generated will require the expansion of electricity networks, in order to transport excess power from the north to the south. Expansion of grids is a lengthy process that requires planning and approval procedures, and it is important to keep in mind Lander will likely act in their own economic interests when considering such grids. For example, the state of Bavaria which is located in south eastern Germany plans to meet its energy demand using resources from its own territory, such as domestic biogas, photovoltaic, and geothermal power. These plans do

not include imported wind power from the north. As a result, Bavaria has opposed the construction of a power line from Saxony-Anhalt from the north to Bavaria in the south (Ohlhorst, 2016). They have placed a moratorium on the line, and the Federal Minister of Economy and Energy considered the line unfeasible due to the resistance from Bavaria, and potential legal disputes that would arise. This shows that even though Lander do not have formal veto powers they can still influence federal level policy.

At the moment, the renewable energy plans by the regions are not legally binding. They are more like guidelines, but given the heterogeneous nature of plans across Lander, they do not align with the national targets for share of renewable energy in the countries energy mix and goals of optimized, secure, and affordable power supply. In addition to this, the federal government does not have authority over planning instruments and therefore is unable to intervene and align the system from a top-down approach. There is a lack of procedures to negotiate the alignment of different regional interests (Jacobsson and Lauber, 2006). This is the challenge that Germany now faces and must overcome in order to continue its leadership role on climate change policy.

Societal Factors

Interest Groups and Non State Actors

Interest groups and non-state actors are quite integrated within the German political system and can hold a great amount of influence. Germany has had a strong environmental movement, which began fairly early (Markham, 2008; Weidner and Mez, 2008). Two events in particular sparked the mobilization of environmental groups. The first was the oil crisis of the 1970s. The oil crises drew attention to Germany's reliance on foreign oil and thus, coal (one of Germany's most abundant natural resources) began to be more heavily used. This resulted in concerns of air pollution and acid rain, as a result of emissions from coal plants. The second event that took place was the

Chernobyl disaster which was a catastrophic nuclear accident that occurred in 1986 in Ukraine. This disaster left parts of Germany with the fear of exposure to radiation which led to precautions such as the closure of schools. These precautions concerned the public and consequently people felt that more needed to be done. The German anti-nuclear movement gained considerable momentum, and massive demonstrations were held to stop new reactors and to close existing ones. These two events helped to mobilize an environmental movement early on, and in 1977 green groups began to participate as “green lists” in elections which, helped to spur representatives of green parties in state parliaments, and eventually in the national parliament in 1983. During the years in which the Green Party was just beginning to form, environmental issues triggered great conflict that sometimes became violent. Since this time however, thanks to green groups, environmental interests started to integrate in established institutions and processes, as heads of environmental agencies and even ministers. The level of organization of the green movement and its willingness to cooperate has really helped to shape the cooperative nature of climate policy that was beginning to form in the 80s. The sum of the events also led to massive support for renewable energy.

Some of the dominant NGOs involved in the climate change politics network are Greenpeace Germany, BUND and NABU (Jost and Jacob, 2004). Although environmental NGOs make up a small portion of the climate policy network, these groups have been quite influential despite minimal financial and human resources. The influence of NGOs on climate policy can be observed during the implementation of the eco-tax in the early 90s. Lobbying on the part of Greenpeace helped the eco-tax issue to gain momentum after 1994, therefore, Jost and Jacob (2004) argue that rather than financial and human resources, expertise and closeness to the government might actually be more important factors in influencing climate policy. As green groups were becoming institutionalized, environmental NGOs were able to leverage existing

relationships they had with individuals who were formerly part of environmental groups, and were now political figures/involved in governmental organizations representing environmental protection. In addition to integrating into the political realm through their green group counterparts, NGOs have also leveraged mass media as well as mass rallies in order to reach and influence the general public. Leveraging these activities has helped NGOs to compensate for their minimum human and financial resources. Since mobilizing the general public creates awareness, sparks citizens movements, and impacts voting, all of these things affect climate policy. Environmental NGOs have also been good at forming coalitions with research institutes and acquiring/relying on a large information base to gain credibility and influence. Jost and Jacob (2004) find that NGOs and governmental units have a stronger relationship than governments have with other interest groups, which is likely the result of the change in government in 1998.

In addition to Environmental NGOs, economic interests do exist. For example, the Association of the Car Producing Industries, insurance, and the Association of Lignite Industries. These groups were unable to influence government on their position of being against the Eco-tax in the 90s, likely due to the strong environmental concern at the time. Although when introducing the EU ETS, coal interest groups lobbied against the ETS, and were able to influence the federal government. They weren't able to influence them to ban the ETS, which is what they had hoped for, but the federal government set very weak targets in the interest of the coal industry, and other emission intensive industries. In this situation however, the EU was able to step in and force the federal government to set appropriate targets originally agreed upon.

Media

In Germany, the media has played an important role in influencing climate policy, by reporting on the science of climate change and influencing/informing the public from

an early time. From as early as 1986, climate change appeared in the media, as a statement that was issued by the German Physics Society – a prestigious study group on energy related issues. With the main purpose of supporting nuclear power, they issued a statement warming the public about climate catastrophe. Unfortunately, for the group, the Chernobyl disaster took place shortly after they issued the statement, and concern about nuclear power took precedent. In 1989 however, the news magazine Der Spiegel published an article called 'The Climate Disaster' and began a series on the issue of climate, featuring covers showing natural disasters such as floods at the symbolic Cologne Cathedral in Germany (Janicke, 2010).

Since this time, reporting on environment and climate has increased, and in particular publicly funded media has increased in quality, range and importance. Reporting of climate change reached a peak in Germany in 2007, triggered by the publication of the Stern report by the UK treasury in October 2006, the first volume of the fourth IPCC report in February 2008 and the subsequent volumes for the remainder of the year. In fact, the day after the publication of the first volume of the fourth IPCC report, a tabloid that is not particularly known to be in favour of environmental issues, called "Bid" released an issue with the headline "Our Planet Is Dying" (Peters and Heinriches, 2008). Furthermore, the German news magazine called "Stern" changed the colour of its red logo to green and published an article "This Is How We Can Save the Climate and Still Enjoy Life." Beyond print media, even television programs began to spread the message. For example, a science program called "Calileo" started a series in which they provided viewers with tips on how to reduce carbon dioxide emissions. Around this time, there were also media outlets criticizing the alarm over climate change. In fact, even the Influential magazine Der Spiegel published an article called "Not the End of the World as We Know it" which questioned the severity of climate change. But

still, the media response to climate research prevailed and helped to spread the knowledge that was being learned about climate change at its early stages.

Public Opinion

It is beneficial to understand the public opinion of citizens and how they perceive climate change, because it is an important factor to understanding how decision makers operate and act on climate policies. Depending on how the public view climate change, political, economic and social action to address the issue might be constrained or may flourish. In Germany, the public is in general agreement that the issue of climate change exists and that it needs to be addressed. There is not much debate over the topic. As discussed above, the Chernobyl disaster and the oil crises of the 70s and linkages to air pollution, sparked concern for environmental issues by the general public, therefore from and early stage, the public was aware of environmental issues. In 1993 Health of the Planet survey 73% of German's believed in global warming to be a very serious issue, 21% said they believed it was a serious issue (Brechin, 2003). The high public attention to climate change can be attributed to the extensive coverage of global warming since the 1980s. The high attention paid to climate change during the late and early 90s given in the media can be responsible for the generally high knowledge/concern of climate change by the general public. Media had done a good job at tailoring their publications, using scientific findings to peak the interest of the public, for example, by relating the issue to everyday experiences, and framing it in a way that would be directly relevant to the audience, for example, by talking about our grandchildren, the effect on various regions (effect on ski tourism), etc. Also, media made public aware how their everyday activities can affect climate change. As a result public opinion on climate change has been to take action, and this is clear in the support that was received by the Green Party in 1998.

Ideas and Discourses

In Germany, the ideas surrounding climate change have been prominent, and taking action on climate change has been viewed as necessary. In fact, climate change in Germany has come a long way and is largely embedded in the institutional context, and has become an "object of routine political regulation" (Weidner and Mez, 2008). Climate change entered into the political arena at an early stage sparked by scientific publications highlighting the affect carbon dioxide was having on the atmosphere. At this early stage in the late 1970s the urgency/reaction to the publications was quite low. After the World Climate Conference that was held in 1979, the German government planned for a national climate research program but, didn't launch the program until 1984, under the Ministry of Science and Technology, displaying the relatively little urgency for the matter during the 70s. It was after the increased media attention, and the framing of the issue in terms of a "catastrophe", the German government began to take up the issue seriously, despite the presence of scientific uncertainty. The climate catastrophe discourse would shape the ideas around climate change in the coming years.

The Enquette commission also played a key role in framing the urgency of the issue, and eventually, it was simply the scientific warming that was enough for the German government to begin to take action and in 1990 a commitment to reduce carbon dioxide emissions by 25% was made. Parliamentary debates did not include climate skeptics or those that doubted the threat that climate change posed (Weingart, 2000). The focus on climate change soon shifted on how to implement carbon dioxide reduction targets, and once the German government realized the complexities of the task, and the fact that the emission reductions experienced thus far had been a result of de-industrialization of the former East Germany, the political legitimacy of the German government was at stake, since they had emphasized the urgency of the issue.

Therefore, the federal government shifted its strategy, and instead of perceiving it as a meta problem, they spoke about it in less dramatic terms, and labelled it as part of a larger problem of sustainable development. Therefore climate change has entered into the scope of various ministries beyond just the Ministry of Environment. Establishing climate change across the ministries shows the willingness and seriousness of the German government to address the issue.

Around this time the air pollution problem had entered into the political realm, as public concern for the issue was high, calling for air pollution control measures in the 80s. It was this issue that accelerated the development of environmental management, and scientific and technical capacities. This experience in implementing air pollution control measures in Germany shaped the ideas around environmental policy. For example, for the first time the precautionary principle was used as a justification for stronger air pollution control policies. This is important in terms of climate change because it promotes the idea of having a risk adverse strategy as the best option in times of uncertainty. Although there was concern over the potential detrimental economic effects that air pollution control policies would have, mainly from the industrial sector and their counterparts in government, there were actually economic benefits to be experienced through employment, technological innovation and modernization of industry. As a result, a general acceptance of the idea of “ecological modernization” of industry emerged as a strategy for receiving environmental as well as economic benefits. Therefore, since the introduction of the air pollution control policies came with such success, there was little skepticism when the climate change debate surfaced (Weidner and Mez, 2008).

As we can see Germany’s leaders have generally shown concern for environmental issues, especially climate change for a long time. In particular, Chancellor of the Social Democracy Party, Willy Brandt began development of environmental policy

in the early 1970s, under his position of major reform and promotion of democracy. He established the first environmental programme in 1971, and passed laws for air pollution regulation (Janicke, 2010). His ideas on climate policy and concern for the environment can also be seen within the Brandt report, in which he called for renewable energy to be used in developing countries in 1980 (Wiedner and Mez, 2008). This report sparked discussions around renewable energy at the international stage for the first time at a UN conference in Nairobi in 1981 (Hirschl, 2009). Although nothing was achieved in terms of climate policy his ideas played a role in setting the context for climate policies. German Chancellors that followed, all emphasized the importance of environmental policies and contributed positively to climate policy in some way, working towards moving forward on the issue.

In the 1980s as green groups began to form and enter into the political arena, Helmont Kohl was Chancellor under the conservative party. Under his conservative-liberal coalition, he established the Ministry of the Environment, Nature Conservation and Nuclear Safety in 1986, demonstrating his commitment to the environment, particularly in the wake of nuclear disaster. Soon after this, Kohl announced that the climate issue was among the world's most pressing environmental problems" (Wiedner and Mez, 2008). In 1987 the special parliamentary committee of investigation on "precautions for the protection of the atmosphere" was set up from 1987 to 1990, and extended from 1990 to 1994, to provide recommendations on how to deal with climate change. Kohl took these science-based recommendations into consideration and committed to a target of 25% reduction of GHG emissions of 1990 levels by 2005. Kohl was also known for introducing the first Feed-in law in Germany which sparked a dialogue of the benefits of going green in the energy sector.

Subsequently, in 1998 under a social democratic and green coalition, Chancellor Gerhard Schröder introduced the Renewable Energy Sources Act, 2000; this showed his

commitment to reducing GHG emissions. Schröder understand that beyond national action, even more important was global action since, and worked towards providing assistance to developing countries to provide them with a chance to develop sustainable energy strategies (Schröder, 2002). In 2005, as Angela Merkel became Chancellor of Germany, the discourse on global action and environmental leadership remained and continues to this day. Angela Merkel played a key role in the negotiations that led to the Kyoto Protocol of 1997, as Environment Minister during that time. Her commitment to climate change was also seen at the EU level, when Germany held the EU presidency, pushing forward a package of climate targets for 2020. Merkel acknowledges the challenge that climate change brings, but is in the view that if we do not address it, the damage will be far worse. As Germany holds the G20 presidency for 2017, Merkel also plans to make climate change a top priority of discussion at the G20 Hamburg summit (G20 Agenda, 2017).

Ultimately, due to the existing discourses on climate change from an early stage, regardless of political party affiliation, the ideas around environmental conservation and the concept of the precautionary principle, have really helped to shape the way in which German leaders have felt about and acted on climate change policy.

Conclusions

The climate policy community in Germany has been much less divided than in Canada. The network of actors that have close access to the policy process are largely in agreement that action on climate change must take place. Jurisdiction of resources and the environment are shared by the federal and sub-national levels, as laid out by the Basic Law. However, it is mainly up to the federal level to initiate policies and the sub-national level to implement them. Beyond federal and sub-national level actors, the EU is also involved in the climate policy network in Germany. The EU sets emissions reduction

targets in the international arena, and as a member of the EU Germany must apply abide by these targets. EU regulations are binding and therefore member states are required by law to apply them.

Tensions between sub-national governments in Germany are fairly low since there is not the same level decentralization/separatism that is experienced in Canada. There has been some conflict at the Lander level, in terms of implementing renewable energy policies fairly. However, the federal government has been able to step in to address distributive conflicts and the cost equity of implementing renewable energy policies among the Lander.

Interest groups and non-state actors are quite integrated within the German climate policy network and can hold a great amount of influence. Germany's strong environmental movement, which was fueled by the oil crisis of the 70's, Chernobyl, and concerns over air pollution have fueled the rise of green groups in this country. Green groups were quite organized and able to establish themselves within institutions, as heads of environmental agencies, and even as ministers. With this level of organization, and with a proportional representative electoral system, the Green Party was able to gain strength and has become a key player in the political system. In addition to environmental groups, industry groups have also been able to influence the federal government. Particularly, coal interest groups that lobbied against the ETS were successful in persuading the government to weaken their targets, however in this situation the EU was able to step in and force the federal government to set to appropriate agreed upon targets.

In general, the climate policy community and networks in Germany have viewed taking action on climate change as a necessity and has largely been embedded in the institutional context and become routine. In Canada where the climate policy issue has been framed as an issue of the environment versus the economy, in Germany, actors

can see the potential economic benefits that can be had with transitioning to renewable energy that will contribute to carbon dioxide emission reductions.

CHAPTER FIVE: Conclusions

Policy networks have a profound influence on climate change policy outcomes; the cases of Canada and Germany have demonstrated this influence. By analyzing policy networks within the climate policy community through an institutional framework, political economic context, societal forces, and by examining the ideas and discourses around climate change, this paper has provided an explanation for Canada's lack of action on climate change policy, and has examined Germany's progressive action.

Institutional Framework

The key area in which Canada and Germany differ in terms of their climate change policies, is with respect to constitutional authority over the environment, and therefore climate change. In both countries, the constitution sets out the jurisdictional rights of the federal and sub-national governments. Neither the German or Canadian constitution explicitly sets out jurisdiction over the environment, the Canadian constitution provides jurisdiction over natural resources to its provinces, which means they have jurisdiction over energy policy and as a result have assumed authority over environmental matters as well. In Germany, environmental-related competencies are found under the concurrent section of the constitution, and therefore it is a shared responsibility between the federal and sub-national government, however, the federal government takes leadership and sets out the policies for the sub-national governments to administer, reducing ambiguity. This is an important difference between the two countries, because constitutional authority over the environment at the federal level in Germany has played an important role in ensuring coordinated climate policy in the

country. Whereas in Canada the various leadership roles on climate policy on the part of the provinces has led to an uncoordinated, fragmented policy for the country. Jurisdictional ambiguity in Canada has hindered the federal government's ability to act accordingly and has created a situation of federal competitiveness between the two levels of government (Skogsatd and Kopas, 1993). The federal government in Canada can however exercise authority over environmental concerns since it is not explicitly assigned to the provinces, but the country has rarely ever exercised its political powers in the area due to provincial resistance. In this sense, the federal government in Canada has tried to maintain a level of cooperation with the provinces by playing a limited role on climate policy matters.

The institutional framework has an important role to play when considering the success of a country's climate change policy. In Germany, the governance structure of proportional representation has provided a positive political arena for fostering action on climate change and keeping it on the political agenda. With the help of coalition governments representing a wide range of interests at both sides of the political scale, governments have little choice but to work together. This form of cooperation has helped to keep climate change on the table in leading coalitions. In Canada, on the other hand, the political system operates on a first past the post system. This system allows for one party to hold majority in government which, is not usually representative of the population, and it is easy for environmental issues such as climate change to get left behind. For example, during the years of the majority conservative government in 2011, Canada took a big step backwards in terms of climate policy, as it was not a priority for this regime, evident by a lack of climate policy initiatives on the political agenda.

The institutions that are put in place either help to foster climate policy or can deter it. From an early time, Germany has been supportive of introducing institutions that were used to help educate, inform and move forward on climate policy. For example, the

Enquette Commissions, the Ministry of the Environment, Nature Conservation and Nuclear Safety, the climate change program, and the intergovernmental working groups have helped to foster cooperation and coordination of climate policy. Institutions such as the Commission set up by the government, show the willingness of governments to consider scientific knowledge and provide a credible basis for government to base their decisions on as well as a means to educate the public. Within the federal government in Germany, the climate change competency is given to the Ministry of the Environment and they hold the main role in coordination of climate policies between other relevant ministries. Canada, on the other hand, has been less effective in providing a basis for coordination between ministries, and has largely left it to provinces to move forward on climate initiatives. Although, after the recent election Prime Minister Trudeau has mandated the lead on climate change to the Ministry of Environment and Climate Change, and expects the Minister of Environment to work closely with Natural Resources Canada and the Department of Fisheries and Oceans to develop a national climate plan. Although, at this stage it is not clear how the Minister will coordinate between the ministries.

The institutional framework within a country can provide a basis for the climate policy community to either be able to implement effective climate policies or to hinder progress. The climate policy community in Germany has enjoyed success on moving forward on climate change policy, which institutional structures such as working groups and coalition governments have helped to foster. Canada has enjoyed much less success on this front, as institutions have not been able to have the same influence on government officials. Jurisdictional ambiguity has created a policy community in which actors, particularly the federal and provincial levels of government, compete against one another for jurisdictional authority, and at the same time, try to find a basis for cooperation, specifically in the interest of economic factors. Therefore, where Germany

has operated on a basis of cooperative federalism, Canada has displayed competitive federalism resulting in a lack of a coordinated climate policy.

Political Economic Context

Looking at the policy networks through a political economic context is essential to understanding climate change policy. Actors which are close to the policy process tend to have the most influence over climate policy. In Canada, economic/productive interests have enjoyed access to the climate policy process, due to the high reliance on natural resources for the economy. The state has a history of putting the economy ahead of the environment in Canada and therefore business interests have always been favoured over the public and environmental groups. Provinces have a close relationship with industries within their jurisdictions to ensure their provincial economies do not suffer. In Germany, industry interests have less influence on the policy process and therefore do not influence climate policy to the same extent. Where industry does attempt to influence government to reduce regulation standards, strong coalition governments who have a history of acting on climate change are not easily influenced and, the European Union is able to veto any weakening of regulations on the part of the national government.

Whereas Germany has been a known leader in acting on climate change, and setting progressive targets at the international stage, Canada has tended to set quite modest reduction targets, largely due to the high integration of the Canadian economy with that of the United States, and the Conservative government's decision to focus on oil as the country's main wealth generation. Canada has generally kept its climate change policy initiatives in line with the United States; in fact, keeping in line with the US has been a Canadian federal government policy objective. Following in the footsteps of US climate change policy, Canada also withdrew from its Kyoto Protocol obligations in 2011. As Canada's largest trading partner, any climate and energy policy choices in the

US will have major economic implications for Canada. This has led Canada to take a largely voluntary approach to climate change action. On the other hand, in Germany, although once reliant on imports of oil for energy, after the oil crises of the 70s, Germany has taken measures to become more energy independent. This led to the creation of renewable energy policies to spark innovation in this new and emerging sector.

In Canada, differences exist between the economies of the provinces in terms of energy use. Some provinces are very low emitters of GHGs while others rely on conventional sources of energy and are therefore high emitters. Because the cost of reducing emissions varies between provinces, coordination of a national climate policy has been a challenge. Add to this the fact that the federal government has historically left it up to the provinces to coordinate on climate policy, with no formal mechanisms to do so. In Germany, however climate change policy is imposed on the sub-national governments by the federal government. Therefore, although there are differing economies in various Lander, the federal government uses financial mechanisms to allow for a more equal distribution of costs. The situation in Canada, since the new Liberal government has come into power in 2015, seems that it has improved in terms of the national government stepping in to provide mechanisms for which the provinces can coordinate effective climate policies, such as the Pan Canadian Framework on Climate Change. This is meant to be a national plan, which involves all relevant parities (the first minsters, and related ministries of the federal, provincial and territorial levels). Whether this will be an effective approach for the decentralized nature of Canada, is yet to be seen.

Societal Forces

An analysis of the societal actors involved in the climate policy community has shown that environmental NGOs in Canada do not appear to have had the same effect

as that had in Germany. Although, nonprofit environmental organizations have played an important role in informing the general public about the issues of climate change and policy in both countries, it was in Germany, that these groups were able to have a voice within the federal government. Germany's NGOs were able to receive such access and acknowledgement, directly as a result of the success of the Green Party and its strength in the political arena. Environmental groups in Germany are well accepted by governments. In Canada under the Harper regime, these groups were threatened with audits, specifically towards groups that spoke out and critiqued the government's economic strategy and decision to expand the oil sands. These audits threatened to cut funding to those groups that were involved in political activities. The investigations into environmental groups restricted the ability of these groups to continue their meaningful work, as funding was subject to uncertainties. This action shows an unwillingness of the governments decisions to be evaluated. In Germany there is a different culture regarding environmental groups, and their work is generally accepted. In fact, they have been quite influential in the political arena in pushing for climate action.

Media outlets also play an important role in spreading awareness of climate change issues. Environmental groups use such outlets to spread their message. With minimal resources, they heavily rely on media outlets to spur collective action, as has been the case in both Germany and Canada. In addition to advocacy groups, scientists and research groups often turn to media outlets, to spread high profile and interesting findings that should inform public policy. Media outlets in Germany, particularly the political magazine Der Spiegel has played a key role in communicating the science of the climate change issue, which has helped to inform the general public. In Canada, there was a setback in terms of communicating science via media outlets, when the Harper regime, discouraged government scientists from speaking with the media.

It appears that in both countries the opinion of the public is that climate change is a generally accepted and acknowledged issue, and that the federal government should take action. The action of the federal government in Germany reflects public opinion, likely due to the fact that climate change is a concern for citizens. Therefore politically it makes sense to take action. In Canada, the actions of the federal government do not reflect public opinion, but the actions of individual provinces do. In addition to federal government action, Canadians felt the provinces were to bear responsibility as well, and they supported actions taken by their provincial governments on the matter. There were some discrepancies however, when it came to acknowledging climate change as an issue between provinces. As one would assume, oil-producing provinces such as Alberta and Saskatchewan showed a lower percentage of those who believed climate change to be occurring. High attention and climate issues tends to motivate political actions, therefore years of inaction on the part of the federal government in Canada, may have played a part in the success of the Liberal majority government in 2015. The Liberal party made climate a top priority during the election period, and is continuing to work on the issue at the federal level in consultation with the provinces, and in line with public support for taking action.

Ideas and Discourses

In Canada there has tended to be a long-standing debate over the environment versus the economy, particularly under the Harper regime. In Germany the ideas and discourses have primarily focused on the precautionary principle and the polluter pays concept. This is made clear by the fact that in the past, during leadership under the Harper government, any attempt to introduce a national carbon pricing scheme and recommendations of implementing a national carbon tax, have been repeatedly shut

down. On the other hand, in Germany national carbon pricing schemes have generally been accepted and used as a foundation for climate change policy.

Although ideas about climate change have set Canada back in terms of a national climate change policy, we may begin to see a shift with the Trudeau government that came into power in 2015. Already we have seen the discourses beginning to shift, most notably the symbolic change in name of the federal ministry of Environment Canada, to Environment and Climate Change Canada, signaling that this government will take the issue seriously. Since Trudeau has been in power, he has changed the communication policies, so that government scientists are free to speak with media outlets themselves. He has been briefed on the science of climate change and has re-initiated the meeting of the first ministers to discuss plans for a national climate change strategy: the Pan-Canadian Framework on Climate Change. These are long overdue steps taken by the Canadian government, regardless of the results they bring, it is clear that there has been an ideological shift since the Harper regime.

Overall, the interests of various actors and their relations with one another within the policy community influences the policy process. The institutional, political economic, societal, and ideational context has exemplified this for Germany and Canada. Non-economic actors in Germany have displayed great success in gaining access to the policy cycle in relation to climate policy. They have used media outlets, have managed to organize themselves effectively, and have developed close relationships with state officials fostered by the institutional context. This relationship has had a positive effect on climate policy in Germany and is a key reason for the progressive nature of action on climate change policy in this country. On the other hand, the economic payers within Canada have held a policy monopoly for a long time. Due to the heavy reliance on natural resources for the economy, industry groups in Canada have had a profound influence on state officials. This has been fostered by the jurisdictional ambiguity of the

provinces and the state, and has resulted in an incremental approach to policy making.

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