TOWARDS A COMMUNITY GHG REDUCTION PLAN
CASE STUDY: CALGARY

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Summary

Using Actor-network theory (ANT) and discourse analysis as the theoretical framework, this qualitative case study aims to contribute to the understanding of the political conflict, which underlies climate change action. This is a case study of Calgary, Alberta, where in November 2011 the Calgary Community GHG Reduction Plan was approved by City Council. Calgary is a major oil and gas business center, where the City does not have regulatory power over Community-based GHG emissions. The objectives of the research questions are to understand how action may be stimulated concerning climate change, as well as how the design of the Community GHG Reduction Plan was shaped through discursive interaction and framing. After determining the milestones and opportunities related to the Plan, the key actors and entities were identified. By analyzing the connections and mechanics of power, two discourse coalitions were interpreted where actors positioned themselves. Actors used various discursive mechanisms to push forward their rationales regarding Community GHG reductions. In addition to the Plan aligning itself with preceding initiatives; a co-benefits frame of 'managing risks and capturing opportunities' was chosen as the most appropriate frame to achieve the high-level buy-in necessary for the Plan's step-wise approach.

Introduction

The research problem

Introduction to climate change

Greenhouse gases (GHGs) are gases that trap heat in the earth's atmosphere, hence gases that cause a greenhouse effect. These gases include carbon dioxide (CO2), methane, nitrogen oxide, sulphur oxide as well as others. Anthropogenic activity has undisputedly caused an increase in GHGs being released into our atmosphere. The meaning of climate change in this thesis will follow that of the UNFCCC's (United Nations Framework Convention on Climate Change), where ''Climate change' means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods' (United Nations, 1992). Some of the main impacts that would be felt regionally in Alberta are: increase in extreme weather events; forest fires and insect outbreaks; changes in water quality and quantity; decline in air quality, and; loss of biodiversity (The City of Calgary, 2012a). However, since the climate system is a shared resource, this is a global problem.

It is acknowledged that our practices as humans and reliance on fossil fuels, which accounts for the majority of global (anthropogenic) GHG emissions (IPCC, 2011), are not sustainable. Despite this, the problem is still prevalent and in fact getting worse. Between 1970 and 2004, global GHG emissions increased by 70% (IPCC, 2007, p.36) and the 2005 atmospheric concentrations of CO2 and methane were recorded to be exceeding the natural range of the last 650,000 years by a significant amount (IPCC, 2007, p.37).

Climate change has a very large impact on our world and although it is a technical issue, it is also deeply political. Climate change policy and investment today shapes the climate of future generations. Economically, the costs from climate change in Canada alone could exceed $5 billion in 2020 and grow to more than $21 billion by 2050 (FCM, 2012). There has been a lot of attention on the international stage, especially with how national governments are tackling the issue. However, there has also been a strong focus on the surge of local initiatives since the 1990s. These are very relevant in nations that do not have an overarching climate change strategy.

Introduction to the Canadian context

In 2011, Canada had officially withdrawn from the Kyoto Protocol after a drastic rise in GHG emissions since ratifying the Protocol in 2002. In 2006, the City of Calgary reported that Canada was ranked 28 out of 29 OECD countries for energy efficiency (Environmental Management, 2006). Even with its serious ecological footprint, there is no significant national strategy or action plan towards reducing GHG emissions.

Alberta is a Western Canadian province, which has the 3rd largest crude oil reserve in the world, an industry that it is heavily invested in. Alberta has jurisdiction over its municipalities in relation to natural resources, environment and energy, among other sectors that relate to climate change. In 2008, Alberta renewed its climate change strategy as it had claimed to have had adopted the priority of greening its growth (Alberta Environment, 2008). However, this resulted in quite a lax plan relative to Alberta's GHG emission contributions.

According to FCM (2012), Canadian municipalities are in control of over 44% of GHG emissions, and in 2007, FCM reported that 65% of Canadians live in cities, which had formally committed to reducing GHG emissions. This makes it interesting to study a Canadian city's response to the climate change issue in a country where there is a lack of an overarching climate change strategy. Calgary is especially interesting as it is the energy capital of Canada (Calgary Economic Development, 2011) and has a very large ecological footprint, even larger than the Canadian average. In fact, in a UNEP study, Calgary placed 5th highest out of 50 major cities in regards to emissions per capita, surpassing cities such as New York, Mexico City, Vancouver and Toronto (Environmental Safety & Management, 2010). This thesis is a case study of Calgary, which has been striving in the last decade or so to become a leader in climate change policy in the face of an enormous oil and gas sector and limited jurisdiction to control GHG emissions. It is a very interesting case study to pursue, as Calgary is the epitome of urban sprawl and reliance on fossil fuels, two major contributors to GHG.

<u>Studies that have addressed the problem</u>

Climate change is becoming a more prevalent academic subject, and generally an increasingly accepted and acknowledged issue that must be acted on, unlike 20 years ago. Throughout my literature search on climate change concerning the local level, a number of topics re-emerged. According to Bulkeley (2010), literature examining policy responses at the local level have so far focused on explaining the governance of these responses and why the implementation of climate change mitigation and adaptation often fails to live up to expectations. There has been much written on the history of responses, including the drivers

and barriers of local level responses. There is also literature on the waves of municipal and transnational climate change networks. More so relevant to the focus of this thesis, there has also been analysis of previous processes and strategies in local climate change policy. Despite a good base of literature on the topic relating climate change and municipalities, there is a call for additional and diversified research.

Deficiencies in the studies

A deficiency highlighted in previous research (Bulkeley, 2010) is the lack of variation in theoretical approaches towards examining climate change responses at the local level. For example, some researchers note that there is much climate change literature through the theoretical lens of multi-level governance (MLG). Contributing to a lack of variation in theoretical perspectives may assist in understanding the basis for political conflicts concerning climate change (Bulkeley, 2010, p.242). Regarding the geographical interest of this thesis, there has also been a call for more focus and quantity of research within a Canadian context, where climate change is not a proven priority at the national level, yet there has been interest from the bottom-up.

<u>The significance of the thesis</u>

Although there is municipal action being taken in Canada, academically there has been little attention to municipal climate change action within a Canadian context (Gore, 2010). Part of the societal relevance of a Canadian city case study is in contributing to the understanding of the development of policy process in Canadian municipalities. Choosing Calgary as the single case study for this thesis also has societal relevance. This is because as a city with a large ecological footprint, Calgary is still considered by some as a policy leader in Canada when considering its Corporate initiatives, and working towards the 2011 Calgary Community Reduction Plan led by the City's Climate Change Team. Bulkeley (2010, p.246) had stated that there should be an alternative approach in order to analyze 'the heart of questions concerning how, given the voluntary nature of most urban climate governance, anything is achieved'. The findings hope to understand how action may be stimulated concerning an issue, which is of a voluntary nature. Climate change remains a deeply political issue because as discourse analysis points out in this thesis, climate change as an issue is also a social construct. Actor-network theory (ANT) will be the approach used in discovering who is involved in the climate change policy process in Calgary and it may be a more open way to look at the network involved as there should be no *a priori* notion concerning power and influence. Vigar et al. (2000 cited in Wilson, 2006) states that in order to understand how issues are framed, one must first acknowledge who is involved, how they operate and how they

interrelate. The scientific relevance of using discourse analysis in this thesis, is that the findings may be useful in understanding how and what sort of mechanisms and frames were used to persuade others to take action.

Purpose of the thesis

The purpose of this qualitative case study is to understand the development of the climate change policy process in Calgary. The development of the climate change policy process will be generally defined as the network as well as the discourse leading up to the Community GHG Reduction Plan in Calgary.

The main objective of this thesis is to use ANT and discourse analysis to explain the strategy process leading up to the Community GHG Reduction Plan in order to contribute to the understanding of the political conflict, which underlies climate change policy. Through the research questions being investigated, the findings hope to understand how action may be stimulated concerning climate change, as well as how the process and substance of climate change policy was shaped through discursive interaction and framing (Hajer and Versteeg, 2005; Healey, 2007). Before presenting the research questions, 'network' must first be explained, as it is a major element of the study. Using an ANT lens for the first part of the research, the term 'network' is not seen as a thing, but the recorded movement of a thing (Latour, 1996). Bosco (2006, p.136) attributes ANT to 'uncovering and tracing the many connections and relations among a variety of actors (human, non-human, material, discursive) that allow particular actors, events and processes to become what they are' (emphasis added myself). Therefore, a network may involve different types of actors and it is not a technical network with nodes and paths, but a tracing activity. Through the data collection, I will try to identify these actors (for example, people, departments, organizations, etc.) and entities (for example, policies, influential documents), and their connections in developing the Community GHG Reduction Plan. In order to achieve this objective, the research questions will be split into two central questions related to the theoretical framework of the thesis. The research questions are as follows:

Main research question:

How did the discourse within the network of actors involved in the development process of climate change policy in Calgary influence the design of the Community GHG Reduction Plan?

1. How did the network of actors involved in the development of the policy process, stimulate action towards strategy building for climate change action in Calgary?

    1.1. What were the milestones preceding the Community GHG Reduction Plan?
    1.2. Who are the actors and entities, and what are their connections i.e. how did the network function, in the development process towards the Community GHG Reduction Plan?
    1.3. Which of the actors had more power and in which stage of the development process of the Community GHG Reduction Plan?

2. How did the discourses of different actors frame the policy for climate change in Calgary?

    2.1. How did a frame become salient?
    2.2. What was the exchange between actors towards an alignment of different interests, in terms of communicative process, opportunities and discursive mechanisms used?

Structure of the thesis

This thesis will begin with 'setting the scene'. This will be done by explaining the context of the problem in Canada at different levels, particularly in the province of Alberta and the City of Calgary. In Chapter 1, there will also be a literature review on previous research regarding climate change action at the local level. Chapter 2 will go over the theoretical framework, which will be used in this thesis. This includes ANT and discourse analysis, which will be explained and tied to the conceptual model that will be used for analysis of the data. In both this chapter and the next, I will also attempt to review literature on the relevant topics to better explain them, and also justify my choices of framework and methodology. Chapter 3 will explain the methodology used in the thesis. The main points that will be discussed will be the research philosophy, a review of the conceptual model to be used, research method and analysis. Chapter 4 will be an empirical analysis of the data collected and analyzed. This will be separated into 2 parts. Part 1 will be the collective narrative, and Part 2 will focus on the research questions. The thesis will conclude with a reflection of the work as well as recommendations.

Chapter 1: Setting the scene

Canadian context

Canada and climate change

Although Environment Canada reported a decrease in GHG emissions between 2003 and 2006, Canada still had the highest increase in total aggregate GHG emissions between 1990 and 2007 among the G8 countries (Dowd, 2008 cited in Hsu and Elliot, 2009). Despite an international shift in recognizing the need for both top-down and bottom-up strategies to combat climate change, and leading academics in research and international policy development in Canada, there is no significant national policy framework or action to reduce GHG emissions (Gore, Robinson and Stern, 2009). In 2008, the Conservative Party, under Prime Minister Stephen Harper, introduced the Regulatory Framework for Industrial Greenhouse Gas Emissions (Environment Canada, 2008). The plan is an intensity-based emissions trading program (Hsu and Elliot, 2009), which aims for a 20% reduction in Canada's total GHG emissions by 2020 and by 60-70% before 2050, relative to 2005 levels (Environment Canada, 2008). To compound the lack of an aggressive national strategy, Canada pulled out of the Kyoto Protocol in late 2011. This was not a big shock, as Canada had also not fully honored the Rio Declaration on Environment and Development that it had signed in 1992, and as already noted, Canada's GHG emissions had soared. Canada ratified the Kyoto Protocol in 2002 wanting a 'highly flexible mechanism for allocating credits for emission reductions, including a market-based trading system' (Rabe, 2007, p.426). The Kyoto Protocol did not take legislative form in Canada, as the federal government does not have the jurisdiction to do so and required the collaboration of the provinces in order to implement it. There were no serious proposals, but rather a continuation of softer procedures such as consultation processes and roundtables that included different levels of government, as well as industry and environmental groups (Rabe, 2007). Alberta was seen by some as a 'spoiler' of the Kyoto Protocol, with the Premier at the time, Ralph Klein, making his voice heard nationally. He condemned the Protocol as an economic threat and an 'encroachment upon Constitutional powers and natural resources' (Rabe, 2007, p.438).

With a rather passive history of national climate change response in mind, Dickinson and Burton (2011, p.2) state that Canada is 'learning to adapt'– taking a place-based approach, which is focused on mitigation rather than adaptation. The strategic approach to adaptation has been unguided and unconnected with modest encouragement from the federal government (Dickinson and Burton,

2011, p.7). Although no longer committed to the Kyoto Protocol, Canada should be weary of not having a national strategy, both in regards to mitigation and adaptation. Dickinson and Burton (2011, p.7) do not believe that Canada can avoid a national adaptation strategy: 'such an activity would not obviate the current multi-level mosaic approach. On the contrary, it would give it focus and enable Canadians to see the full picture and facilitate greater awareness and stronger action in both the near and the long term'.

The structure of government in Canada is an important factor to consider when discussing climate change. Research by DeAngelo and Harvey (1998) examined the jurisdictional framework of Germany, U.S. and Canada, finding that Canada is in the weakest position to implement climate change initiatives from a federal level. This is largely due to the fact that Canada is a highly decentralized federal system. The implications of such decentralizations include the lack of regulatory tools to influence climate change initiatives (both mitigation and adaptation) in lower levels of government, meaning the provincial or municipal level. There are also additional reasons beyond the jurisdictional framework, which may contribute to the lack of a central plan (Gore, Robinson and Stren, 2009). The size of the country can be one reason as there is a diverse range of geographies within the country. Concurrent with the size of the country, political and intergovernmental reasons are also a reason as diverse economic interest result in big compromises. Another is the cold climate, which unfortunately makes the idea of global warming welcomed in the perception of citizens which are not looking past their region that has not felt more dramatic effects as of yet.

To further elaborate on the decentralized jurisdictional framework, Canada has a complex division of powers and responsibilities with the provinces having legislative authority over municipalities. The 1867 Canadian Constitution Act bestows this authority upon provinces and any law. Climate change is a crosscutting issue that is not bundled into one sector. The term crosscutting also implies that the implications of the issue affect multiple sectors. To use Alberta as an example, Natural Resources, Environment, and Energy are some major sectors that both affect and are affected by the climate change problem. A study by the Alberta Climate Change Adaptation Team (ACCAT) (cited in Wellstead and Stedman, 2004) identified 15 major sectors that are potentially affected. However, specific responsibilities of the Provincial government concerning climate change are still emerging.

Municipal Networks

In 2005, the federal government, under the Liberal Party, gave a $300 million cash contribution to the Federation of Canadian Municipalities' (FCM) Green Municipal Fund (GMF), which was followed by a municipal permanent share of

the federal gas tax by the Conservative Party government in 2008 (Gore, Robinson and Stren, 2009, p.8; Gore, 2010). The federal government also announced a Clean Energy Fund for mitigation strategies, however this was not dedicated to municipalities and was not part of an overall strategy. FCM, as a central and the most supportive organization for promoting the role of cities in GHG emission reduction (Gore, Robinson and Stren, 2009, p.5; Gore, 2010), works with the International Council for Local Environmental Initiatives (ICLEI) to promote mitigation and adaptation at the local level (Partners for Climate Protection, 2012a). Partners for Climate Protection (PCP), which is part of FCM, parallels ICLEI's Cities for Climate Protection Program (CCP), and is funded by the GMF. On February 10, 2012, Canada extended its commitment to the program for another five years (FCM, 2012). PCP partakes in the 5-milestone framework for reducing GHG emissions and is also useful for knowledge sharing and grants. The PCP program's 5 milestones are: create a baseline emissions inventory and forecast; set emissions reduction targets; develop a local action plan; implement the local action plan, and; monitor progress and report results (Partners for Climate Protection, 2012a). Currently there are 220 Canadian municipalities (as defined by FCM) participating. Calgary has succeeded in reaching all 5 milestones on the Corporate side, and 4 of the milestones in the Community (Partners for Climate Protection, 2012a). Other Canadian non-government organizations that are leaders in working with municipalities include Pembina Institute and the David Suzuki Foundation (Robinson and Gore, 2005).

Alberta

Alberta has a very strong provincial voice and has created new institutions related to climate change since the 2000s including the Alberta Energy Research Institute, Alberta Climate Change Central (C3), and Energy Solutions Alberta. In 2002, it was the first province in Canada to release a climate change action plan. Alberta had shifted towards a 'carbon intensity' approach, which is a ratio of emission levels to economic activity (Rabe, 2007), and was the first jurisdiction in North America to have a compliance-based greenhouse gas (GHG) emissions trading system (ETS) (Boyd, Gorecki, Brown and Haugen-Kozyra, 2008). According to Rabe (2007, p.440) Alberta is keen on 'gaining favorable treatment for emission credits that would make it lucrative for the province to develop new sources of hydro power and export them to either Ontario or neighboring American states'. Alberta's 2008 Climate Change Strategy is not an exceptionally strong strategy. In fact, a study by Pembina Institute in Alberta showed that the carbon intensity targets actually allow for a 72% increase in actual emissions by 2020 (Hsu and Elliot, 2009, p.474). In 2007, there was a slight strengthening of the targets by pushing the target date to 2010, and also the investment into carbon capture and storage (Hsu and Elliot, 2009).

There is a very strong economic reliance on natural and energy resources in Alberta. This is apparent in Alberta's 2008 Climate Change Strategy. The 'Alberta approach' explicitly states that the province will continue to rely on its supply of oil and gas (Alberta Environment, 2008), having the 3rd largest proven crude oil reserve in the world with almost all of it being in its oil sands (Alberta Energy, 2012). The Alberta Crown, which is managed by the Alberta Department of Energy, owns 97% of oil sands mineral rights (Alberta Energy, 2012). As one of the largest energy producers in the world, the province is responsible for a third of Canada's GHG emissions (2008 levels) and responsible for 52% of Canada's emissions growth since 1990 (Environment Canada, 2010 cited in Partington, 2010). The 'Alberta approach' states that it is aware that their GHG emissions are linked to fossil fuels, both the production and the use of it, but that the climate change strategy will in fact strengthen Alberta's economic structure. The action plan (Alberta Environment, 2008, p.7) to counter emissions growth is 'conserving and using energy efficiently', 'implementing carbon capture and storage' and 'greening energy production'. Below is a figure that chronicles Alberta's climate change strategy.

Source: Alberta Environment, 2008, p.26-27.
Figure 1.1: Alberta's climate change strategy

Calgary

Municipalities may be described as 'creatures of the provinces' (Gore, 2010), since the Canadian Constitution only recognizes federal and provincial sovereign orders of government. With the absence of formal municipal powers in the Constitution, one would assume municipalities have limited capacity to challenge

or influence provincial or federal policy goals. Nonetheless, even with the lack of cohesion and guidance from the national level, municipalities do attempt to lead (Gore, Robinson and Stren, 2009, p.4). Cities are expected to be 'policy-takers not policy makers' (Sancton, 2006, p.34 cited in Gore, 2010, p.30), however there is evidence that they are leaders in environmental policy and should be players in global climate governance (Betsill and Bulkeley, 2006; Bulkeley and Betsill, 2005; Pralle, 2006 cited in Gore, 2010, p.30). 'It is unclear whether provincial governments or the Canadian national government will build on the climate leadership of its cities in the near future. But in the absence of collaboration with other levels of government, Canadian cities will continue to lead because the benefits of action are locally tangible, and globally meaningful – an outcome that should resonate with other cities around the world' (Gore, Robinson and Stren, 2009, p.23). One form of possible collaboration is through the Municipal Climate Change Action Centre (MCCAC), which is a partnership between the Alberta Urban Municipalities Association (AUMA), the Alberta Association of Municipal Districts and Counties (AAMDC), and the Government of Alberta through Alberta Environment and Alberta Municipal Affairs (MCCAC, 2012). MCCAC is an initiative, which provides a framework for the Municipal Climate Change Action Plan. This action plan aims to assist Alberta in reaching its climate change strategy goals. It is meant to evolve over time with feedback from municipalities, including Calgary who has committed to this action plan.

Of the major cities, Calgary has the strongest and fastest growing economy in Canada. It is the business and financial center of western Canada (Calgary Economic Development, 2010). The Calgary metropolitan area has a population of nearly 1.1 million (Statistics Canada, 2012), and prides itself on being the capital of Canada's energy industry. In recent years it has received numerous awards including #1 as the world's greenest city from Mercer and #1 of 3 World Capitals of the Future (Emerging World Cities) from Forbes (Live in Calgary, 2010). Ironically, Calgary also has the highest ecological footprint in Canada. As mentioned in the Introduction of this thesis, urban sprawl and mode of transportation are major issue in Calgary. The 2010 State of the Environment report highlights the prevalent mode of transportation in Calgary is by car (Environmental Safety & Management, 2010). Although the percentage decreased between 1996 and 2006, in 2006 over ⅔ of trips were made by car (as a driver). Regarding urban sprawl, the report also determined the average distance traveled in 2006 was 8.2km. Additionally, the number of cars registered between 2006 and 2010 increased by 14.7% (Environmental Safety & Management, 2010). Both of these factors, mode of transport and distance, are major contributors towards GHG emissions.

Population and dwelling counts	Calgary	Alberta
Population in 2011	1,096,833	3,645,257
Population in 2006	988,812A	3,290,350
2006 to 2011 population change (%)	10.9	10.8
Total private dwellings	445,848	1,505,007
Private dwellings occupied by usual residents	423,417	1,390,275
Population density per square kilometer	1,329.00	5.7
Land area (square km)	825.29	640,081.87

Source: Statistics Canada, 2011 Census of Population cited in Statistics Canada, 2012.

Table 1.1: Population in the city of Calgary and province of Alberta

There will be a description and analysis of Calgary's action towards GHG reduction in Chapter 4. This study is looking at the process leading up to the Calgary Community GHG Reduction Plan, which was approved by Calgary City Council in November 2011. The plan identifies the steps to reach the end goals for Community-wide activity, which in turn will reduce GHG emissions while realizing environmental, economic and social benefits. The end goals can be also seen as the decoupling emissions from population growth and meeting the previously established reduction targets. In order to meet the end goals, the objectives of the Plan are energy conservation and efficiency, and the development and the use of low carbon sources by focusing on 4 key opportunity areas: provincial electricity grid, energy efficiency and conservation, distributed energy, and transportation choices and compact development (The City of Calgary, 2011). The Plan is lined up with federal and provincial climate change plans as well. This Plan came out of the Community GHG Reduction Project, which also produced the Alberta Template. The Alberta Template is a tool to 'support AUMA Climate Change Action Centre by providing input into the draft Alberta Municipal Climate Change Action Plan' (Utilities & Environmental Protection Department, 2010).

Literature Review

Climate change action at the local level

This is an interesting facet to investigate, as from a rational choice perspective; acting locally does not make sense when climate change is seen as a global problem (Betsill, 2001). Some also argue that it would be rational and individually optimal (as a municipality) to 'free ride' (Kousky and Schneider, 2003). Additionally, the local level is a significant area for climate change research as the local level has authority over certain areas such as land use

planning and waste management (Betsill and Bulkeley, 2006; Betsill, 2001), which gives municipal governments opportunities to influence not only the volume of GHG emissions but also human behavior that is GHG intensive (Gore, 2010, p.31). Literature examining the local level and climate change has been focused on examining policy responses, explaining the governance of these responses, and why the implementation of mitigation and adaptation often fails to live up to expectations (Bulkeley, 2010). There is also abundant literature on the drivers and barriers of local level responses. Table 1.2 gives a brief overview of some of the drivers and barriers, which have been mentioned in the literature.

Drivers/Motivators/Opportunities	**Barriers/Obstacles/Limitations**
Political support for GHG emissions abatement	Hidden costs
Easier to implement action plans at local level	Consumers resistant to change and preference to fossil fuels
Easier to find proponents of action	Principle-agent problems
Opportunities to demonstrate leadership (political opportunities)	Negative externalities
Reframing climate change as a local problem	Insufficient information or uncertainty
Co-benefits (economic such as cost saving for example)	Market barriers
Promises are easy to make	Often a by product (limitation) therefore it is business-as-usual
Keeping up with neighbors (other cities)	
Voters want action	

Source: Betsill, 2001; DeAngelo and Harvey, 1998; Bulkeley, 2010; Engel, 2006; Kousky and Schneider, 2003; (Metz et al., 2001; Brown, 2001; Howarth and Anderson, 1993; Interlaboratory Working Group, 2000) cited in Kousky and Schneider, 2003.

Table 1.2: Drivers and barriers in local level climate change action

There are fewer obstacles when the demand from political leadership and entrepreneurs is coming from the municipal government (Betsill, 2001). However, a broader institutional capacity is still necessary even when there is individual leadership (Bulkeley, 2010).

History of responses

There has been a plethora of local areas responding to the global problem of climate change. Internationally, there is much focus on national responses as they are what make the headlines, and generally, the level that participates in international conferences. In 1988, Toronto hosted the first international conference on climate change. For the first time, there was a set global target for cutting emissions (20% by 2005). This was a non-binding agreement, but a benchmark nonetheless. This was followed by the high point of environmental cooperation; the United Nation (UN)'s second world summit in 1992 in Rio de Janeiro, the United Nations Conference on Environment and Development (UNCED). This was a massive summit drawing much attention to environmental issues, with 172 governments participating, and over 2,400 NGO representatives also present. The central theme of this conference was the importance of local action for sustainable development as well as environmental protection. A very significant resulting document from the Rio de Janeiro conference was the UNFCCC. After modest success 'on the ground', Kyoto hosted the UNFCCC in 1997. This produced the Kyoto Protocol, which commits states to the UNFCCC document. As a supplement to the UNFCCC, it established a legally binding 5.2% reduction in CO2 compared to 1990 levels between 2008 and 2012, as well as mechanisms to assist in reaching these targets: joint implementation, clean development, and emissions trading (UN 2012). Since the UNECD conference in Rio de Janeiro, where there a focus on a local approach, there has been a shift towards insisting the need for a top-down strategic approach to be involved as well (Dickinson and Burton, 2011).

Since the 1990s, there has been a notable increase in both municipal actions towards climate change as well as the presence of municipal networks (Robinson and Gore, 2005; Betsill and Bulkeley, 2006, 2007). Although the involvement in such networks varies, Bulkeley (2010) makes a point that municipal networks are a major factor in generating urban response. Reasons for becoming involved in a municipal network include access to opportunities, the positive image as a cooperative municipality and as a municipality that is innovative. Granberg and Elander (2007 cited in Bulkeley 2010) conclude that these positive effects of joining such a network may therefore attract investment from both public and private sources, which may contribute towards combatting climate change and sustainable development. There have been 2 waves of municipal responses to climate change observed by Bulkeley (2010). The first wave was in the 1990s with the emergence of transnational networks, while the second wave has been since the early 2000s. The second wave consists of a new generation of municipal networks and geographically wider range of cities. Bulkeley (2010) insists this new wave of networks differs from the first wave as they are nationally organized, they mobilize private actors along with the local state, and

there are grassroots networks with an urban focus. In 2007, at the Conference of the Parties to the UNFCCC in Bali, representatives from municipalities signed the Bali World Mayors for Local Governments Climate Protection Agreement (ICLEI, 2009), something Calgary was a member of as well.

MLG and governance

Municipalities are not the only local actor that plays a role in local climate change response. There are also the citizens and NGOs (for example, the massive presence of NGOs at the 1992 conference in Rio de Janeiro). However, although there are diverse sets of actors, that play important roles, the state still does remain crucial. There has been much literature on the multi-level context as 'the context within which urban actors are responding to the issue is critically shaped by the structures and processes of governing taking place at other scales and through multiple networks' (Bulkeley, 2010, p.236; Wellstead and Stedman, 2011). Betsill and Bulkeley (2007; Betsill, 2001) argue that there is a multi-level nature of climate governance, and it is partly due to fragmentation of partnerships because of the crosscutting nature of climate change. This of course can happen at multiple levels, for example this can be the case at the national or local level.

Using the CCP campaign, Betsill and Bulkeley (2006, 2007; Bulkeley and Betsill, 2005) use an MLG perspective to capture processes of urban governance of climate protection, which involves relations between different levels of state, as well as new (municipal) network spheres and scales of authority (Bulkeley and Betsill 2005). The literature has used MLG as a framework to link different levels of government and suggested it as a possible framework to narrow the policy gap between the different levels (Corfee-Morlot et al., 2009). MLG is not only multi-level, but also implies multi-actor and multi-sector. Regarding multi-actor, with the involvement of bottom-up initiatives, there are different actors that are participating in the development of initiatives. This participative turn in environmental policy – also cited as 'ecological modernisation' in the literature (Spaargaren and Mol, 1992; Hajer, 1995; Mol, 1996 cited in Bulkeley and Mol, 2003, p.145) - therefore includes not just the technical knowledge, but also local knowledge, where different groups and actors strive to have their own understanding of the problem and solutions acted upon (Betsill and Bulkeley, 2007).

Processes and strategies

More cities have focused on their Corporate measures and are concentrated in their energy sector (Schreurs, 2008; Gore, Robinson and Stren, 2009), rather than tackling Community measures, failing to take on systematic or structured

measures. An example of a self-regulating measure is building or lighting energy improvements. According to Kousky and Schneider (2003, p.363), separating the Community and Corporate emissions is also the easiest way to collect data (in terms of measuring emissions). Gore, Robinson and Stren (2009, p.10) identify reasons for embracing Corporate, institutional actions: they require minimal or no Community buy-in, creating little political debate; they usually produce direct returns with respect to cost savings; they produce quick, verifiable reductions in emissions, and; actions to reduce Corporate emissions coincide with the first steps as listed by ICLEI.

In Canada, co-benefits and other goals underlie much of the action towards reducing GHG emissions (Gore, Robinson and Stren, 2009). It is worth noting the definition of co-benefits, as they are not the same as ancillary benefits. When a policy aims to achieve climate change goals alongside other environmental goals simultaneously, it is a labeled as a co-benefit (Metz et al., 2001; Schneider et al., 2001 cited in Kousky and Schneider, 2003). Whereas when there is a by-product rather than a goal of a climate policy, it is labeled as an ancillary benefit (Kousky and Schneider, 2003). Linking problems already on the agenda to climate change is usually the technique in localizing global climate change – this may be referred to as a 'local hook' (Betsill and Bulkeley, 2007; Betsill, 2001). Localizing is one of the ways Kousky and Schneider (2003) suggest that co-benefits can be used. The use of a local hook can also generate public support as it goes past looking at climate change as a global issue. For example, using a survey completed in Alberta, Plotnikoff, Wright and Karunamuni (2004, p.223) found that households are 'particularly concerned about health problems related to environment and air pollution, but only moderately informed about environmental issues'. They suggest that these results may be used to encourage Albertans to adopt recommended environmental behaviors. One successful way to do this would be to promote the link between health and environmental issues such air quality. Localizing the global issue of climate change can also be thought of a way of framing. Using Entman's (1993) definition of the term 'frame', framing climate change can be seen as selecting aspects of the issue and making these aspects more pivotal in order to encourage a certain definition or interpretation of climate change, along with a recommended 'treatment' for climate change. An issue such as climate change is framed in order to make it seem important enough to attempt a solution, and that the solution or strategy proposed is feasible.

Chapter 2: Theoretical framework

Theory and framework

As a starting point, I used the case study by Rutland and Aylett (2008) on local environmental governance (LEG) in Portland, Oregon. This study uses a theoretical approach that combines ANT and governmentality. Governmentality as a theoretical lens is not as effective for this thesis' purposes as the implementation of Calgary's Community GHG Reduction Plan has not yet begun at the time of this research. MLG has been previously used to analyze local climate change response at the local level, however with a deficit in national action, this is not the most appropriate approach for this thesis. However, ANT could be useful for this thesis in order to trace and analyze the network in Calgary in a more open manner. A core assumption of ANT is that there is no *a priori* in terms of 'power', but the mechanics of power is still recognized. Power is seen as the ability to wield and coordinate the resources, and interests of different actors (mobilizes and suppresses attention), rather than just formal (constitutional) powers. The point of using ANT as a theoretical approach is to trace the climate change network in Calgary through qualitative research. This is useful in order to understand how the network functioned in terms of which actors were involved, and which connections between actors are stronger or more relevant for the policy process. Actors or coalitions will be further analyzed as the main focus in the discourse analysis.

As already stated in this thesis, the contribution of ANT and discourse analysis as theoretical lens' for the purpose of this thesis, will aim to help understand the conflict underlying the deeply political issue of climate change. This is especially relevant in an urban area that is very dependent on the oil and gas industry. The findings may contribute to understanding how to stimulate action where it is voluntary. Research towards understanding attitudes and perceptions regarding climate change are usually geared towards the general public, however it is also important to understand those of the major actors and policy makers whom are connected to the climate change policy (Wellstead and Stedman, 2011, p.466). Regarding the second central question, developments in environmental politics heavily depend on the social construction of environmental problems (Hajer, 1995). The use of discourse analysis may show how different actors try to influence the definition of the problem and consequently shape the action taken. The interests of different actors will therefore also have to be understood. There is an aim to understand how a certain frame became most salient or even hegemonic. This will include opportunities and discursive mechanisms used to

focus attention on a frame in order to persuade a certain action concerning the deeply political issue of climate change.

Tracing the network

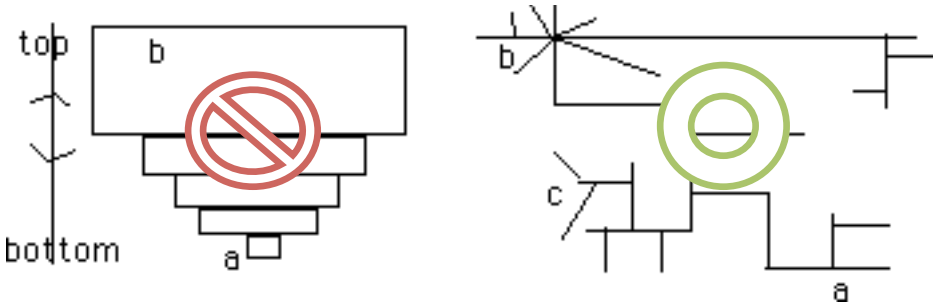
Networks

A common misunderstanding regarding the networks is that they are technical networks with nodes and paths, such as a telephone or train network, but as Latour (1996, p.378-379) puts it: 'a network is not a thing but the recorded movement of a thing'. Put simply, it is a tracing activity. In this thesis, the tracing activity will be identifying actors (for example, people, departments, organizations, etc.) and entities (for example, policies, influential documents), and their connections in the Community GHG Reduction Plan process. Bosco (2006, p.136) attributes ANT to 'uncovering and tracing the many connections and relations among a variety of actors (human, non-human, material, discursive) that allow particular actors, events and processes to become what they are'. In ANT, everything is nothing else but a network effect, meaning that an entity does not have inherent properties but is an effect of the relations they have with other entities in a network (Law, 1999 cited in Rutland and Aylett, 2008). Therefore, these actors or entities (non-humans are accounted for in networks) may be 'understood and analyzed by tracing the networks they form and the changing relations that emerge and develop once heterogeneous things (both human and non-human) become related to each other' (Bosco 2006, p.137).

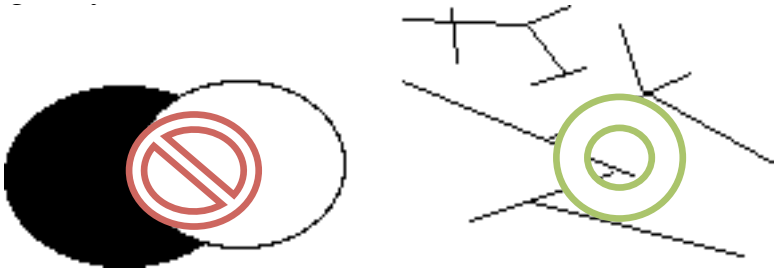
Common properties of networks

Latour (1996) takes stock of properties that are common to all networks. The first mentioned is 'far/close' which asserts that ANT clears out the concept of proximity. His example of this is a person in a telephone booth being closer to someone with whom he or she is speaking on the phone with, located thousands of kilometers away, than that person is to someone in the adjacent phone booth. The next factor is 'small scale/large scale', threading from the concept that 'space' is not real space, but that space is just associations and connections. 'A network is never bigger than another one, it is simply longer or more intensely connected' (emphasis added by author, see Figure 2.1)(Latour, 1996, p.372). Bosco (2006) reiterates this notion saying that networks are about circulation or flow, rather than hierarchies, with no prior order relation. The third property identified is 'inside/outside', meaning that a network has no inside or outside, but instead it is all boundary, it is an empty frame (see Figure 2.2). In this sense, Calgary's climate change network can be also seen using Healey's (2007) concept of urban territory, which is a as a mix of networks, relationships, and flows,

instead of an area where things happen. These common properties mentioned are useful analytical tools for the purpose of tracing the network and illustrating the results. The conceptual map in this thesis (see Figure 3.1 in Chapter 3) makes an effort to visualize this.



Source: Latour, 1996, p.372.
Figure 2.1: Space as associations



Source: Latour, 1996, p.373.
Figure 2.2: An empty frame

ANT

In ANT literature, there is much reference to 'actant'. An actor is an actant that acts 'or to which activity is granted by others' (Latour, 1996, p.373). 'An actant can literally be anything provided it is granted to be the source of an action' (Latour, 1996, p.373). In this thesis, I will refer to actants as 'entities', as it is a more familiar term, and may be a more natural way to reference non-human entities such as policy documents. Having said that, making no distinction between human and non-human is not an ethical position of ANT (Law, 1992), but strictly for the purpose of analysis. There should be no separation of the social and physical world prior to analysis (Callon, 1986 cited in McLean and Hassard, 2004). An open mind will be necessary when collecting and analyzing data. In terms of analysis, 'forces of the social and the technical are to be accounted for through a process of 'generalized symmetry', a method that employs a common analytical vocabulary for interpreting such phenomena' (McLean and Hassard, 2004, p.494). This means that a human actor may not

necessarily have more influence than an entity, or vice versa. When tracing the climate change network in Calgary, it must therefore be kept in mind that these actors are not set in their ways throughout time, as they flow and are continuous (Latour, 1996, p.374).

Although as a researcher I am to start with a clean slate and makes no assumptions about the actors, ANT is very much concerned with the 'mechanics of power' and the possibility of one actors becoming larger than another (Law, 1992; McLean and Hassard, 2004). In order to stand out, a significant amount of work must be done for one to hold more 'power'. Peters and Pierre (2001 cited in Bulkeley and Mol, 2003, p.145-146; Healey, 2007; Allen, 2003 cited in Healey, 2007) suggest that power is more so from the ability to wield and coordinate the resources, and interests of different actors (mobilizes and suppresses attention), than it is from formal (constitutional) powers. This coincides with the notion of actors not having power *a priori*. One generates effects such as power or size by stabilizing and reproducing oneself. Latour (1996) labels this as becoming 'macrosocial'. Law (1992, p.386) identifies this as the core of ANT, 'a concern with how actors and organizations mobilize, juxtapose, and hold together the bits and pieces out of which they are composed; how they are sometimes able to prevent those bits and pieces from following their own inclinations and making off; and how they manage, as a result, to conceal for a time the process of translation itself.' With the constant producing and reproducing of the networks, part of ANT is to identify which of these connections or associations are stronger or weaker. This is useful in order to understand how the climate change network of Calgary functioned - to understand which actors, and which connections between actors are stronger, or more relevant, for the policy process. These actors who are deemed as key actors, will be further analyzed in the discourse analysis part of the analysis.

Discourse Analysis

I intend to use ANT as an approach to trace and analyze the network in the urban territory of Calgary, however the second central research question is interested in understanding and analyzing the strategy process in pursuit of a Community GHG Reduction Plan through discourse analysis. This conception draws on one of Healey's (2007) themes: the way (socially constructed) understandings are converted into actions through a focus on what emerges (how something is framed) as a strategy. In the words of Hajer (1995, p.40-41): 'ecological problems do not pose institutional problems by themselves, but only to the extent that they are constructed as such'.

Why discourse analysis?

Since the developments in environmental politics heavily depend on the social construction of environmental problems (Hajer, 1995), it is an important angle to analyze, especially in this study, which is concerned with climate change in a geographical area that has recorded substantial GHG emissions. This study of discourse will attempt to show how different actors try to influence the definition of the problem and therefore shape the action taken (Hajer and Versteeg, 2005; Hajer, 1995). Hajer and Versteeg (2005, p.178; Latour, 2004) see this approach as a replacement of 'naïve' realism and instead 'an appreciation of the fact that nature is culturally invented and reinvented, for which discourse analysis is essential.' 'Discourse' is defined by Hajer and Versteeg (2005, p.175) as 'an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices'. Or as Dryzek (1997 cited in Hajer and Versteeg, 2005) summed it up, a discourse is a shared way of apprehending the world. This is therefore an appropriate approach to understand and analyze the strategy process of framing the issue of climate change by different actors (different ways that actors interpret and pose the problem) and the discourse within that process. Discourse analysis studies various ways which people strategically make sense of reality but add to complex situations, where frames are sense-making devices that act as guides for doing and acting (van den Brink, 2009). As the case study presented by Wilson (2006) shows, climate change policy does not necessarily have competing claims, but rather different rationales (procedural rationality against climate change policy versus scientific and economic rationality for climate change policy). The crux of this approach would therefore support that the problem (climate change) is a social construct, which may be understood and framed in numerous ways. With studying the discourse, attention goes beyond looking at actors; it is also given to their meanings and arguments (van den Brink, 2009).

Strategy

There are political forces at play that are slowing down the response towards this common problem of climate change. Planning towards the pursuit of a positive response to climate change is socially constructivist, as it is both technical and deeply political where different actors have different rationalities. Forester (1989) understands planning as organizing the attention to real possibilities of action. Actors seek new opportunities that arise in order to advocate their interests and rationalities, as systems and networks are fluid. However, to organize attention, the problem must first be framed in a way where the information provided matters. According to Healey (2007), strategy is a political process of focusing attention, where one steers others by persuasion

rather than by their constitutional power. These strategies emerge as socially constructed frames or discourses (Healey, 2007).

In order for there to be action taken on climate change, the issue of climate change first needs to be posed, through political discourse, in a way that makes the problem of climate change not only important, but also solvable (Lindseth, 2004). Regarding the climate change issue, framing makes an impact on Calgarians by making climate change more noticeable, meaningful and memorable (Entman, 1993). Framing is possible when looking at reality as a socially constructed phenomenon, where it can be seen as 'a kaleidoscope of potential realities, any of which can be readily evoked by altering the ways in which observations are framed and categorized' (Edelman, 1993, p.232 cited in Entman, 1993, p.54). This social constructionist approach works with the objective of this thesis as it acknowledges the complexity in the environmental policy process (Hajer and Versteeg, 2005). As defined by Pan and Kosicki (2001, p.30 cited in Lindseth, 2004, p.327), a frame is 'an idea through which political debate unfolds, and political alignment and collective actions take place'. To frame something is to select an aspect of a perceived reality, in this case climate change, and to make that aspect more salient.

Why frames matter

Frames matter because they set the boundaries of the discourse of an issue, in this case, climate change (Hajer and Versteeg, 2005; Forester, 1989). For climate change, framing translates it into something, which can be understood past scientific facts – explaining why it is important and what can be done to help solve it. Therefore, framing also can categorize relevant actors (Lindseth, 2004). There are considerations beyond environmental aspects, such as social and economic considerations. Healey (2007) states that economic pressure is always predominant even when there is an integrated approach to consider all aspects.

A frame is more than just expressing an interest, in this thesis it is seen as a strategic action. Framing is done to promote one's definition, interpretation and evaluation of the problem and recommend a treatment for the issue (Entman, 1993). It is discourse that is a strategic action, which in turn will shape what kind of action will be taken (Lindseth, 2004; Hajer and Versteeg, 2005; Healey, 2007). This is because it can shape a thought, and therefore set a range of policy options which may then be possible starts to policy outcomes (Keller and Poferl, 1998; Litfin, 1994 cited in Hajer and Versteeg, 2005, p.178). In my research, it is recognized that there may be competing discourses (for example, an economic discourse versus an environmental discourse), and through the communicative process of preparing the GHG plan they will have shaped and framed the outcome. The actors try to showcase their influence and rationality by imposing

a frame (Hajer and Versteeg, 2005), which is a way of positioning themselves through the use of discourse. This positioning is done because although different actors may share a frame, this does not mean that their interests are the same (Hajer, 1995).

Discursive mechanisms

In the process of embedding one's rationality, storylines emerge (Hajer, 1995). Hajer (1995) suggests that research work is often reduced to a one liner or visual representation, where metaphors can provide a common ground between different discourses.

Some discursive mechanisms recognized by Hajer (1995, p.268-276) include:

- Storylines: 'climate change' finding its way into common discourse.
- Disjunction markers: separating oneself from the problem.
- Symbolic politics: for example, policy plans to show that things are under control.
- Need for sensory experience: may not be the most effective way to mediate knowledge as it is vulnerable to critique, but might be essential in turning someone's opinion.
- Discursive creation of macro actors: preventing the development or employment of policy-relevant knowledge.
- The social construction of ignorance: relevant knowledge held from discussion.
- Black boxing: Making things appear as fixed and natural to steer away opposition.
- Positioning and mutual functionalization: strategically accepting a certain position or storyline.
- Structured ways of arguing: a historically specific way of arguing a case.

According to Edelman (1993), the terms used most frequently in political discourse are potent ideological weapons because the public, which categorizes them as factual or descriptive, accepts them. Hajer and Versteeg (2005) also suggest that citizens' conception of environmental problems is understood in culturally loaded terms. The values and ideology of the observer matters, as it is possible to mislead the observer about the origin of the problem (Edelman, 1993). Also, because classification of an issue influences political support, those that have a strong emotional appeal (i.e. culturally loaded terms) are favored. These are usually concentrated on short term rather than long-term consequences (Edelman, 1993). In the words of Ehrlich and Ehrlich (1996, p.44 cited in Lindseth, 2004, p.334): 'If the need for change is justified by environmental changes people don't understand and can barely perceive, they will be susceptible to a contrary view that assures them all's well with the world'.

Discourse in the framing process

Chong and Druckman (2007) cite Scheufele's (1999) framework in their research. The framework is split into four processes:
a) 'Frame building' - how are specific frames chosen in communication.
b) 'Frame setting' - looking at the psychological processes - how frames in communication influence frames in thought.
c) 'Individual-level effects of frames'.
d) 'Journalists as audiences' - how do citizens' action affect (a).

This thesis' objective and scope is focused more so on frame building and frame setting and the discourse within these. Connected to Scheufele's frame setting, Gamson (1992) talks about the political consciousness of people, which in turn accounts for social movements (supporting mobilization for collective action), where a frame is an organizing idea. Frame building is therefore also reflective of Habermas' concept (1982 cited in Foster and Jonker, 2005) that an alignment or common interests, which in this case is a Community GHG Reduction Plan, can emerge through the discourse (of a social construct) of different rationalities. Communicative action according to Habermas (1982 cited in Foster and Jonker, 2005) is the interaction between different actors where different rationalities (or frames) are coordinated through discourse towards mutual understanding. A particular frame is come to by discourse in order to motivate others through reason (rationality). Stevenson's (2009) research shows that policy process cannot overcome conflict, and suggests that encompassing these differences rather than attempting consensus is a more practical way forward. This therefore ties into discourse analysis as a certain use of language matters.

There must be an opportunity, such as external or exogenous events for collection action frame building. For example, these may include a shift in public sentiment, elections, departmental re-organization, etc. The context of the situation is very important. Critical discourse moments are good to look for in terms of context, hence the research questions including an analysis of milestones. Gamson (1992) refers to such moments as 'pegs', which are time periods when an effort to frame climate change is likely to appear. Wilson (2006) also states that an exogenous event's impact must be considered on the policy community, even when there are underlying structural forces that make the decisions.

Persuasive discourse and frames

According to Hajer's (1995) social interactive discourse theory, environmental politics is an argumentative struggle of not only how the problem is framed but also of actors positioning themselves. In his discourse theory, 2 middle-range

concepts work together: storylines and discourse coalitions. The storylines cluster knowledge, position actors and create coalitions. They provide the argument by which rationalities are upheld within policy discourse (Hajer, 1995 cited in Stevenson, 2009). To avoid confusion with the terminology, the term 'storyline' in this thesis will be synonymous with the term 'frame'. Actors are attracted to storylines and use discourse coalitions to further their own agendas (Stevenson, 2009). Hajer (1995) sees discourse coalitions as a set of storylines, the actors who use the storylines, and practices in which the discursive activity is based. One of these discursive activities mentioned already is communicative action towards mutual understanding.

What makes an actor's rationale and subsequent frame persuasive is when it mobilizes actors to carry the particular strategic frame forward. This is a 'mobilization of bias' (Hajer, 1995). A persuasive frame must generate transformative force where it can shape subsequent events. Discourses are most powerful when embedded in legal practice or are institutionalized (Healey, 2007; Hajer, 1995). The discourse analysis discussed above will attempt to analyze this.

Chapter 3: Methodology

Methodology

This chapter will be composed of the following subsections that correspond to methodology: philosophy, the conceptual model, research methods, and analysis. The theoretical framework discussed in Chapter 2 is important for the initial argument of the study, for framing the conceptual model and research methods (Cheek, 2008), and therefore should be interwoven with the methodology.

Research Philosophy

The research philosophy and paradigm of this thesis is interpretive (Saunders et al., 2009). An interpretive philosophy is most appropriate for this thesis because of the social constructivist notion associated with this subject. In this case study, climate change is approached as a socially constructed phenomenon where there is an interest to explore different ways in which it is interpreted by actors in Calgary. Hence, the interpretive philosophy being most appropriate when looking at network and discourse, which are the key elements in this thesis' central questions. Furthermore, an interpretive philosophy encourages the research to understand differences between actors. This philosophy is complemented by a subjective ontology and epistemology: 'focus upon the details of situation, a reality behind these details, subjective meanings motivating actors' (Saunders et al. 2009, p.119). As a researcher, my axiology (Saunders et al., 2009) corresponds with an interpretive research philosophy as the research is value laden and will be of a subjective nature.

This qualitative research will have a time horizon that is set between April and July 2012. The justification for this research strategy – a single case study – is that the thesis aims to get a strong understanding of the development process. The objective of descriptive study is 'to portray an accurate profile of persons, events or situations' (Robson, 2002, p.59 cited in Saunders et al., 2009, p.140). When such research is followed by explanatory study, which is focused on studying the relationships between variables, the study can be described as a descripto-explanatory study (Saunders et al., 2009, p.140). The research approach to this study is inductive. I feel this would be more appropriate for my objective (versus a deductive approach), because the study will not have characteristics such as testing a hypothesis, a highly structured methodology, and concepts do not need to be measured quantitatively. These are characteristics of a deductive approach according to Saunders et al. (2009).

Conceptual model

Figure 3.1 is a conceptual model of the case study's framework. While Chapter 2 explained the theoretical framework, the sections on research methods and analysis will attempt to further explain how this model will be operationalized.

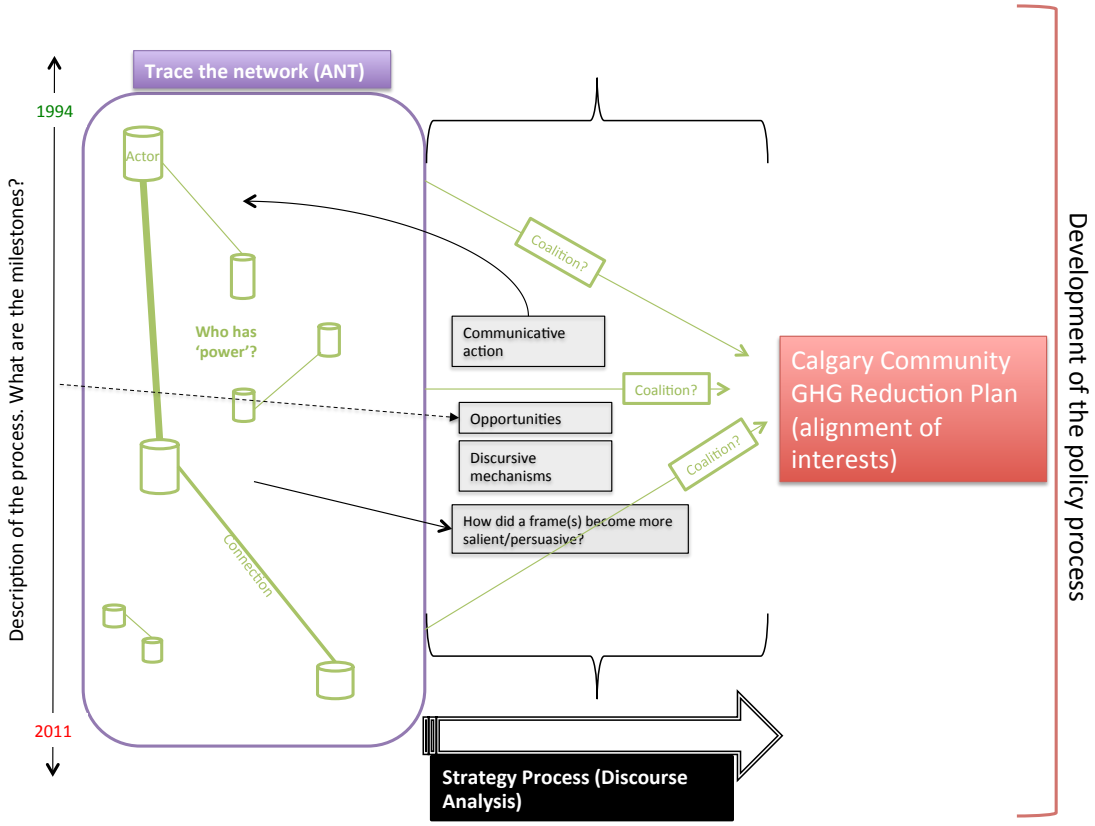


Figure 3.1: Conceptual model

Research Methods

Justifying the use of a qualitative method

According to Saunders et al. (2009, p.119), research methods – which are tools and techniques to collect data - most commonly used with an interpretive philosophy are qualitative (research choice), and include small samples and in-depth investigations. This kind of data collection technique is appropriate for an inductive approach, since as a researcher it allows for the opportunity to probe for answers and different meanings (Saunders et al., 2009, p.324). In this case this point is significant as I aimed to use ANT to identify key actors and their connections. In regards to discourse analysis, policy-making is an interpretive activity (i.e. climate change as an issue being a socially constructed reality); therefore a qualitative method is appropriate with my framework in this thesis.

Data collection

There was an obvious geographic barrier in my primary data collection at the start of the research process, as I was in the Netherlands. Therefore, for my initial interviews, I collected data via phone and email interviews depending on the preference of the interviewee. Turney (2008) suggests a main difference from face-to-face interviews is that as an interviewer, one must construct the environment for discussion and also set the 'rules of engagement' prior to the interview. I did this by providing an outline of my research objective, identifying themes I am interested in covering, and explaining what I hope to use the findings for. There are advantages regarding email interviews including the possibility of prolonged engagement, more time for reflection, and most practically, convenience regarding access, speed and low cost (Saunders et al., 2009; Egan, 2008). The drawbacks include reduced spontaneity and 'reduced cues' such as non-verbal language (Egan, 2008). Saunders et al. (2009) also suggest that the interviewee is usually not willing to talk as long as if they were face-to-face, there is more difficulty in developing complex questions, and there are ethical issues such as data protection. The interviewees were selected initially by identifying potential key actors via the Community GHG Reduction Plan document. Since the Plan was led by a Climate Change Team under the City of Calgary's Environment and Safety Management (ESM) Business Unit, that was the starting point for identifying who the contacts would be. From that point, a further sampling was selected via suggestions from the previous interviewees. Other data available was documentation through Internet search. The documentation includes the Community GHG Reduction Plan, documents and policies relevant or aligned with climate change policy in Calgary, as well as Council minutes. Additionally, there was the opportunity to chronicle the actions and institutional structures, which surrounded the Community GHG Reduction Plan. This data was derived from both documents and from interviews. I arrived in Calgary June 2012, to follow up with face-to-face interviews. The advantage of collecting data through interviews rather than just document analysis is that as a researcher, I have control over line of questions and a chance to probe for further information. However, Creswell (2009) also points out some limitations which include: indirect information filtered through the views of interviewees; researcher's presence may lead to bias responses, and; not all people are equally articulate and perceptive. Regarding using documentation as a source of data, it is a good source as it is convenient, the document has had significant attention already, and time is saved since there is no need for transcription (Creswell, 2009). However, not all are equally articulated and perceptive, there may be protected information, and a document may be hard to find, incomplete or inaccurate.

Face-to-face interviews were at the individual level. I stayed away from a highly structured style of interview, as it may lessen my engagement in the interaction, and impose on the participants' 'lived situation' (Schendsul, 2008). There was a multiple method style of the interview - both unstructured and semi-structured. The unstructured interviews were performed over phone and email while in Nijmegen, in order to explore a general subject in-depth and help finalize my questions, themes and perhaps different actors and subjects, for the semi-structured interviews, particularly. Saunders et al. (2009) explain that this kind of unstructured and informal interview have also been known as an informant interview, because the interviewee's perception guides the interview as opposed to a participant interview where the interviewer directs the interviewer. The interview questions guided the semi-structured interviews but were not word-for-word. Instead they were interwoven into the discussion with the participant. The semi-structured interviews were face-to-face in Calgary, with the exception of those who were unable due to personal circumstances. When there was a need to follow-up it was done so over the phone or email out of convenience for both the interviewee and myself.

Credibility of the data collected

For the majority of the initial unstructured interviews, I jotted notes, as it was difficult to record over the phone or Skype, and tried to also get a 'feel' of the information that was being provided. All but one of the face-to-face interviews were audio recorded with consent of the participant. To ensure the credibility and quality of the research findings, there was a consideration of the validity, reliability, and generalizability of the data. Saunders et al. (2009; Yin, 2009) suggests multiple sources of evidence (triangulation) as a suitable way to tackle the threats against the validity of data collected. Comparing it against data from other interviews or documents may do this. Creswell (2009, p.191-192) also suggests the possibilities of member checking (see if participants I used find my themes and descriptions accurate); using rich description to convey the findings; clarifying my bias; presenting negative or discrepant information too that may contradict the themes, and; peer debriefing. Saunders et al. (2009, p.327) suggests that non-standardized data collection evokes criticism in terms of reliability since the results are not necessarily meant repeatable as the research is investigating a complex subject. However, this does not mean a structured interview is more appropriate for this case study, as an interpretative philosophy is more suitable for this thesis. Being prepared for the interviews also guaranteed the best opportunity for reliable data. Following the some of the advice of Saunders et al. (2009), the following aspects were considered going into the interview. The first was demonstrating my credibility and gaining confidence of the interviewee: prior to the face-to-face semi-structured interviews, the interviewee was prepped with either the themes to be discussed,

or was already be aware of my interests from prior discussion via unstructured interviews over phone or email. This way there was a focus to the interview, which makes for better data for analysis later on as there was less irrelevant information to comb through. Secondly, regarding appropriateness of location and appearance to ensure the interviewee is comfortable, I left it up to the interviewee to choose a location, which suited him or her best. Thirdly, opening comments and approach to questioning: I started the conversation by explaining my research, asking for consent and offering confidentiality. Although there will have been some mode of previous contact, pre-prepared information was provided to the interviewee to clarify the focus, as well as a consent form to assure the interviewee of my intensions for the data. The questions aimed to be clear, concise, and avoid bias and confusing jargon where possible (such as theoretical terms and instead try to use language that was being used by the interviewee).

Similar to the reliability issue, generalizability must also be addressed. Initially there is an assumption that a small sample size and non-structured interview style alludes to poor generalizability of the data collected. However, Bryman (1988, p.90 cited in Saunders et al., 2009, p.335) suggests two counter-arguments to this assumption. His first argument is that an in-depth single case study may actually be more useful than a structurally surveyed large sample due to its more rigorous data collection and understanding. With the use of discourse analysis, Hajer (1995, p.21) states that discursive strategies can only be understood in their own social and cognitive context; therefore, it is not necessarily meant to generalize. The second argument has to do with relating the research to theoretical propositions (Bryman, 1988; Yin, 2003 cited in Saunders et al., 2009, p.335). What this means, is that there is in fact a generalizability of the qualitative data if the researcher is able to relate it to existing theory, which in this case is ANT and discourse analysis in the context of local area response to climate change. To address the concern of not being able to generalize a single case, Flyvbjerg (2011, p.305) states that this is a misconception of case studies, and that 'knowledge may be transferable even where it is not formally generalizable'.

To make sure that the data collection was approached ethically, the already mentioned pre-prepared information sheet and consent form was used. With a full understanding of what the interview will be used for and how, I aimed to avoid deception and respect the participants' privacy. A very important reason for this is to not cause any sort of harm to an interviewee in the case where there is a sensitive topic being discussed (for example, personal opinions which may not correspond with that of their organization). Throughout the data collection process, I took an objective stance to make sure that all the data is recorded. That is, I kept in mind the participants meaning of the information being provided, not

my own. Additionally, the interviewee's were again contacted after a draft of the analysis had been written. They were individually informed with text that they had been mentioned in, to validate that they were understood correctly. If there was others mentioned within the same text, they were anonymised until they had also verified the content. This was done over email. Taking these precautions will have ensured the best chance for providing valid and reliable data within my personal capacity.

Analysis

As a researcher there are some unconscious biases that may affect my interpretation of the data in this qualitative case study due to my values (concern for climate change impacts) and being raised and educated for the majority of my life in Calgary. In the section 'Credibility of the data collected', I explained ways in which I will try to avoid this to the best of my ability. Chapter 4 will also touch on some of these unintentional biases.

The data derived from documents and interviews will be approached in the same manner in order to maintain a systematic analysis. Creswell (2009, p.183) suggests the following steps: prepare the data for analysis, conduct different analyses, moving deeper into understanding the data, representing the data, and making an interpretation of the larger meaning of the data. Additionally, there should be a detailed description of the context and actors as well as an analysis of the categorized themes, which is included in Part 1 of Chapter 4. A codebook was used to input and analyze the data from both interviewees and documents. Creswell (2009, p.185-189) contributes a list (see Table 3.1) to follow in the data analysis process, which was used in this thesis.

Data Analysis
1. Organize and prepare the data for analysis.
2. Read through all the data. Get a good sense of it.
3. Begin detailed analysis with a coding process. First categorize the data and label these categories.
i. Get a sense of the whole. Jot down ideas.
ii. Pick one document or interview and write down thoughts in margin about its underlying meaning.
iii. After doing this for several participants, list the topics, cluster together smaller topics, form these topics into columns.
iv. Take the list and go back to data. Abbreviate the topics as codes; write these codes next to appropriate segments of the text.

v.	Find most descriptive wording for your topics and turn them into categories.
vi.	Make a final decision about abbreviations, alphabetize.
vii.	Assemble the data from each category into one place and perform a preliminary analysis.
viii.	If necessary, recode existing data.
4.	Use the coding process to generate a description of the setting or people as well as the categories or themes for analysis.
5.	Advance how the description and themes will be represented in the qualitative narrative.
6.	Interpretation or meaning of the data. What are the lessons learned?

Source: Creswell, 2009, p.185-189.

Table 3.1: Systematically analyzing the data

As can be seen in the Figure 3.1, the analysis coincides with the 2 central research questions. However this does not suggest that they are mutually exclusive, rather they are meant to supplement to each other. Figures 3.2 and 3.3 are an illustration of how the research questions are meant to supplement each other, and therefore how the narrative of the themes will also be interrelated instead of separated into its corresponding themes. The codebook justified the themes chosen, as in how they reflect the meaning of the retrieved phrases. The analysis will be presented in the form of a narrative. Part 1 of Chapter 4 will present the empirical data. This will be followed by Part 2, which will consist of the interpretation of the data pertaining to the theoretical framework and research questions.

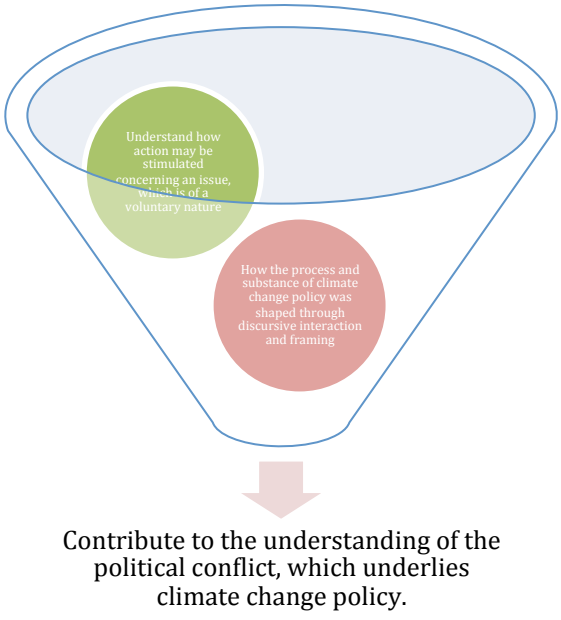


Figure 3.2: Relevance of the research questions

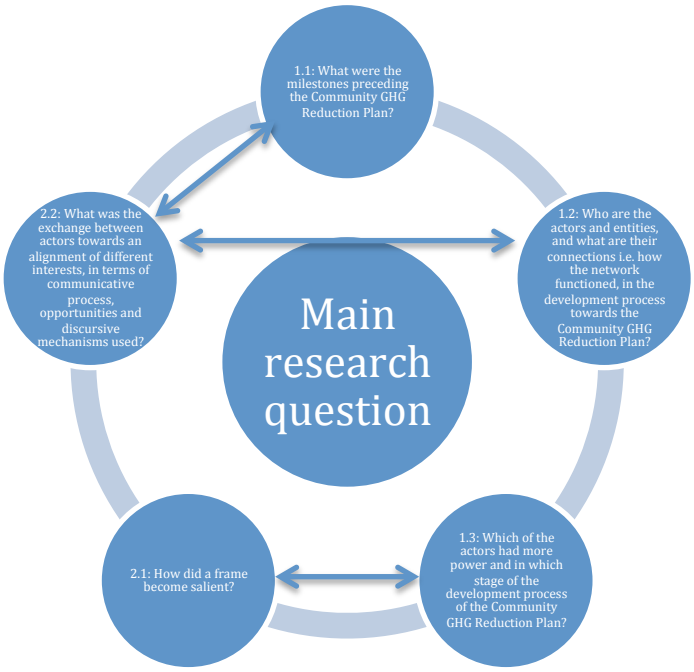


Figure 3.3: Interrelation of research questions

In order to be able to follow the data more clearly (Miles and Huberman, 1994 cited in Yin, 2009), I arranged the data in chronological order. The section to follow will describe how Chapter 2 will be operationalized in terms of the analytical strategy, where the theoretical orientation will be guiding the case study analysis (Yin, 2009).

ANT analysis

To address the first central research question, I first determined the milestones preceding the Community GHG Reduction Plan through interview and document analysis. It is important to point out previous action taken, and also to understand how these events had an impact on the policy community. These milestones may not necessarily be directly linked to the policy; they may also be exogenous or external events, which may change who is involved, as well as the opportunities that are presented. I studied the context by analyzing interviews as well as text in the policies, as well as an analysis of the actions and institutional structures, which surrounded or preceded the Community GHG Reduction Plan.

In the first part of the analysis, as a researcher I was careful as to not make assumptions, and assume who the key actors are prior to analysis. After each interview, I transcribed the interview immediately, which was followed by a systematic analysis (see Table 3.1 above). From the actors mentioned, the context of the information was considered to determine if they were a key actor,

how they are connected to the development of the policy process, and which of these connections are most important. As mentioned in Chapter 2, this could also mean a policy document or something of that nature as ANT takes into consideration non-human entities. To determine key actors, the 'mechanics of power' was considered. This was determined by whom the interviewees viewed as holding 'power' during the process as well as bearing in mind the discourse in the final product (the Community GHG Reduction Plan) to the discourse of potential key actors. One could assume that those whose discourse or frame was included in the Community GHG Reduction Plan has significant influence (or power). Understanding the connections and how actors, i.e. how the network functioned, helped to understand where and at what stage the power was situated and therefore contribute to understanding how action was stimulated.

Discourse analysis

As already explained, discourse analysis works with the social constructionist notion associated with climate change and the objective of this thesis as it acknowledges the environmental policy process as complex (Hajer and Versteeg, 2005). This is because different actors try to influence the definition of the problem with how they make sense of reality, and therefore influence the action taken. This does not necessarily mean that they have different claims about climate change, however they may have different rationalities about how to tackle the problem (Stevenson, 2009).

The purpose of the analysis here was to understand how the discursive interaction (what discursive mechanisms were used) and framing shaped (influenced) the policy process and therefore the substance of the policy itself. The first step in operationalizing this was to identify, through the analysis of the data, if there were discourse coalitions, which may have formed. As Stevenson (2009) noted, although certain actors are posing the same frame, their interests may not be the same. They could be using the coalition to better position themselves. The next step was to determine what perspective key actors or coalitions put forward. The frame in the context of this thesis, coincides with what Stevenson (2009) identifies as 'policy rationalities', which is how one makes sense of reality, and where the frame acts as a guide or a way of embedding one's rationality. I also analyzed, via interviews how the communicative actions between actors lead towards the mutual understanding of a salient frame. Looking at the frame and the interaction between actors, I interpreted the types of discursive mechanisms used, particularly focused on those identified by Hajer (1995), which are listed in Chapter 2. A frame is labeled salient if it has transformative force and the ability to shape subsequent events (Healey, 2007). The frame highlighted in the Community GHG Reduction Plan is the most salient as it is the one that is embedded in the policy document itself. As

mentioned in Chapter 2, there may be different or competing discourses that are promoted. To determine how the frame became salient and how actors organized attention to a possible action (Forester, 1989), I took into consideration not only the discursive interaction mentioned above, but also resources available as they influence the weight of the frame (Chong and Druckman, 2007). Opportunities or external events were also reflected on, as they have potential to affect a frame's persuasiveness and subsequent salience.

Chapter 4: Empirical analysis

Data Handling

As mentioned in Chapter 3, a consent form to ensure a mutual understanding regarding the use of the data accompanied each interview. Afterwards, I transcribed and coded the interviews into the appropriate themes of the codebook, where there is a description of the themes as seen below in Table 4.1. The same was done for the coded data from relevant documents. The data that was transferred into the codebook was then printed under its corresponding themes as a reference for Part 1 of this chapter.

Part 1 of this chapter will present the data as a narrative. Although Part 1 attempts to be an objective stance on the data collected, particularly via interviewees, it should be noted that there is likely an unintentional bias at times. This could be from how a question was posed or how the discussion was going with the interviewee, as well as how I interpreted the connection between the question and answer during discussion as the interviewees were not highly structured. Part 2 will be the analysis and interpretation of the data, pertaining to the research questions. Since the themes are interconnected (see Figure 4.1) and in many instances the coded data was relevant to more than one theme, I decided it would be best that the narrative was not split into the themes of the codebook, but rather presented more smoothly as an interconnected narrative. Figure 4.1 also shows how the themes of the codebook are connected to the research questions. This figure is meant to illustrate where the data for the analysis and interpretation stems from when answering the research questions in Part 2.

Theme	Description
CTXT: Context (1) - Calgary and climate change	Context of the situation in Calgary pertaining to climate change. Context/description of institutional structures should be included in this also.
GHG: Context (2) - GHG plans in Calgary	Regarding the Plan contents as well as policies, milestones, resources, and opportunities related to it. Context/description of actions taken should be included in this also.
PP: Plan Process	Related to ANT: description of the start and process associated with the Plan.

A: Actors	Related to ANT: the actors, entities (see GHG context also) and their connections, interactions and power associated with the Plan. Analysis (interpretation) of this will help to understand how action is stimulated, and also links to salient frames. Interpretation of this category will also help to determine if there were discourse coalitions, which relates to DISCOURSE ANALYSIS.
F: Framing	Relates to DISCOURSE ANALYSIS: How the problem of climate change is framed (by different coalitions if they existed). Also describe, the interests and values (context) of the discourse coalitions. Look at the discursive interaction, resources and opportunity, to analyze how it leads to the salient frames (i.e. this is connected to the category to the below as well as context).
D: Discourse	Relates to DISCOURSE ANALYSIS: Related to discourse analysis of the process and Plan: the rationalities, discursive mechanisms, terminology used, interaction, etc. Analysis (interpretation) of the discursive interaction used and framing to understand how they influenced the process and substance of the policy itself.

Table 4.1: Codebook themes

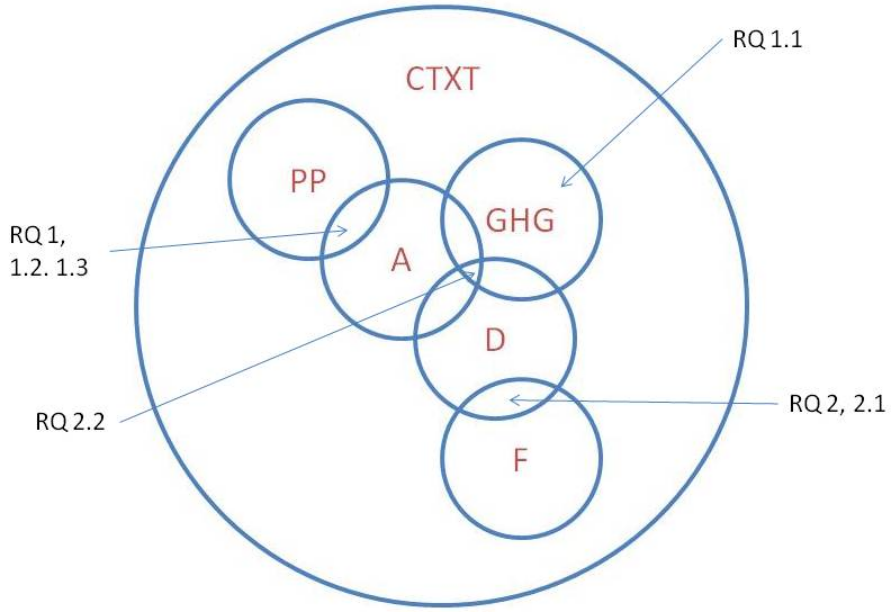


Figure 4.1: Interconnection of themes and research questions

Part 1

Context

Impacts on Calgarians

The ways in which impacts of climate change are presented are often focused beyond environmental effects. Direct and indirect effects on humans are given a certain priority, most probably to grasp the attention of the audience. The City of Calgary highlights effects including health effects on citizens, quality of life, air quality, the potential economic impact upon competitiveness, and economic prosperity (Environmental Management, 2002; Environmental Management, 2006; Environmental Management and The Pembina Institute, 2009). The effects will continue to be felt even more intensely, with per capita GHG emissions having risen between 2005 and 2010 (Environmental Safety & Management, 2010). This is mostly driven by urban expansion, energy inefficiency and consumption habits (Environmental Safety & Management, 2010). Electricity use is the largest source of GHG emissions in Calgary (despite a higher energy efficiency and 'modest' shift toward lower-carbon electricity sources (The City of

Calgary, 2011)). Vehicular fuel and natural gas are 2nd and 3rd (Environmental Safety & Management, 2010).

The Community GHG Reduction Plan as well as other documents, acknowledge the areas of impact from taking action. For example, the PCP suggests the benefits of taking action, and focuses on positive effects on humans (Partners for Climate Protection, 2012b). When interviewed, Muni Ahlawat, the PCP program officer for Calgary cited the key areas of impact as program costs; infrastructure costs or savings; cost of living; air quality; water conservation, waste management; land usage; neighborhood and building design; transportation planning; quality of life, and; citizen satisfaction and attraction. However, the costs of not taking action are also gaining more attention. Jeff Reading, who is the Director of Operations and Enterprise Development at C3 and former Team Lead for the Ecological Footprint Project in Calgary, claims that business is, more and more, looking at the economic implications regarding climate change and the associated energy consumption decisions that fall from that. For example looking at the life cycle of a building, with new stock housing communities being the best example of this.

Corporate vs. Community action

Climate change action, or more specifically, reducing GHG emissions, can be through both the Corporate and Community side. 'Corporate' in this context is by the City of Calgary municipality and its operations where the City has direct influence. 'Community' is citizens and businesses, where the City does not have regulatory power concerning GHG emissions. Edmonton's 'The Way We Green', Vancouver's 'Greenest City in the World' and Calgary's 'Community GHG Reduction Plan' are just a few examples of the leadership cities are providing to actions that address GHG reductions (Reading, 2012). Within Canada, this is where most of the 'moving and shaking' (Reading, 2012) is happening - at the municipal level.

According to Tanya Laing of ESM (2012), Calgary was seen as a pioneer municipality in Canada in the late 1990s, early 2000s. In Calgary, Corporate emissions had already been reduced between 1990 and 2003 using the EnviroSystem (ISO-14001 management system) framework, while Community based emissions did not decline. Preceding the current (Corporate) Calgary Climate Change Action Plan - Target Minus 50, was the Corporate and Community Climate Change Strategy, which reported that Calgary did annual reports to the Voluntary and Registry Inc. Although municipalities do have the power to act, the Community also needs to act in order to make a major impact, as only 2-3% of emissions are Corporate (Environmental Safety & Management, 2010; Environmental Management and The Pembina Institute, 2009). Reading

(2012) believes that part of the reason Community has not done much until now is partly because of lack of education, awareness, and the need to change (due to the cheap cost of energy). The language of climate change is also an issue. Lots of the effort goes into debating the semantics and issues surrounding it, 'it exhausts people before they get to doing anything' (Reading, 2012).

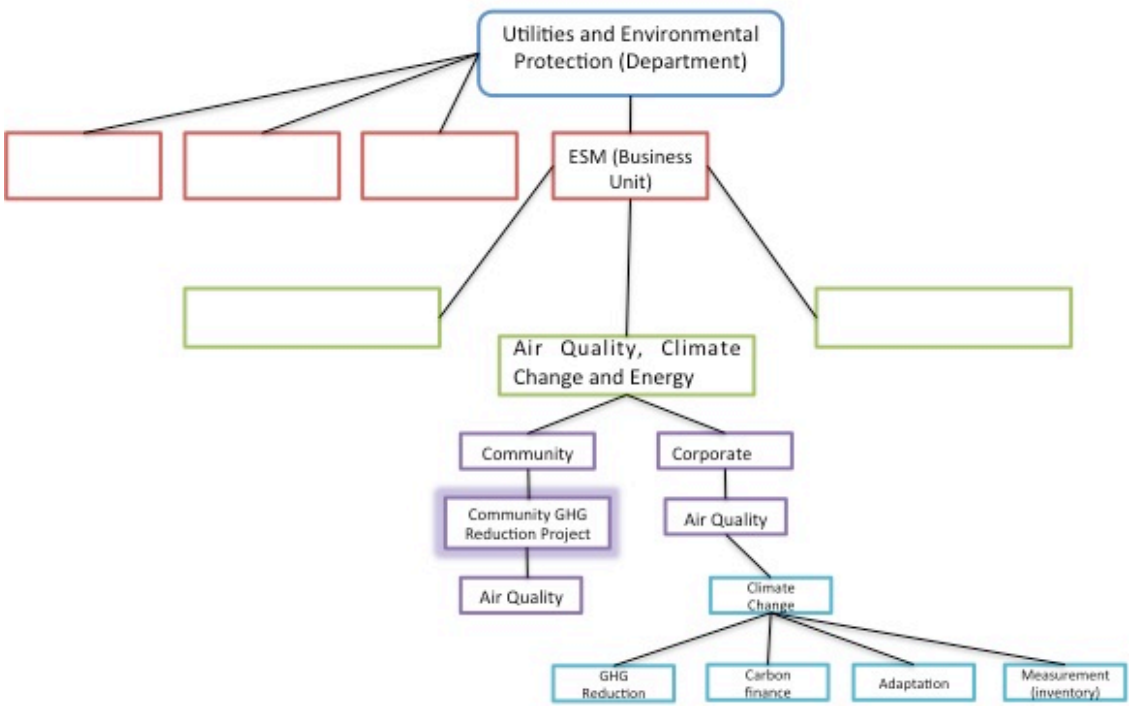
Climate change action as a priority

The City of Calgary has recognized that climate change is an issue that must be addressed. imagineCALGARY was a milestone in many ways for Calgary with its three process pillars being sustainability, engagement and learning. This is because encouraging, partnering, educating and coordinating with both the citizens and industry is important (Environmental Management, 2002). It was a unique project in allowing creative thinking by assessing megatrends and looking past the usual 20-30 year span with its 100 year vision. Climate change is identified as one of the top 3 priorities in attaining imagineCALGARY's Urban Sustainability Plan that will help to meet at least 18 of imageinCALGARY's targets (The City of Calgary, 2006). Even so, priority is a relative term. Jesse Row of Pembina Institute, who was the main consultant for Calgary's Community GHG Reduction Plan, says 'climate change is not something municipalities traditionally work with where something like water is regular. There is an uncertainty of budget with energy and climate change' (Row, 2012). Although some claim that Canada is easy to criticize due to its transparency, it is no excuse to not show leadership (Calgary Economic Development, 2012). For example in 1999 Calgary Mayor Al Duerr (1992-2001) addressed the federal government regarding the Kyoto Protocol, saying 'The bottom line is that at some point the federal government is going to be accounting for what we've done as Canadians in this area' (Canada, 1999). In 2009, Calgary Mayor David Bronconnier (2001-2010) supported the debate leading up to the 2009 UNFCCC conference in Copenhagen via his support for the World Energy Cities Partnership (WECP) Calgary Climate Change Accord. The Council Priorities for 2009-2011, which coincided with the time period of the Accord, include Council Priority 2.2: 'Develop a multi-stakeholder plan and implementation strategy to reduce community-wide GHG emissions in support of imagineCALGARY's long-term community goals' (Utilities & Environmental Protection Department, 2011, p.1).

Calgary's organizational structure

Appendix A shows the organization of the City of Calgary, which is composed of City Council and the Administration. Council is the governing body, which also includes the 14 Alderman representing the City's wards. Administration is divided into 6 Departments, which is further subdivided into Business Units. The Utilities and Environmental Protection (UEP) Department is responsible for the

ESM Business Unit, which in turn is responsible for the Community GHG Reduction Plan. Below is a figure outlining the structure of the climate change portfolio in the City of Calgary. As explained in Chapter 1, municipalities have limited jurisdiction concerning climate change action, where the province holds much of the power. Carra (2012) goes as far as stating that the Administration of the City of Calgary is a corporation run by the provincial government, where the provincial government is really the voice of the citizens, which then empowers municipalities.



Source: Environmental Safety & Management, 2012.
Figure 4.2: Climate change portfolio organizational chart, June 2012

The Community GHG Reduction Plan would not be possible without the approval from City Council. Former Alderman Hawkesworth was a champion for climate change action and explained that 'the value of having a champion or passionate person around an issue on Council, is that they can often mobilize staff support and they can also pull in political support at times when it's needed' (Hawkesworth, 2012). There needs to be champions not only at the Council level but the staff level as well. Noel Keough (2012) of Sustainable Calgary observed that if there is no champion or there is significant changeover within departments, the process slows down as there is then 'no corporate memory or consistent advocacy for policies'. Another thing that may slow climate change action is municipal elections (The Office of Sustainability, 2012). 'The challenges elected officials face in trying to take effective action on long term issues, such as climate change, where the decisions and actions being considered stretch well beyond their elected mandate and suggest difficult actions be considered'

(Reading, 2012). The people and budget for the particular project are also fundamental aspects to consider as personal situations and budgetary constraints may very well affect the process. Therefore, reorganization of or within departments as well as relationships within the Administration can have a large impact on policy; 'I think they play a bigger role than many of the planners and political scientists give credit for – these networks of relationships and shared purpose that exists in an organization – can really make things happen or stop them from happening, on any range of issues' (Hawkesworth, 2012).

Concerning engagement, the City decides who the stakeholder groups are, with an attempt to be as inclusive as possible. This includes both external and internal stakeholders, however the internal engagement is more so with Administration rather than Council (Row, 2012). Involving all departments that have an impact on GHG emissions was to be part of a larger effort to use the imagineCALGARY plan as the basis for all planning within Calgary (Ahlawat, 2012). However, some feel that there is disconnect between the Business Units in the City, which may be a source of frustration for a stakeholder. Bruce MacKenzie, Managing Partner of MacKenzie Management Consulting Inc., who is also Chair of The Energy, Environmental, Occupational Health and Safety Committee of BOMA (Building Owners and Management Association), states that there is a sense of frustration when one is communicating with the City. This is because in reality one is talking to a single Business Unit whom are 'sometimes working against each other… You should be able to go to the City and not be stuck fighting through individual Business Units or Departments' (MacKenzie, 2012).

Triple Bottom Line (TBL) policy became a requirement in 2003 for all reports to Council Committees. This is an overarching principle for all strategies and actions, looking at the economic, social and environmental impacts of a proposed action or plan. In 2009, The City of Calgary set up the Office of Sustainability, which is a cross-departmental Office located in the City Manager's Office, that developed the 2020 Sustainability Direction as a 'one stop shop' for organizations and the City's departments (The Office of Sustainability, 2012). The first half-year of the Office of Sustainability was spent quite intensively on building relationships with the Business Units, as an attempt to encourage cohesion. The 2020 Sustainability Direction can be seen as the next step of TBL, where it aligns targets, goals and objectives. This implies a more overarching planning strategy by the City, when one considers that this links to imagineCALGARY, the MDP and the CTP - bridging the gap between short-term Council priorities and the long-term vision of imagineCALGARY. However, some (Carra, 2012; The Office of Sustainability, 2012) recall there being a backlash at the idea of 'community planning', i.e. an overarching planning strategy, in something such as the 2020 Sustainability Direction, coming from some

members of Council or Administration, but primarily from industry - particularly those in industry who are concerned with a preconceived notion of the City rather than what they see as true stakeholder consultation. The MDP and CTP, albeit being a successful stepping-stone in planning policy, are more focused on infrastructure or land use rather than community planning (The Office of Sustainability, 2012). The lack of a very strong environmental element is a significant limitation for GHG reduction (The Office of Sustainability, 2012).

Calgarians

Addressing the interest of Calgarians is necessary towards an understanding of why there is a Community GHG Reduction Plan that is pursuing measures beyond business-as-usual. At a larger scale, Calgary wants to contribute to the global solution, while at the local level it is about natural wealth and health (The City of Calgary, 2012b). In an endorsement presented to Council to develop the Community GHG Reduction Plan (Environmental Management and The Pembina Institute, 2009), it was stated that Calgarians want the City to take a leadership role in protecting its natural wealth while 82% of Canadians want practical solutions and for the country to become a leader. In a local survey of 500 citizens, the City found that 97% said 'yes' towards an initiative to conserve energy with 92% of those saying it is the City's role to do so (Utilities & Environmental Protection Department, 2011). Calgary is the headquarters to 91 major energy companies and businesses, with a growth being experienced in markets for renewable energy (Calgary Economic Development, 2011). The Alberta government has invested billions of dollars towards environmental protection technologies in order to continue being a 'safe and stable supplier of energy' (Alberta Environment, 2008). However, Calgary Economic Development (CED) (2012) warns, 'although the world needs your oil, people may find a way around it if you are not doing the right things'. Alberta's 2008 Climate Change Strategy is a necessary step as Alberta produces a third of Canada's GHG, with emissions expected to rise. The language in the strategy is an assurance that although Alberta is a major polluter in Canada, it will not wait to take action (Alberta Environment, 2008, p.9). The rationale for continued fossil fuel investment is the economic sustainability of the province since fossil fuel demand remains and is seen as the foundation of Alberta's society. The language can be interpreted as defending the strategy's moderate goals. For example 'based on sound research not wishful thinking' or, 'real reductions within a realistic timeline' (Alberta Environment, 2008). Alberta's action plan is based around 3 themes: conserving and using energy efficiently, implementing carbon capture and storage, and greening energy production (Alberta Environment, 2008).

Around the world, there is a broad consensus on reducing collective emissions by 80% by 2050 (relative to 1990 levels), however Canada's 2020 target is tied to the U.S. of 17% below 2005 levels, and 60-70% by 2050 (Row et al., 2011). The U.S. strategy is based on GHG intensity (ratio of GHG per unit of economic output) rather than absolute emissions reduction, which is what the Kyoto Protocol was based on. This emissions based strategy, which is also the strategy Alberta's 2008 Climate Change Strategy uses, allows for an increase in absolute emissions (Reynolds, 2002). With climate change being a hot topic globally, it is surprising that environment is not a stronger component of Council's current fiscal plan (The City of Calgary, 2012c). Furthermore, if the citizen survey mentioned above is correct in saying that citizens want Canada to be a leader, then one may assume they would want stronger targets. However, strong words such as 'regulation' or 'bylaw' is not something that the private sector generally leans towards in order to reach GHG targets, citing reasons such as skepticism towards implementation or stifling innovation (Oberg, 2012). As Carra (2012) said, referring to the need for fundamental changes in the processes and legal frameworks in which the City of Calgary operates to reach major GHG reductions; 'we have changed what we're asking for, but we haven't changed how we get there'. Carra (2012) stressed the human-scale city is another one of these fundamental changes that the City must strive for and an option that should be feasible for citizens, while others argue that this is not what 'the market' wants. The argument being that although the high majority of people do want a healthy environment, their 'willful determination' to change their lifestyle is questionable (MacKenzie, 2012), and perhaps focusing quasi-commercial and residential industry may be what could be effective and attainable. Hawkesworth (2012) suggests that perhaps resistance from the political arena stems from them not seeing any changes when looking at the public; 'It is easier to just carry on with business-as-usual, because everybody else is carrying on with their lives as usual'. It is not only because of those who fund doubt about climate change, but also because there is not a strong enough grassroots movement to push politicians (Hawkesworth, 2012).

Climate change action

Tracing climate change action preceding the Community GHG Reduction Plan

Calgary committed to the FCM 20% club – a precursor to the PCP program - in 1994, which is seen by many as the first milestone towards GHG reductions. The same year, Council approved The City of Calgary Corporate Climate Change Program Action Plan (Environmental Safety & Management, 2012). Reading (2012) calls this Corporate action 'future proofing' the City, which ensured that Calgary did not put itself in a place that prohibited cost-wise living in the future due to reliance on fossil fuels. 2 years later, Calgary also joined the WECP (WECP, 2012), which is significant because this eventually led to the WECP Calgary

Climate Change Accord. In 1998, Council approved a CO2 emissions abatement action plan and began to develop a baseline for the Community (there had already been a Corporate inventory since 1990). This was followed by Council instructing Administration to develop a climate change program in 2000 (Utilities & Environmental Protection Department, 2004), which was to be led by the UEP department, despite the negativity surrounding the Kyoto Protocol at the time. The same year, Council had approved the set up of a climate change program office. Corporate Strategies and Economics and the Office of Corporate Engineering established a Climate Change Team. Laing (2012) reflects that at that time, she did not know of many municipal staff in Canada that was dedicated to climate change. The Climate Change Team (within the ESM Business Unit) acts as coordinator, facilitator, catalyst or partner to encourage business units to introduce a variety of initiatives (Environmental Management, 2002). Because the City has direct control over its own operations, reducing Corporate emissions had been a priority for the Climate Change Team.

In 2000-2002, ESM began to organize the City's Corporate and Community GHG inventories to see what the City could do as well as what they could influence, with Corporate emissions being a primary focus at the time. In the early 2000s, The City of Calgary's strategy was to first go after 'low hanging fruit' to reduce Corporate GHG emissions. Projects such as streetlight and traffic signal retrofits, and building energy efficiency projects would have most likely been done anyway for financial savings and energy efficiency reasons. There was also an ambitious initiative called Ride the Wind, launched in 2001 to help the City significantly reduce its fleet GHG emissions. Ride the Wind allows Calgary's light rail transportation system to be run on renewable energy (Laing, 2012). In 2002, Council deliberated on the direction of their strategy and support of the Corporate and Community Climate Change Strategy (2002-2005) and began to consider a principle direction for a long-term Community climate change strategy (Ahlawat, 2012). Meanwhile, the City was developing an internal emissions trading policy and discussing the ability to trade emission credits externally (Reynolds, 2002). This program was driven by Council Priorities 2002-2004 which address global climate change, the City of Calgary Environmental Policy, potential energy and operating cost savings, Kyoto Protocol, and Government of Alberta support for climate change (Environmental Management, 2002). Although adopting the precautionary principle by trusting IPCC research, this was a soft strategy on the Community side, meaning it was mainly education and projects that were undertaken with a focus on energy efficiency and money savings for consumers. Laing (2012) says that on the Community side, it was ad hoc with no real strategy around it since the City did not have direct control over this as they did with Corporate emissions and it was not something at the forefront of Calgarians minds at the time. This climate change strategy was to first measure GHG emissions to see where the reductions

could be made; mitigate the costs of GHG reductions; mitigating the impacts of climate change on local resources; education, awareness and communication about climate change. Targets associated with this plan were voluntary and not linked to provincial or federal targets. This resulted in a Corporate emissions abatement action plan directed by Council (Reynolds, 2002), which aimed to reduce Corporate GHG emissions by 6% below 1990 levels by 2012.

Low-hanging fruit was used to achieve the buy-ins of businesses. Support and approval from elected politicians, senior administration leaders 'who are constantly trying to gauge the opinions of elected politicians', and colleagues in other departments 'who are competing for resources, glory and position', are all essential says former ESM Director David Day (2012). ESM was collaborating with FCM and 'figuring it out as they went along' (Laing, 2012). The focus was on the economic benefits and the good business sense of taking action primarily on energy efficiency, highlighting co-benefits. They saw that putting economic reasons forward, and having a good position to do so due to the prosperity of the City and a climate change team in place, was a good long-term investment towards eventual buy-in for a Community plan (Laing, 2012). Within 2 years there was already a 4% reduction, with more on the way when Council approved the Corporate Climate Change Program Action Plan in 2004, an updated framework of the Corporate and Community Climate Change Strategy. In 2005, the City of Calgary and its electricity retailer, behind the leadership of the motivated ESM Director Day, signed an agreement that made a stronger commitment possible. 'This action plan will advance Calgary's reputation as a city that cares about environmental quality, health, economic, social and environmental sustainability' (Utilities & Environmental Protection Department, 2006, p.2). This aggressive pitch got the City to switch its electricity sources to 90% green sources, which had the effect of reducing the City's GHG emissions almost 65% (Day, 2012). With financial and technical resources in place, there were a series of increased green power targets, with the final one being 100% green electricity campaign by 2012.

The 2006 Calgary Climate Change Action Plan Target Minus 50, also referred to as Target Minus 50, was an updated version of Calgary's Corporate efforts to reduce GHG emissions that provides the overall framework for the City's climate change program. It was an encouragement mechanism for Community action and a living document that also serves as an inventory. Although it recognized Community emissions, no targets were attached to the Community. The vision for Community action went beyond environmental objectives, even though protecting the natural wealth of Calgary is something that is supported by the public (Environmental Management, 2006). With this, Calgary was the first in Canada to reach all 5 corporate PCP milestones. In 2005, the City of Calgary sent the PCP an updated report based on 2003 data, which indicates a growth in

population and GHG emissions that essentially mirrored each other - 33% and 31% (Ahlawat, 2012).

ESM moved in small but distinct steps to gain Council support. Calgary was fortunate to have a small Climate Change Team within ESM, with an innovative and motivated leader that pushed for stronger Corporate targets. Although some of the Corporate milestones were approved by Council, funds were limited and there was only a 5-6 year period to gain participation of other departments – 'some never played ball, but we were able to go around them' (Day, 2012).

Transitioning to a Community Plan

ESM and the Climate Change Team were pleased with the progress it had made on the Corporate side, which was important for establishing credibility and attacking its own targets before going to the Community (Keough, 2012). imagineCALGARY, which ESM was also involved in, was also a milestone for climate change action in Calgary because it put forward Community targets for Calgary in 2006 and gave direction towards GHG reduction. The 2020 Sustainability Direction further refined this direction. imagineCALGARY is credited as one of the factors that help set the stage and gave direction for GHG reduction with its innovative City-owned, Community-led approach (Environmental Safety & Management, 2012). The document attempts to motivate the Community to become a model city and includes a very positive futuristic magazine mock-up of what Calgary would be like in 2036 if the targets were pursued and achieved. 'We make imagination real; it's the Calgary way. It's what we've always done and will always do' (The City of Calgary, 2006, p.1). It establishes long-term GHG targets for the Community, something that had not been done up until that point, with suggested strategies and initiatives for potential ways to achieve the targets in order to become a model city. The framework provided encouraged cohesion and viewing Calgary as a whole. This is in line with the whole-system sustainability strategy of promoted by the PCP (FCM, 2012). In 2006, once the imagineCALGARY plan was complete and Council had received the updated Target Minus 50, Council agreed to enroll in imagineCALGARY and gave Administration the workload. As of 2007, Administration was to use the approved methodology and prioritize imagineCALGARY targets as part of their business planning and budget coordination process (Utilities & Environmental Protection Department, 2009). Additionally, ESM was putting pressure on Council to approve the development of a Community plan by securing Council's support for PCP programs for Community and tying GHG reductions to the larger goal of reducing Calgary's ecological footprint (Day, 2012). Both the Target Minus 50 and PCP shared best practices by showing what other cities in North America were doing as an encouragement and challenge for Calgary, whom wanted to be seen as a leader

and global energy centre. Combined with the backing of the imagineCALGARY vision, the City began meeting with stakeholders to start working towards the final PCP milestone – a Community plan.

The conversation for the Community GHG Reduction Plan started approximately 2 years before the beginning of the project. The scenario was a meeting between Row and Hawkesworth regarding another City project, which turned into a conversation about climate change action in Calgary (Row, 2012). Hawkesworth eventually set up a meeting between Row and Day (Row, 2012). Most elected officials at the time did not think that municipal government was to be responsible for emissions by citizens and businesses within Calgary's boundaries (Day, 2012). To create the support needed from elected officials, Day (2012) believes that progress comes from a successful game plan with distinct progress stages. This game plan is 'a strategy to predict and avoid deadly pitfalls, and can be tied to reducing the municipality's liabilities' (Day, 2012).

The WECP Calgary Climate Change Accord was very significant step towards the development of a Community GHG Reduction Plan. The 2009 UNFCCC conference in Copenhagen was an opportunity which Calgary took advantage of, by preparing the WECP Calgary Climate Change Accord. This was initiated through CED pairing up with the company Virgin, discussing a WECP statement (a city perspective) to present in Copenhagen (Calgary Economic Development, 2012). It was meant to urge world leaders with its proactive way of signifying leadership. In September 2009, a month prior to Calgary signing the Accord, Council directed Administration to report back on the impacts and implications of the Accord as well as the 2009 UNCCC conference in Copenhagen (Utilities & Environmental Protection Department, 2010). 9 out of 15 cities, including Calgary, signed the Accord at the WECP annual general meeting in 2009, and the Accord was presented in Copenhagen, where Mayor David Bronconnier formally received recognition for the Accord. The Accord gives a common target for 2020 and 2050 to the committed municipal governments of the Accord, as well as a commitment to establishing a mechanism that reports progress. The pursuit of a Community strategy was also part of the commitment, with a 2005 baseline being agreed upon. This is a different baseline from imagineCALGARY's more aggressive target, where the target is 50% below 1990 levels by 2036. The Accord targets, which were negotiated between the cities involved in WECP, are a 20% reduction by 2020 (below 2005 levels) and an 80% reduction by 2050 (WECP & The City of Calgary, 2009). This is significant because as a Council approved initiative that demands a mechanism to report and the pursuit of a Community strategy, it was something that could be used to push a Community GHG Reduction Plan forward, building on the success of the Target Minus 50 and the Council Priority 2.2 for 2009-2011. Although imagineCALGARY preceded this, it was not a formal commitment as the Accord is. The Office of Sustainability

(2012) uses the WECP Calgary Climate Change Accord as an example of how leadership at Council level can make a big difference. It was necessary to start with the Corporate side first where the City had direct influence, before going to the Community where they had indirect influence and climate change was a complicated and contentious subject at the time. Despite significant strides concerning its own operations, those who shared a concern regarding climate knew that there needed to be more done than what the City was doing and needed to transition to a focus onto others (Hawkesworth, 2012). The 80% target of the Accord is not possible without the involvement of the Community who had not taken any significant measures to reduce GHG emissions. The Accord therefore encourages Calgary to collaborate with government, industry, NGOs, media and local community groups (WECP and The City of Calgary, 2009). In the endorsement presented to Council for the development of a Community GHG Reduction Plan, Calgary challenges the Community to take responsibility for GHG reduction, and encourages the support of citizens and businesses (Utilities & Environmental Protection Department, 2009).

Developing the Community GHG Reduction Plan

Row (2012) reflects on the development process of the Community GHG Reduction Plan as being drawn-out. In 2008, The City of Calgary partnered with Pembina Institute (Utilities & Environmental Protection Department, 2009) – who had done related work prior to the Community GHG Reduction Plan and had an interest to have Community-based action happen in Calgary. The City, who was to act as the Plan manager (that is for the Community GHG Reduction Project, i.e. both the Community GHG Reduction Plan and Alberta Template), had the political knowledge, but hired Pembina Institute as the consultant for their technical knowledge in the matter. It is important to note that due to departmental reorganization, 3 separate Plan managers managed the project. Being a member of FCM, Calgary submitted a request for funding the development of a Community GHG Reduction Plan to the GMF in 2008 (Utilities & Environmental Protection Department, 2009; Environmental Safety & Management, 2012). The first Plan manager for the Community GHG Reduction Plan initiated the project under the Director of ESM. Council was approached with an endorsement for developing the Community GHG Reduction Plan in February 2009, which includes FCM requesting that Council 'adopt in principle' the Community Plan in order to finalize the City of Calgary's request for the GMF (Utilities & Environmental Protection Department, 2009, p.2). It was also indicated that without the support of Council for developing a Community GHG Reduction Plan, the grant would not be obtained and Administration would have 'limited ability to achieve Council Priority 2.2 and related goals in the 2009-2011 business plans' (Environmental Management and The Pembina Institute, 2009). Similar to the futuristic mockup magazine imagineCALGARY included, the

endorsement document shows a visual of turning a low-density area into a better looking and more inviting community (Environmental Management and The Pembina Institute, 2009, p.5). The endorsement document asks the readers to imagine the type of city they would like in the coming decades, and paints an attractive picture of Calgary via imagineCALGARY. The document ends with a quote from Mayor David Bronconnier, endorsing GHG reduction. There were amendments made to the wording of the proposed Plan (Utilities & Environmental Protection Department, 2009, p.1), which included the addition of the words 'education and advocacy plan' following the words 'Community GHG Reduction' (rather than the word 'plan') for the development process. Additionally, and something that was opposed by 2 Alderman, Hawkesworth and Farrell, was changing the word 'adopt', to 'adopt in principle' (regarding the development of a Community GHG Reduction Plan). As can be seen, this Council was cautious with regard to strong wording concerning a Community GHG Reduction Plan.

The lead was transitioned to another Plan manager in 2009 that had been working with the Ecological Footprint team prior to that (Environmental Safety & Management, 2012). The City also applied and negotiated for provincial funding from Alberta Environment (AENV) for the Community GHG Reduction Plan in 2009 (this provincial ministry has since been renamed to Alberta Environment and Sustainable Resource Development (AESRD) in 2012). Funding from AENV and FCM was secured in late 2009 (Environmental Safety & Management, 2012) and awarded in January 2010 (Utilities & Environmental Protection Department, 2010). Another transition came with another Plan manager being assigned in December 2010. Funding was eventually in place and the Plan was well on its way (The City of Calgary, 2012b).

There was a time when the Plan manager, was worried if the provincial funding would be granted as at the time, it was difficult to obtain city or provincial funding (Environmental Safety & Management, 2012). These were difficult economic times and there were competing social and economic priorities. In addition, where FCM has the GMF, which is a fund that supports these initiatives, the province must decide what to do with their budget and was focusing on rolling out its own climate change strategy (Alberta's 2008 Climate Change Strategy). Fortunately, the request for AENV funding came at a good time as they had funding to give, as well as some discretion with what to do with their money (Row, 2012). Also, including the Alberta Template in the Community GHG Reduction Project gave the province added value to its investment in Calgary. This is because the information and findings of the project are to be forwarded to AUMA to support Alberta Municipal GHG Action planning towards an Alberta Template (The City of Calgary, n.d.). Proposing that much of the money would not have to come from the City's budget was something that swayed some

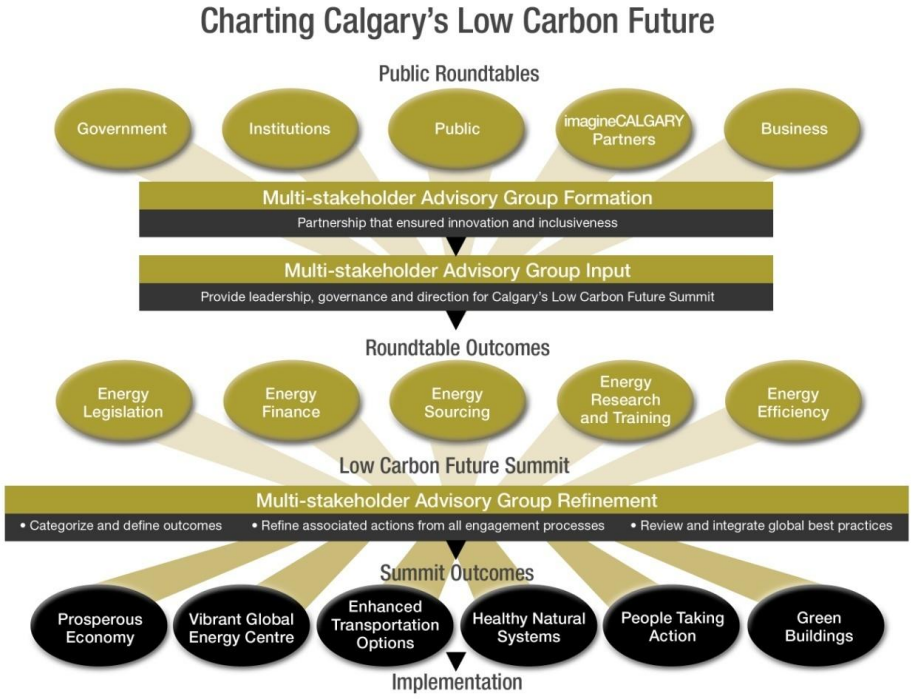
hesitant Council members (Hawkesworth, 2012). The financial contribution requested of the City was $50,000 CAD, which was available in the 2009-2011 UEP business plan and budget (Environmental Management and The Pembina Institute, 2009, p.1). Council minutes reported that of the $485, 000 CAD budgeted for the Community GHG Reduction Plan, $435,000 CAD came from AENV ($185,000 CAD) and the GMF ($250,000 CAD), which suggests that the Plan was expected to be in line with the provincial and federal climate change policies (Utilities & Environmental Protection Department, 2009; Utilities & Environmental Protection Department, 2010).

Funding as a support from higher levels of government and support of the Council were vital for the approval of the Community GHG Reduction Plan. The Director was instrumental in getting AENV funding into place, while the staff under him pursued the GMF funding. Receiving funding took longer than expected - a 12-month process of applying, answering questions and getting approvals - but not necessarily entirely due to resistance. A lesson learned from the process was that since funding takes time, it is important to be persistent, constant and persuasive (Environmental Safety & Management, 2012). There are certain people within Administration that initiate the approaches for funding, and Administration is busy with many things at once, with the development of a Community GHG Reduction Plan not being a top priority at the time (Row, 2012). Throughout the policy process, priorities shift due to external circumstances. The difficult economic times or organizational change to the City's climate change portfolio are an example of this. It did not help that there was a transition of Plan managers throughout the process (Row, 2012). It took time to get the attention of 'movers and shakers', such as the Director, to initiate meetings and subsequent relationships. After that, it took time to 'do those meetings and to do those relationships' (Row, 2012).

Low Carbon Future Roundtables and Summit

In order to achieve the goals of imagineCALGARY among other aligned initiatives, there was to be stakeholder consultation, which would lead to a stakeholder committee for regular guidance on the development of the Community GHG Reduction Plan to identify and assess emission reduction opportunities and recommendations. The Community GHG Reduction Plan suggests that the City wanted to streamline with stakeholders that already had previous input. The initial input for the Community GHG Reduction Plan was during the consultation Low Carbon Future Roundtables and Summit between May and September of 2009, which actively engaged stakeholders and the Community. This started with public roundtables with the public, government, institutions, imageineCALGARY partners and businesses, which led to a multi-stakeholder advisory group. The process is best explained in the figure below.

After the initial input of the Low Carbon Future Summit, and with the funding in place, the next step was to prepare a Project Charter for the Plan for Committee approval (Utilities & Environmental Protection Department, 2010). The Project Charter is the internal project management system for City Administration. It included an engagement and communication plan for the policy process to ensure consistency and consideration of stakeholder needs throughout the process (Environmental Safety & Management, 2012). One of the attachments given to Council was encouraging the precautionary principle, illustrating the effects of doubling CO2 concentrations in the atmosphere. Additionally, it was directly pointed out that the Plan had Council-approved initiatives and targets in it already. The Project Charter was approved in April 2010. From this point, Council directed Administration to come out with the Community GHG Reduction Plan within 18 months (Utilities & Environmental Protection Department, 2010).



Source: Moisan, 2009, p.4.
Figure 4.3: Charting Calgary's low carbon future

Options for Reducing GHG Emissions in Calgary – research report

In this research report that informed the Community GHG Reduction Plan, the language begins to strengthen. The focus begins to go away from just encouragement mechanisms, and towards a combination of regulations, price signals, and incentives and education (Row et al., 2011). This kind of advocacy is something that Hawkesworth (2012) feels the City earned the right to do, as they had already cleaned their own house in terms of GHG reductions, and used this

leadership and experiences as a way of asking the Community to also start taking action. Additionally, it is once again pointed out that the reduction of GHG supports Council priorities as well as Council-approved initiatives such as imagineCALGARY, the Ecological Footprint project, MDP and CTP in addition to contributing to Calgary's global reputation. This seems to be targeted at Council and businesses rather than at the citizen. Travis Oberg, who represented Urban Development Institute (UDI) during the development of the Community GHG Reduction Plan, feels that the worldwide momentum of climate change attention contributed to the discussions (Oberg, 2012). The appendices of the options report highlight examples from around the world and within Canada, showing a trend towards regulatory, trade and financial signals for reducing GHG emissions. These were assessed for their possible relation and applicability to Calgary and TBL (Row et al., 2011; Oberg, 2012).

There was certain unease by some major stakeholders about how these studies could be applied in order to make a real impact, in terms of the science behind it and following what others are doing - despite the evidence based approach being pushed by Council (The Office of Sustainability, 2012). Those opposed preferred a 'made in Calgary' approach where a local strategy is preferred over a strategy from another city or country. Recognizing this, the Plan manager used comparisons within Calgary, where a similarly contentious decision has been made before through the likes of water or natural gas, and where everyone was happy in the end. 'Do we need to live in a cave again?' was a phrase The City of Calgary (2012b) heard often, referencing the conservation of energy and reducing emissions. The rebuttal was that it is impossible to know what the future will look like in the decades to come, but it is financially beneficial and smart, to avoid decisions that are already known to not be cost-effective in the future, such as building new coal plants (The City of Calgary, 2012b). Some stakeholders were put at ease by being shown that Calgary is not overly ambitious compared other cities via the research report as well as PCP. In addition to the economic co-benefits of all the tools being utilized, it is emphasized that one single action is not efficient, and that a combination of 'regulations, price signals, incentives and education are needed in each of the areas' (Row et al., 2011, p.6). This is illustrated in Figure 4.4.

This research report informed the Calgary Community GHG Reduction Plan in identifying and assessing potential options to reduce GHG in Calgary (Row et al., 2011) and was identified as the largest part of the project development (Environmental Safety & Management, 2012). It is focused on 'how to achieve the greatest triple-bottom-line return on investment, while reducing our impact on climate change' (Row et al., 2011, pg.8). Although there is not a unanimous agreement on decoupling GHG emissions and population growth, the research report was centered on strategies to achieve this (Row et al., 2011). In order to

achieve this, the groups identified are energy efficiency; solar heat and power; transportation mode shifting; combined heat and power (in-city); behavior changing; other fuel switching; landfill gas captures; carbon offsets and credits (Row et al., 2011). Next a quantitative model was built, followed by a draft report was circulated to the established stakeholder group, whom provided input at the start of the research process during two additional stakeholder meetings. Based on the feedback, the research report was revised and finalized in February 2011 (Row et al., 2011).

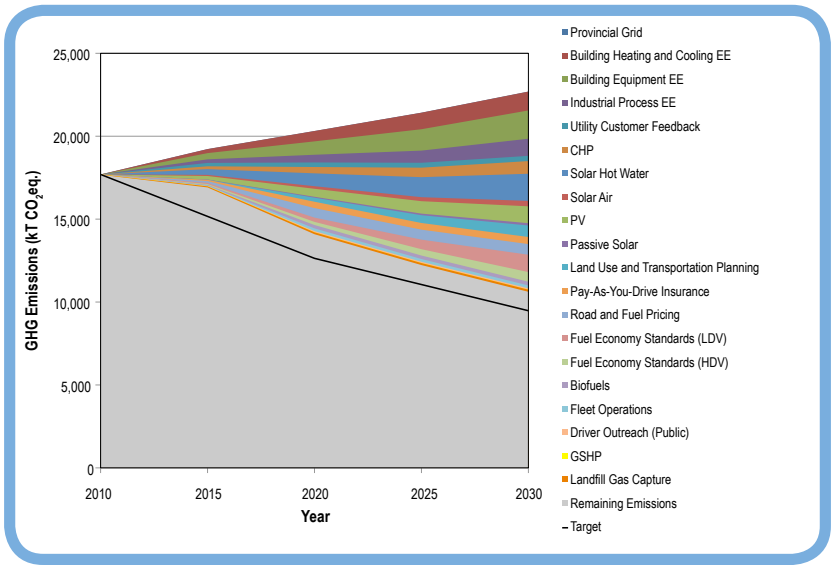


Figure 16: Maximum emissions reduction potential for all options (no change to provincial grid)

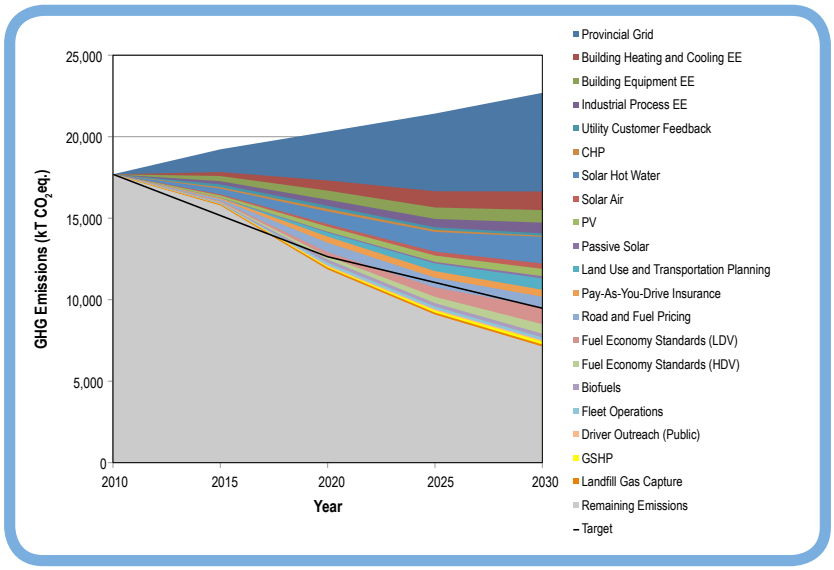


Figure 17: Maximum emissions reduction potential for all options (assumes average of AESO future scenarios for grid)

Source: 'Figure 16: Maximum emissions reduction potential for all options (no change to provincial grid), and; Figure 17: Maximum emissions reduction potential for all options (assumes average of AESO future scenarios for grid)' (Row et al., 2011, p.28).

Figure 4.4: Emissions reduction potential

Community GHG Reduction Plan

Between February and November 2011, the Community GHG Reduction Plan document was being put together. The writing was made easier because the key stakeholders were engaged early on, which allowed for more time to build understanding and buy-in (Environmental Safety & Management, 2012). The Pembina Institute and the Plan manager were able to provide a solid rationale for suggested options for action by being well prepared with the research report, which had produced sound science and numbers (Environmental Safety & Management, 2012). They also attempted to break down assumptions during the process. One of these assumptions is that reducing emissions will ruin the economy (Row, 2012). Row (2012) said it was relatively easy to go from such existing perceptions and say 'nobody credible is saying it's that hard' and to point out that kind of negative rhetoric stems from the Kyoto Protocol debate. In this case, once a perception is broken, the conversation is built up showing the steps needing to be taken are not 'doom and gloom', and people begin to realize it is not as difficult as first perceived (Row, 2012).

A major part of this process was getting into focus which options from the research report to choose. In order for the Community GHG Reduction Plan to meet its objectives, municipalities need more capacity to for implementing the reduction options (The City of Calgary, 2011), and will need higher levels of government to work together, specifically the province because the group that has the greatest ability for GHG reductions is the provincial grid. As Bulkeley (2010) described, despite individual leadership, a broader institutional capacity is necessary. The Community GHG Reduction Plan is dependent on the resources and action of government, organizations and individuals. The groups which were eventually chosen for the Community GHG Reduction Plan are: provincial electricity grid; energy efficiency and conservation; distributed energy, and; transportation choices and compact development. In addition to reduction opportunities and recommendations, the project team was to develop a framework for ongoing implementation, monitoring and reporting. This strategic plan has 3 primary outcomes: 'An action plan that defines roles and accountabilities; an implementation framework for The City and Community partners, providing a structure for ongoing action toward reducing emissions, and; a system to measure and report community GHG emission level and targets' (The City of Calgary, n.d., p.1). The Community GHG Reduction Plan aligns itself with the goals and targets of previous initiatives into one updated Plan, and ensures that all possible options were first filtered through TBL. These initiatives include MDP, CTP, imagineCALGARY, 2020 Sustainability Direction, Alberta's 2008 Climate Change Strategy, WECP Calgary Climate Change Accord, in addition to fulfilling the PCP agreement. The end goals and targets of the Community GHG Reduction Plan, which aim to decouple emissions from population growth, will

reduce GHG emissions while realizing environmental, economic and social benefits. The objectives are a form of 'high level guidance' (The City of Calgary, 2011, p.6) identified for different stakeholders with corresponding action areas (short term actions, where medium- and long-term actions still need to be prepared) in order to achieve energy conservation and efficiency, as well as the development and use of low carbon sources (The City of Calgary, 2011).

Pembina Institute did not have the staff turnover that the City had throughout the process and was well connected; they were the facilitator of the process and were more involved in stakeholder engagement than the Plan manager was (The City of Calgary, 2012b). During the drafting stage of the Community GHG Reduction Plan there is also heavier involvement with the Director, the General Manager (GM)'s office and eventually Council (Row, 2012). Stakeholders were also more involved in the Community GHG Reduction Plan development than the research report (Row, 2012). The Director has regular input throughout the Plan, and therefore has influence throughout the process. Although the GM is 'higher' in Administration, they had less influence because there is much work done by the time the GM reviews the Plan. This is the same with Council. However, since Council has the most potential influence, they were kept up to date throughout the process as to not surprise them and to ensure that the Plan was still supported (The City of Calgary, 2012b). Although the City attempts to be as inclusive as possible in stakeholder consultation, not all stakeholders feel that the City is completely open or that they were heard. According to MacKenzie (2012), some stakeholders felt it was the facilitator's role to keep the City's agenda in the discussion and therefore it was difficult to have their opinions expressed in the final draft of the Plan. MacKenzie (2012) felt that the City 'already had more than their hypothesis' coming into processes such as the Community GHG Reduction Plan. 'It all comes out in the City mindset, the City jargon' (MacKenzie, 2012). This statement would suggest that policy is shaped by power rationalities versus participative policy (Stevenson, 2009). The GHG targets that had already been set by Council (whom approved the WECP Calgary Climate Change Accord and the 2036 imagineCALGARY targets (Environmental Safety & Management, 2012)), ended up being a contentious topic as the argument from those opposed was that it was not based on true stakeholder consultation. Reasons for this contention include not trusting where the data came from which produced the targets (Oberg, 2012) as well as not agreeing on decoupling GHG emissions from population growth. Another dispute was the groups, 'the pieces of the pie and how big the pieces of the pie are', such as energy efficiency and conservation' (Oberg, 2012).

The stakeholder consultations were composed of both group and individual meetings. However, Row (2012) pointed out that the initial group workshop design for stakeholder meetings was not going to work if they were to meet their

deadline. The initial agenda was to go through all reduction areas and get input from the stakeholders. However, it soon turned into a 'soapbox' (Row, 2012), discussing issues rather than solutions – 'it was very conversational…also digging up personal laundry' (in reference to a stakeholder voicing bad experiences in the past when working with the City). Although everyone was respectful of each other during the brainstorming session, Row (2012) felt the limited time available would be used more effectively by conducting one-on-one meetings from that point onwards as it would better avoid opportunities to soapbox and consequently derail the process. Keough (2012) noted that there was always some resistance towards this initiative, albeit not very strong (Hawkesworth, 2012). However, Pembina Institute and the Plan manager felt that overall there was not a significant amount of pushback from the stakeholders during the stakeholder meetings of the Community GHG Reduction Plan (Row, 2012).

'Managing risks and capturing opportunities'

With Pembina Institute as the facilitator of the Plan, they had many different perspectives to listen to during consultations. Stakeholders acknowledged this as a difficult position to be in. The frame chosen which was seen as both meaningful and solution based (Lindseth, 2004), was a co-benefits frame of 'managing risks and capturing opportunities' (The City of Calgary, 2011, p.5). Below is an image of a list taken from the document itself, of the risks and opportunities as seen for Calgary:

The risks include:	The opportunities include:
• Climate change and its local and global impacts on water, food, forestry, health, the economy and severe weather events • Provincial, national and international policies that penalize GHG emissions • Reduced competitive advantage	• Reduced costs through increased energy efficiency and conservation • Improved air quality, environmental protection and related health benefits • Being proactive on provincial, national and international policies that reward reduced GHG emissions • Attracting investment and people

Source: The City of Calgary, 2011, p.5.
Table 4.2: Risks and opportunities regarding actin to reduce Community GHG emissions

The Community GHG Reduction Plan states that energy is the vision, however it still is striving to be convenient. Convenience meaning that it is proven to work, it is cost effective, has a positive societal impact, and that the technology is available (The City of Calgary, 2011). The Community GHG Reduction Plan is written in a way to convince people towards a particular course of action, so

even if one were not focused on the environmental risk of GHG emissions, there would still be a policy and economic risk realized, in addition to the benefits and convenience of buying into it (Row, 2012). 'The plan emphasized the development of a comprehensive understanding of the co-benefits of GHG reduction as a means to establish buy-in' (Ahlawat, 2012). Similar to the language in imagineCALGARY, the Plan seems to understand that to make something such as sustainability or GHG reduction meaningful to a larger audience, it must be proven that their human needs are addressed. Like many policies around the world, reducing GHG is sometimes a value-added byproduct (Row et al., 2011), which can be seen as indirect benefits, in addition to direct benefits. The TBL analysis of this Community strategy determined that it would be best to focus on cost-effective GHG reductions, which means the plan is strategically more focused on short term action and maximizing co-benefits - a major one being saving money through conservation and increased efficiency – and expecting a net positive impact for Calgarians (The City of Calgary, 2011). The benefits listed throughout the Community GHG Reduction Plan, could possibly be seen as an assurance to Calgarians that their high quality of life will be maintained. A very tangible direct benefit is air quality, which is also something that is important to Calgarians (The City of Calgary, 2011). Another assurance is that the quality of power would stay the same even if the source were not the traditional fossil fuel source. More indirect benefits include diversifying the workspace and therefore the potential for a larger economy (The City of Calgary, 2012b). This would also be aligned with one of CED's goals, which is to attract they type of people who have 'social entrepreneurship', and will invest in more than just the bottom line (Calgary Economic Development, 2012).

Although the underlying goal is GHG reductions, the strategy is to emphasize the economic opportunities (The City of Calgary, 2012b), as economic pressure is usually predominant in these situations (Healey, 2007). The PCP program is similar in regards to this tactic, implying that climate change action is a safe investment, that it is 'simple' and 'cost-effective' (FCM, 2012). As PCP cleverly declares, 'Money is leaking out of your municipality faster than GHGs!' (FCM, 2012). A cost-benefit analysis in the endorsement of the development of a Community GHG Reduction Plan, highlighted that the money lost if there is a rise in temperature by 5 degrees will far outlast the amount it would cost to take action. In a sense the Plan is being presented as a business opportunity, knowing that even those that maintain their 'social entrepreneurship' are most likely not completely altruistic (Reading, 2012). The combination of perspectives is the way to be successful in policy process and have little pushback, but at the same time maintaining the main focus and goal, which in this case is GHG reduction (Row, 2012). The means to this is by promoting strategic partnerships and to empower stakeholders, in order to maximize the co-benefits while minimizing

the negative impacts of GHG emissions (Environmental Management and The Pembina Institute, 2009).

Potential economic impact upon competitiveness and economic prosperity was a main concern in the Corporate and Community Climate Change Strategy, back in 2002. A co-benefits approach is not something new in Calgary, since motivation is necessary as people find it very difficult to make the changes in their lifestyle that climate change requires (Hawkesworth, 2012). The Plan manager and Pembina Institute put this frame forward, however it was an evolution throughout the project and was influenced through feedback during stakeholder engagement, where different frames were being tested. CED was noted as the most notable feedback as they responded strongly to this co-benefits frame as it spoke to the business community (Row, 2012). Although it is the Plan manager and Pembina Institute's 'pitch', even those skeptical of the Plan or its implementation, were supportive of this frame.

Reflections

Reflecting on the development process of the Community GHG Reduction Plan

Some consider the resultant Plan as 'somewhere in the middle', particularly concerning implementation. This was because of the politically minded approach to ensure buy-in and possible action by getting the Plan approved in a political culture that was seen by some as moving slowly towards sustainability (Keough, 2012; Row, 2012; The City of Calgary, 2012b; The Office of Sustainability, 2012). Others were not comfortable with the targets when it came to implementation. The Community GHG Reduction Plan aligning itself with other already-approved initiatives counters this. Using the research report, the City of Calgary (2012b) reasoned pre-empting part of the debate to avoid having to win over stakeholders concerning climate change. Keough (2012) sensed that the process was less about the debate on climate change and more so people wanting to move forward and figuring how they could do this in a productive and efficient way since the Project Charter had given them a certain time frame to complete the project. It was important to be up front with stakeholders on what was non-negotiable, which in this case was setting new targets as part of the Plan process (Environmental Safety & Management, 2012). The Community GHG Reduction Plan requires that everyone cooperate with the City being the Plan manager, so speaking with honesty was important. High-level buy-in can be completely derailed in these processes, so while buy-in is important in order to make decisions, especially at the Council level, it does not necessarily lead to action (Row, 2012). It was therefore important to focus on driving towards action even though the Plan is not as ambitious as some would like, because 'part way is much better than business-as-usual'. Row (2012) noted that in his experience,

business-as-usual was next to nothing in terms of action towards climate change. At the time of the developmental stage of the Plan, agreeing at a high level and not spending too much time going through the planning process was seen as a step in the right direction for the Community GHG Reduction Plan. Row (2012) sees it as a step-wise approach into harder tactics such as regulation.

Similar to previous climate change initiatives, some of the stakeholders were uncomfortable with harder terms such as 'regulation' or 'legislation'. This is because they have had negative experiences in the past in relation to their business when bylaws got involved. The numbers presented by the Plan manager and Pembina Institute were contested at times (Oberg, 2012). An example of this, which was given by Oberg (2012), was the geographical boundaries of the ecological footprint when comparing Calgary to a city such as Metro Toronto vs. Greater Toronto Area and Vancouver Proper vs. Greater Vancouver Area were articulated as an 'apples to apples comparison'. By using softer terms it gave an opportunity to get the buy-in needed – 'the approval of the Plan didn't mean we were going to approve some radical change. It meant that we were going to approve a process in getting to the conversations about these radical changes' (Row, 2012). If the Community GHG Reduction Plan was too aggressive unrealistic for some of the stakeholders, the fear was that it would derail the approval of the Plan. Stakeholders who were interested in a more demanding Plan understood the approach being taken. Keough (2012) says it was most likely related to the political side of not wanting to step on the toes of developers, hence making it meaningful in economic terms and the focus on technological fixes rather than a stronger public policy on behavioral changes. The Office of Sustainability (2012) reiterates this understanding, and suggested that the City needs more capacity via regulation rather than just incentives for a more aggressive Plan. It is also important to be able to reflect on 'solutions that are based in science and research, even if the actions are presented in a colloquial fashion. It's about defining actions in terms that will resonate with the audience' (Reading, 2012).

Although Row (2012) considered this policy process a success with a downward trend is being better than business-as-usual, it is also made clear that to meet the targets, there is a need to achieve significant reductions through major energy infrastructure decisions and the need for regulation to play a part at a certain point. It became apparent that it would not be possible to 'buy yourself out' via low-hanging fruit in order to reach the targets, which the City has committed to (Environmental Safety & Management, 2012). Many of the stakeholders also agreed that the overall process was satisfactory, 'the only thing that drives emission reduction are actions. And the only thing that drives actions is decisions. The longer we take to make decisions, the longer it is going to take to get those GHG reductions…it is about walking the line between getting tough

decisions but not derailing the approval of the plan and being really contentious' (Row, 2012). Even if a stakeholder is not pushing an aggressive Community GHG Reduction Plan, they may still be very engaged because they want the conveyer to understand their perspective. Such was the case with UDI, who mutually with Pembina Institute acknowledged a productive relationship.

After back and forth drafts between the Plan manager, the City, Pembina Institute and stakeholders, a draft plan of the Community GHG Reduction Plan was made available for public consultation, shortly prior to submission to Council in the fall of 2011. However, according to Oberg (2012), until the final draft comes out for approval by Council, one cannot entirely be sure what new concerns may emerge. In this case, a misunderstanding became an example of 'a small thing turning into a big thing', threating years of work (Environmental Safety & Management, 2012). At the Council Committee meeting a major stakeholder expressed that they felt that they had not been adequately engaged. The consultant responded with information on the engagement process. The confusion was resolved and the relationship between the City and the stakeholder was maintained through subsequent face-to-face meetings and the mutual desire for the parties work together. It was also fortunate for the champions of the Community GHG Reduction Plan that the Committee had not reacted immediately by pulling the Plan off the table, and that they allowed the process to continue forward. A lesson here was that it is very important to be well prepared for unexpected turns of events as a smooth process can get rough quite quickly (Environmental Safety & Management, 2012).

Who is on Council at the time, which goes by 3-year terms, when the Community GHG Reduction Plan was submitted for approval also makes a difference with how aggressive a Plan is since the actors in this case are not set. There was a different Council when the development of the Community GHG Reduction Plan was approved than when it was submitted for approval to Council in 2011 due to municipal elections in 2010. Hawkesworth (2012) points out that the majority of Council present in 2009 supported energy efficiency as part of its agenda, while also being hesitant to spend money on creating a Community GHG Reduction Plan. The Community GHG Reduction Plan was written for this Council who Row (2012) believes would have been a close vote to approve the Plan. Additionally Hawkesworth (2012) says, sometimes opposition is inevitable no matter what the issue is, 'sort of a government and opposition on Council – just the way the dynamics of Council worked'. In the fall of 2011, the current Council (2010-2013) saw minimal opposition, with 2 Council members (Alderman) voting against. Approval of the Community GHG Reduction plan was granted and Administration was directed to work with stakeholders as part of the development of the implementation strategy and action plan (Utilities & Environmental Protection Department, 2011).

Reflecting on actor involvement during the development process of the Community GHG Reduction Plan

The efforts towards reducing GHG and developing the GHG Plan are 'tremendously shaped by the attitudes and actions of key stakeholders (participants)' (Day, 2012). To keep stakeholders engaged in the conversation, there needs to be incentive for them to be in the group (Calgary Economic Development, 2012). People's personal situations can get involved too (Reading, 2012) – stakeholder meetings were more about the individual rather than the organization they were representing in terms of how the conversations during consultations went (Row, 2012). The level of engagement was split, with some participants being very responsive, while trying to engage others, 'was like pulling teeth' (Row, 2012). Although there was general support regarding the Community GHG Reduction Plan, there are different interests between actors. Day was seen by many as a champion of climate change action in Calgary, and therefore was effective at promoting Community action. Other champions noted by interviewees were Row and Pembina Institute, Sustainable Calgary, C3, Linda Harvey and her Air Quality, Climate Change and Energy team, the Ecological Footprint team, and select members of Council and AENV. The Project Charter (Utilities & Environmental Protection Department, 2010) identifies who ESM had collaborated with for the Project Charter: Finance and Supply; Energy Management Office; Land Use Planning and Policy; Environmental Advisory Committee; Federation of Canadian Municipalities; Alberta Ministry of Environment; Alberta Ministry of Energy; City of Edmonton; AUMA, and; AAMCD. As already mentioned, stakeholders supported that ESM would be Plan manager and generally satisfied with Pembina Institute as lead consultant. Pembina Institute, who in part a mission to advance sustainability within Canadian communities, had very much influence in shaping the policy process, as they were the main contact for stakeholder engagement.

The stakeholders recognized by ESM during the research report and Plan development were: City Council; federal, provincial and municipal orders of government; non-governmental advisory groups (such as the Low Carbon Future Advisory Group); Internal City of Calgary business units (such as Transportation Planning, Energy Management Office, UEP Business Units, Land Use Planning Policy); CED and the SURE cluster; Internal City of Calgary teams working on associated initiatives (such as The Office of Sustainability, Community Energy Initiative); citizens, businesses and institutional organization of Calgary (Utilities & Environmental Protection Department, 2010, p.4). Some of these businesses and institutional organizations that were highlighted in the research report are: CED; ENMAX; UDI; CHBA (Canadian Home Builders' Association); BOMA; Momentum; C3; Sustainable Calgary; University of Calgary; Calgary Regional Partnerships and; AMTA.

Although the research report cited the City as the most active organization regarding reducing GHG emissions, there is naturally disparity within the City of Calgary. It is very important to have the support and approval of Council, senior administration leaders and colleagues within other departments. Below is a breakdown of different actors within the City of Calgary organization.

- Council support is needed since they have the jurisdiction and therefore the most potential influence. Their interests may be split within the group.
- EMS and the Air Quality, Climate Change and Energy Team had great leadership with Director Day who had been there since 1999 until the Plan was approved in 2011.
- Other notable Business Units within the City of Calgary whom affect GHG emissions such as Transportation Planning, Energy Management Office, UEP business units, Land Use Planning Policy.
- Internal City of Calgary teams such as the Office of Sustainability were also involved in giving input, comments and suggestions as they had a vested interest in this process. It was beneficial for the development process of the Community GHG Reduction Plan that members of the Office of Sustainability and ESM had moved around in the same pieces of work as it enhances connection and tie-in (The Office of Sustainability, 2012).

There were also entities that influenced the development of the Community GHG Reduction Plan, alongside the actors. These include the Calgary Ecological Footprint Project; The Low Carbon Futures Roundtable and Summit; Options for Reducing GHG Emissions in Calgary research report; Council Priorities; Target Minus 50; 2020 Sustainability Direction; Alberta's 2008 Climate Change Strategy; PCP agreement; imagineCALGARY; WECP Calgary Climate Change Accord; State of the Environment report; TBL; engage!; MDP; CTP, and; the GMF and AENV grant.

As can be seen, there are definitely connections within the City of Calgary, as well as between external actors, which requires a level of trust. The Office of Sustainability (2012) said it best 'relationships are everything'.

Part 2

Considering the collective narrative in Part 1 of this Chapter, this section answers the research questions separately using my personal interpretation of the data, with the main research question concluding Part 2. Similar to the themes, the questions are not mutually exclusive, however this format will ensure that the questions are indeed addressed.

Research question 1

Although the project is not complete, the Community GHG Reduction Plan is a step-wise approach taken by the City. This was part of the Community GHG Reduction Project, which includes both the Plan and the Alberta Template. The tracing activity in Part 1 shows that there had already been major strides taken on the Corporate side, yet there was no concrete strategy on the Community side. Using the leverage of the Corporate initiatives as well as the other milestones mentioned below, champions of climate change were able to lead by making small but deliberate steps that led to Council-approved GHG reduction targets, which the City was made accountable for. That the City had partnered and developed a relationship with the Pembina Institute, was significant because of the resources and relationships that had already been established by them. In addition to the actors and milestones, external events also made an impact. Certain actors were able to secure both provincial and federal funding through connections, persistence, and by aligning already Council-approved initiatives with the proposed GHG Reduction project. This reiterates Stevenson's (2009) concept that it is not only the underlying power structures, which have power, but also those whom are most tenacious. This was fundamental in terms of moving forward a Community GHG Reduction Plan, where it was not a priority in the provincial and City budget, and compacted by external circumstances such as difficult economic times.

Research question 1.1

The first milestone recognized by interviewee's was the City committing to the PCP program in 1994, the same year which Council approved The City of Calgary Corporate Climate Change Program Action Plan. This was a form of 'future proofing'. The next notable milestone came in 1996, when the City of Calgary became a WECP member, as this was a platform for the WECP Calgary Climate Change Accord. In 1998, Council approved the CO2 emissions abatement plan, which is significant for the Community side because it meant that although there was already a Corporate data inventory since 1990, a Community inventory came into existence. In 2000, Council instructed Administration to develop a

climate change program and established a Climate Change Team, which was not a common Corporate infrastructure in Canadian municipalities at the time. This led to further organization of inventories, and a focus on Corporate emissions, which led to successful initiatives such as Ride-the-wind. While furthering the progress on the Corporate side, in 2002 the Corporate and Community Climate Change Strategy put forward a principle direction for a long-term Community climate change strategy that corresponded with the Council Priorities for 2002-2004 where climate change was being addressed under the TBL policy. The focus, however, was still on Corporate GHG emissions in 2004 when Council approved the Corporate Climate Change Program. The strides made on the Corporate side were taken to another level when the City of Calgary signed an agreement with the City's electricity retailer in 2005, which led to the 2006 Target Minus 50. These were two significant moments on the Corporate side. The City had reached all 5 PCP milestones on the Corporate side, and could now start to put pressure on the Community. The same year, in 2006, the imagineCALGARY vision came out, which gave direction to the Community regarding GHG reduction.

With climate change becoming a more acknowledged issue within Alberta, the province updated its climate change strategy in 2008, which was significant as it was something that the City could use as leverage to pursue Community goals via alignment and funding. Receiving the funding for the Community GHG Reduction project as well as the WECP Calgary Climate Change Accord were seen as 2 major milestones on the Community side. Without federal and provincial funding, the project would not have taken off. Whereas the Accord had Calgary make a formal commitment (still without regulatory power though) to take action on the Community side, as the Accord and targets were Council approved and signed by the Mayor.

When considering the impact the above-mentioned milestones had on the approval of a Community GHG Reduction Project, there are a few milestones that seem to stand out. These are: the PCP commitment; establishing a Climate Change Team (Air Quality, Climate Change and Energy Team); The City's electricity retailer agreement which led to the Target Minus 50; imagineCALGARY; WECP Calgary Climate Change Accord, and; receiving funding for the Community GHG Reduction Project.

As mentioned in Chapter 2 and 3, external events, opportunities and resources may also have an impact on policy. These are briefly listed below, as they also help to put into context the milestones addressed in this question.

- Kyoto Protocol, UNFCCC
- Community attitude towards climate change action
- Budget and technical resources available

- Municipal elections
- Departmental reorganization
- Champions of climate change
- The people and the relationships involved in the project
- Oil and gas economy
- Worldwide trends concerning climate change action
- Corresponding initiatives within the City
- Project timeframe

Research question 1.2, 1.3

Although Part 1 has already mentioned the relevant actors and entities regarding the Community GHG Reduction Plan, the paragraphs below provide an overview.

Actors within the City of Calgary include: Council; UEP (GM); ESM (Director); Air Quality, Climate Change and Energy Team; Ecological Footprint Team; other Business Units (Transportation Planning, Energy Management Office, UEP Business Units, Land Use Planning Policy); Finance and Supply; Energy Management Office; Land Use and Planning Policy; Environmental Advisory Committee, and; the Office of Sustainability.

The City partnered with the Pembina Institute, who was the facilitator and had most contact with stakeholders. These stakeholders include: AENV; FCM; Alberta Energy; City of Edmonton; AUMA; AAMCD; Non governmental advisory groups; ENMAX; UDI; CHBA; CED; BOMA; C3; Momentum; Sustainable Calgary; University of Calgary; Calgary Regional Partnerships; AMTA; Administration and; citizens.

The entities connected to the Community GHG Reduction Plan include: Calgary Ecological Footprint Project; Low Carbon Futures Roundtables and Summit; Options for Reducing GHG Emissions in Calgary research report; Council Priorities; Target Minus 50 and other Corporate initiatives; 2020 Sustainability Direction; imagineCALGARY; Alberta's 2008 Climate Change Strategy; AENV funding; PCP agreement; the GMF; WECP Calgary Climate Change Accord; State of the Environment report; TBL; engage!; MDP, and; CTP.

The Plan manager and Pembina Institute had a good working relationship throughout the process (The City of Calgary, 2012; Row, 2012), which for the purpose of a Community-based plan was stimulated by former Alderman Hawkesworth. It was important that these actors had the ability to wield resources. The Director of ESM was especially key in obtaining the AENV funding (Row, 2012). Pembina Institute was proficient at wielding knowledge resources via established contacts with NGOs and other organizations, while the City was

good at the drawing support of key actors connected to the political side such as CED and Calgary Chamber of Commerce (The City of Calgary, 2012). Additionally, these two held power in the sense of being able to frame the Community GHG Reduction Plan and convey the process. There was regular input from the Director of ESM, and contact with higher levels such as the GM and Council. Although the input from the GM and Council was not as regular, they do have more potential influence than the Director, especially Council whose approval is ultimately needed with its underlying power structure. The citizens of Calgary may influence Council with their attitudes and behavior towards climate change action also, however there is likely more influence from the provincial government. This is not only so because of jurisdiction, but also because of the funding via AENV that was needed in order for the Community GHG Reduction Project to carry forward. Therefore, both the AENV funding and the GMF were key entities also. Regarding levels outside of the City, the PCP program was influential as an encouragement mechanism, as well as a gateway to GMF. At the provincial level, Alberta's 2008 Climate Change Strategy was earning climate change action recognition, which contributed to the City's successful bid for provincial funding. That the Community GHG Reduction Plan's findings were to be forwarded to AUMA, makes them a key actor. This is because the Alberta Template as an entity was used as leverage to obtain AENV funding when the province was focusing on rolling out its own strategy.

Other programs at the City level provided support for the concepts in the Calgary GHG Reduction Plan, such as: the Calgary Ecological Footprint; Project Council Priority 2.2 in the 2009-2011 Business Plan and Budget, as it instructed the development of a Community strategy; and the Calgary Climate Change Action Plan Target Minus 50 (2006), as it had set GHG reduction targets for the City corporation. This in turn had led to a contract with The City's electricity retailer (Environmental Safety & Management, 2012).

imagineCALGARY and the WECP Calgary Climate Change Accord are 2 entities that must also be highlighted. imagineCALGARY gave direction to climate change action on the Community side. The Office of Sustainability (2012) comments on themselves and ESM, who was very involved in imagineCALGARY, as 'very much aligned in our thinking'. The Office of Sustainability went on to give further direction with its 2020 Sustainability Direction. The Accord on the other hand was a Council-approved Accord, which held the Calgary accountable, and therefore a very key entity in this process. This was a joint effort, most notably the collaboration between ESM and CED. CED was successful in wielding financial and technical resources, and a main driver in getting parties to sign the WECP Calgary Climate Change Accord (The City of Calgary, 2012).

Action via champions of climate change in Calgary kept both the discourse and process alive, which eventually led to the Low Carbon Futures Roundtable and Summit and research report that informed the Community GHG Reduction Plan. These actors included Row and Pembina Institute; Linda Harvey and the Air Quality, Climate Change and Energy Team; Director Day and ESM; the Ecological Footprint team; Sustainable Calgary; C3, and; select members of Council, Administration and AENV.

Although there was actors that were not supportive of an aggressive Community based climate change action plan and may have slowed the overall process (which is not necessarily a negative consequence), they were productive at the drafting stage of this particular plan because of the representative's responsiveness and engagement. UDI is an example of this, where the relationship between UDI, Pembina and the Plan manager was a productive despite disagreements on issues such as targets.

Research question 2

I will first present my interpretation of the 2 discourse coalitions that seemed to be prominent in the development process of the Community GHG Reduction Plan. One will be referred to as the 'champions of climate change', which is those who pushed for the current Community GHG Reduction Plan or something even more aggressive. The actors within this coalition include those listed as champions above, as well as others who were supportive of the City being involved in Community based climate change action, such as CED via their contribution to the WECP Calgary Climate Change Accord. The other coalition will be referred to as 'development industry'. This includes the actors who I interpreted as resistance to an aggressive Community GHG Reduction Plan, including (but not exclusive to) UDI, CHBA and BOMA. Not all actors involved fall neatly into either coalition, such as Council, who was split on the issue, and the City's electricity retailer, which in a way also dictates what the development industry can do. It should be noted that within coalitions, the interests and values are not the same of all the actors involved.

Discourse was focused on the local level and culturally loaded terms regarding GHG reductions rather than the global impact of the action taken, with local comparisons in Calgary being more effective in the policy discussions. There was open communication between those involved during the facilitation process, however, some members of the 'development industry' felt it was a challenge to have their opinions expressed in the final draft of the Plan with the facilitator having been hired by the City. The 'champions for climate change' were persistent in assuring that action is not an overwhelming pathway forward.

While the 'development industry' was persistent with its stance on regulation and its analogous terminology, fearing a negative effect on innovation.

Knowing that the 'development industry' had a strong financial perspective and interest in what would be a mutually beneficial framework, the 'champions of climate change' coalition was careful to not turn the policy process into a debate on climate change. As Rydin (2003 cited in Stevenson, 2009, p.524) noted in his study on deliberative policy making, 'the key to success here is not consensus but building a position based on divergent positions'. The 'champions of climate change' appealed to their audience with business language sensing the predominant economic pressure (Healey, 2007). This way they could appeal to an economic perspective with a solution-based approach, which led to a co-benefits frame rather than an altruistic one. Although some environmental activists would prefer a stronger strategy, they were sympathetic towards the position the Plan manager and Pembina Institute were in, and supported the frame, 'managing risks and capturing opportunities'. This is because it was recognized that action must be convenient for a contentious subject such as climate change, where an altruistic frame is not good enough or practical enough towards a pathway of meaningful action.

Research Question 2.1

Both coalitions had a local level perspective. For example, the 'champions of climate change' aligned their perspective with existing initiatives within the city, including imagineCALGARY, which looks at Calgary as a whole-system. The 'development industry' preferred a 'made in Calgary' approach that did not focus beyond the City or Alberta for examples of action.

Regarding the 'development industry' coalition, UDI noted CHBA as having the same interests as them (Oberg, 2012), however BOMA also expressed similar views regarding regulation stifling innovation and opportunities. UDI was noted as one of the only stakeholders who spoke up during consultations, and had a strong financial perspective. They expressed a worry over regulations and 'fairly unproven technologies' such as district and distribute energy (Oberg, 2012). Describing themselves as the reality check of these situations, they were interested in low hanging fruit on the Community side, since there are no heavy subsidies for industry, which would promote higher impact and higher cost action. The 'development industry' insists they do support the principle of the Plan. They were in disagreement over technical aspects such as Greenfield development and LEED, which they do not feel is always the best fit, arguing that the private sector has the capacity to be very effective in 'realistic' environmental action (MacKenzie, 2012).

Keough (2012) claims that the 'development industry' is resistant to public policy if it does not make it easier for them to do business. Environmental groups of the 'champions for climate change' coalition were seen as putting pressure on for 'stronger' wording (Oberg, 2012). However, they were sympathetic to the position the Plan manager and Pembina Institute were in and the timeframe allowed by Council to complete the Community GHG Reduction Plan. For example, although Sustainable Calgary would prefer a stronger strategy and implementation framework - one that is more focused on behavioral rather than technical fixes - they still expressed of support to Council prior to approval (Keough, 2012).

The frame – 'managing risks and capturing opportunities' - was considered the one, which would be most persuasive and representative of Calgarians and those buying-in to the Community GHG Reduction Plan. The co-benefits frame has been used around the world, and also within Canada. Stated quite simply, it is because it is effective as it makes sense to accomplish more than one objective with the same amount of effort (Environmental Safety & Management, 2012). It is a frame that is both meaningful and presents GHG reductions as feasible (Lindseth, 2004). Row (2012) pointed out this frame was chosen after testing different messages. CED helped to convince Pembina Institute that this is the frame that would speak the best to businesses and achieve the high-level buy-ins necessary. A frame must appeal to businesses in more than just an environmental sense, but also to human needs and their return on investment in order to persuade them to go beyond business-as-usual. This is especially important considering the uncertain budget towards climate change action coupled with a difficult economic situation at the time. Action therefore must be convenient. With municipal elections during the development process of the Community GHG Reduction Plan (which means a potentially different Council), the Plan considered that the 'new' Council might not necessarily be more open to Community action; therefore this frame was also a safe and effective frame in that sense.

That climate change is a popular global topic, can work both for and against policy process. This is because its popularity brings awareness to the general public via events such as the Kyoto Protocol and UNFCCC; however people do not necessarily connect natural disasters with climate change in Calgary (The Office of Sustainability, 2012; Calgary Economic Development, 2012). Although the public polls insist climate change is widely accepted; it can be a contentious subject (The City of Calgary, 2012) - 'If you use the word, it switches a lot of people's brain off' (The Office of Sustainability, 2012). Therefore, 'it's just the right thing to do' is neither good enough nor practical enough in terms of producing action and generating change (Environmental Safety & Management, 2012). Reading (2012) points out that early conversations regarding action on

climate change were slowed down by confusion regarding the issues that stemmed from semantic differences, debate about the science of climate change and what all this meant regarding coordinated, meaningful and measurable actions. Consequently the conversation shifted to focus on 'pragmatic, action orientated, business world talk', which would not slow the conversations as much (Reading, 2012). Taxpayers and those in business need to see that the Plan is effective and efficient (Environmental Safety & Management, 2012). By focusing on co-benefits, the debate on climate change could be almost irrelevant, and the plan could then 'provide a pathway forward for citizens, business and government to take meaningful action on creating the community they envisioned in imagineCALGARY' (Environmental Safety & Management, 2012).

Research question 2.2

Examining the language in the entities preceding the Community GHG Reduction Plan, it is noticeable that there is emphasis on softer language of encouragement rather than compulsion (Wilson, 2006). In addition to the challenging semantics of climate change, the City does not have regulatory power on the Community side, and therefore the discourse dictates the policy choices available (Stevenson, 2009). For example, in the requests for Corporate based initiatives, the phrase 'adopt in principle' was often used when Community strategy was concerned. Correspondingly, there was no aggressive climate change action on the Community side. Even within the Alberta's 2008 Climate Change Strategy, although it is calling for immediate action, it is at a moderate pace rather than a call for drastic actions, suggesting that it could be a form of symbolic politics as defined by Hajer (1995). Human needs and co-benefits are often addressed concerning GHG reduction, which concedes that addressing climate change from only an environmental perspective is an ineffective approach in Calgary.

In the request for the approval of developing the Project Charter for the Community GHG Reduction Plan, the attachments that were presented encouraged the precautionary principle, trying to influence immediate action. In the research report that informed the Community GHG Reduction Plan, the language begins to strengthen, with an emphasis towards a need to combine of regulations, price signals, and incentives and education (Row, et al., 2012). The previous Council-approved initiatives were used as an opportunity to exemplify the necessity of a Community GHG Reduction Plan in order to achieve the long-term goals endorsed by Council. On the other hand, the 'development industry' used the opportunity of a non-unanimous Council suggesting that there was not true stakeholder consultation in certain matters, insinuating the Plan did not reflect the process. That is, that policy was shaped by power rationalities rather than participative policy (Stevenson, 2009).

When addressing climate change action, an 'audience audit' is common, where one determines the motivations of the people involved (Reading, 2012). The strategy can then range from appealing to their sense of right and wrong or return on investment with an ancillary benefit of GHG reductions (Reading, 2012). In this case, there was an attempt to appeal to the 'development industry' with a frame that would achieve the buy-in necessary. The communicative action included agreeing on a frame that was already tested - a strategic way of arguing - in order to move past the debate about environmental factors, which do not have as much pull as economic factors. This was also necessary to receive funding, on top of the relationships and trust needed to move forward with such a process. Furthermore, the discourse was towards action, using a step-wise approach, and black boxing climate change as a debatable issue. The 'development industry' on the other hand was apprehensive about the City taking responsibility for the Community regarding GHG reductions, citing bad experiences in the past that had stifled business or innovation. In a sense, they were black boxing regulation regarding GHG reduction fearing a snowball effect and suggesting that it does not benefit innovative development.

A tactic by the 'champions of climate change' was citing national and international examples of successful GHG reduction programs to ensure that the City was not trying to be overly ambitious via PCP and the research report. However, comparing local stories in Calgary was more appealing, where there had been successful policy regarding natural gas and water management. The 'development industry' on the other hand, shifted the focus towards certain MDP wording versus saying that there must be an increase in density, providing a map showing density and that it was increasing over the years in newer developments (Oberg, 2012).

Keeping in mind that relationships are key, there must be trust and technically sound knowledge, where the language between actors' matters. It is important to focus on the individual during discussions rather than just appealing to their representative organization. The Plan manager advised that speaking with conviction and confidence rather than trying to evoke emotion, facilitated practical, solution-focused discussions (Environmental Safety & Management, 2012). Once a rational discussion has taken place, it can break down perceptions or assumptions about climate change action (The Office of Sustainability, 2012). This structured way of arguing by the 'champions of climate change' - was first understanding what is important to that person by using culturally loaded terms while putting GHG reductions aside, and then building the conversation back up to show how this Plan can help them achieve this, rather than just expressing climate change action is 'the right thing to do' (Calgary Economic Development, 2012; The Office of Sustainability, 2012). This is because, according to Calgary Economic Development (2012), Western society as not being set up in doing the

right action for the long term, but rather the action that helps one for the short term. Relating to others was a way to put GHG reductions into the common discourse of the actors who were resistant to the notion of City-led climate change action in the Community.

When asking interviewees about the discourse between actors concerning persuasive techniques, the use of shock tactics was immediately dismissed. The Office of Sustainability (2012) insists that it has an opposite effect in Calgary, that it in fact shuts people down or encourages a chance to try and disprove it. As Hajer (1995) suggested, these sensory techniques are vulnerable to critique. Therefore, the strategy was about 'making this not scary' (Row, 2012), which is something that the Row (2012) thinks is not done enough in the public realm.

Regarding positioning and mutual functionalization, it could be seen within both coalitions. For those actors who wished for a stronger Plan or use of language, they supported the coalition anyway as it was better than business-as-usual and a step forward. An interpretation of the 'development industry' coalition is, that some individuals may have been more open to the Community GHG Reduction Plan, however had pressure from the members of the industry who were frustrated with what they perceived as a preconceived City-led notion going into the policy process.

The 'development industry' tried to separate itself at times, insisting that the private sector has the capacity themselves of reducing GHG in development. This could be an example of a disjunction marker. The 'champions for climate change' were very well prepared in stakeholder engagement. Being persistent throughout the entire process leading up to the Community GHG Reduction Plan, using business language and understanding how managed conflict was actually creating a strong plan, were very important aspects (Environmental Safety & Management, 2012). Both coalitions mutually acknowledged that there was an honest effort to convey the process as best as possible by the facilitator.

Main research question

The actors involved in the network could be grouped into 2 coalitions. These are 'champions of climate change' and 'development industry'. The interests of actors within a coalition are not identical; rather actors use these theoretical coalitions to position themselves. Prior to the Plan, the network involved key entities and actors that stimulated action towards GHG reduction on the Community side, where the City does not have direct power concerning GHG emissions as it does on the Corporate side. These small deliberate steps led to Council-approved GHG reduction targets, meaning Calgary had made a formal commitment. The actors and their connections to resources also pushed the

process forward in combating external circumstances. An example being limited budget, or the potential slowing effect on climate change action due to municipal elections as described in Part 1. While the Corporate side was making strides in the late 1990s and 2000s, the language and focus in early Community action was rather soft due to the lack of regulatory power, and contentious nature of climate change in Calgary. This resulted in a strategy, which focused mainly on the economic side. Concerning the Community GHG Reduction Plan, the alignment of Council-approved initiatives and targets were used as leverage for taking action. The discourse between actors also influenced the Community GHG Reduction Plan regarding the strength of climate change action in various initiatives preceding the Plan, which reflected the contentious semantics surrounding Community-based action. The 'champions of climate change' were keen on a more aggressive approach but positioned themselves with a co-benefits frame, while the 'development industry' remained cautious of giving in too much in fear of a snowball effect.

Speaking with conviction and confidence facilitated practical, solution-focused discussions. This manifested itself in a co-benefits frame - 'managing risks and capturing opportunities' - rather than an altruistic one, which was then capable of achieving high-level buy-in to a step-wise approach. This approach was necessary due to different rationalities of actors concerning GHG reductions on the Community side.

Conclusion

The entities and opportunities are important to identify because in a sense they are critical discourse moments to move forward, or hold back, policy process related climate change action (Gamson, 1992; Wilson, 2006). Although the City does not have regulatory power over Community GHG emissions, they do have the ability to indirectly influence action and took small deliberate steps to do so. An example of an opportunity, which the City took advantage of, is the WECP Calgary Climate Change Accord that resulted in Council-approved Community GHG reduction targets.

The relationships and discourse between the coalitions identified are an important aspect to consider in how they stimulated or influenced climate change action in the presence of an underlying power structure. In this case that underlying power structure specific to the Community GHG Reduction Plan is Council since their approval is ultimately needed for the Plan. Phelps and Tewdwr Jones (2000 cited in Stevenson, 2009) state that politics and power are the norm in policy process; however, power is measured not only jurisdictionally speaking, but also by the ability to wield and coordinate resources. A lesson learned in this case study concerning the political conflict, which underlies climate change policy, is the relationships between actors on an *individual* level are incredibly important. Relationships were recognized as a critical aspect in the policy process despite the power structures. As Hawkesworth (2012) stated: 'I think they play a bigger role than many of the planners and political scientists give credit for – these networks of relationships and shared purpose that exists in an organization – can really make things happen or stop them from happening, on any range of issues'. Therefore, it was important to consider what the discourse was like within the existing network to understand its impact on climate change action in Calgary. As mentioned in Chapter 4, in order to achieve the high level buy-in necessary for a Community-based action plan, the frame needed to speak to businesses. This is because education and awareness for citizens were not a feasible toolset on their own to achieve the kind of GHG reductions that the City had committed to. It was not difficult to pin the salient frame, however the different frames that were posed by the facilitator were not identified in this research, which may have contributed to a better understanding of the particular interests of actors involved.

Throughout the process leading up to the Community GHG Reduction Plan, 2 discourse coalitions appeared in my interpretation. However, within these coalitions the interests were not all the same and they were more so used as a way for actors to position themselves. Other discursive mechanisms were

reviewed within Part 2 of Chapter 4. What would have been very useful for the discourse analysis would have been obtaining the drafts and its accompanying notes, which had been passed back and forth between the facilitator and the stakeholders. These were not available publicly.

Although the 'development industry' may be seen from the outsider's perspective as slowing down the process, they were also a very engaged set of stakeholders. This was something that I may have not expected had I come into the research process with an *a priori* assumption. A certain assumption could have been that 'champions of climate change' would be more engaged than those in the 'development industry' to push past the softer language which had been used up until this point in time regarding climate change action. At the same time it is not surprising when understanding that the 'development industry' is resisting regulation regarding GHG reductions with pressure from those actors who have had poor experiences in the past related to regulation and their respective businesses.

From the interpretation of the data, an underlying political conflict is the preconceived notion that the coalitions or actors have of each other going into a policy process. As one of the interviewee's said, 'people need to be more open'. As a researcher, the question that popped up when this discussion arose was, 'what were these bad experiences in the past, and how do they specifically relate to GHG reductions in the Community?' This is something that the facilitator did not dwell on because of the limited amount of time and budget available for the Plan, and did not see this as a solution-focused discussion. Although funding was very important in the process, this does not suggest that a larger budget would result in more GHG reductions due to more thorough stakeholder engagement. For example, it was noted by a few interviewees that for a more aggressive climate change strategy, the entire framework of municipal power would have to change. However, as a researcher it would be interesting to understand the conflicts between individuals on a deeper level from the perspective of both coalitions. Perhaps this could be informative for stakeholders involved in the policy process to better understand another's rationale prior to entering a group setting.

As for how the research process went in this case study, overall it was satisfactory mainly due to the availability of the interviewees and their enthusiasm towards participating in the research. With this study being specific to and focused on Calgary, the analysis is not necessarily to be generalized as was pointed out in Chapter 3. However, the application of this theoretical framework to a local level climate change policy may be a useful example. A difficulty I had as a researcher was digging more into the political conflict, as I did not want to mention what my personal interpretation was of what others

said, or put the interviewee in an awkward position. Also, I believe that the interviewee's were professional and respectful of the fact that they were representing more than just themselves. Therefore, in order to thoroughly understand the underlying political conflicts concerning climate change action was challenging, as the answers given by interviewees may have been articulated in a way to not misrepresent their respective organization. Perhaps then, a shortcoming of only performing individual interviews was that I could not see how actors interacted with each other in a live situation. My recommendation for future study concerning an issue on discourse analysis and ANT would therefore be to observe, in person, the interaction between actors involved in addition to individual interviews. This may lead to an even better understanding of what the discourse is like between actors. What would enhance this research specifically would be to be able to attend a stakeholder meeting between a facilitator, the City and stakeholders during the next stage of this policy process. This next stage is determining how the Community GHG Reduction Plan will be implemented. Although unrealistic at this point in time as this is a very recent Plan, following up with the implementation would be greatly beneficial to understanding how the network and discourse shapes climate change action in the Community where the City does not have regulatory power. This is because the research would move beyond the policy process and into potentially measuring the impact policy has on actual Community GHG reductions.

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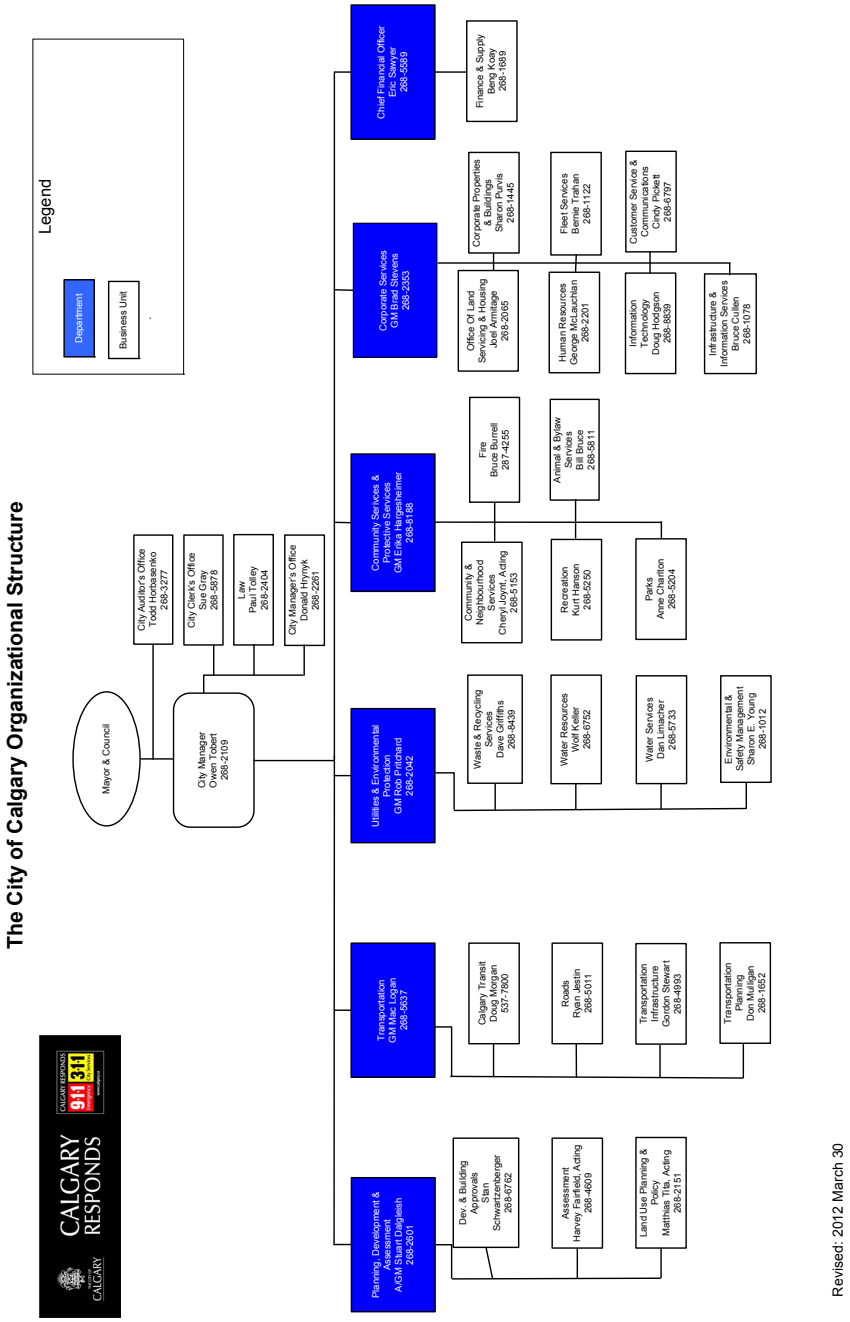
Appendix A



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