

Uncertainty, Public Engagement and Trust: Shale gas policy learning and change in New Brunswick (2007-2017)

Laura Nourallah

A thesis submitted in partial fulfillment of the requirements for the
Doctorate in Philosophy degree in Public Administration

School of Political Studies
Faculty of Social Sciences
University of Ottawa

© Laura Nourallah, Ottawa, Canada, 2023

Table of Contents	
Abstract	v
Acknowledgements	vii
List of Acronyms	ix
List of Tables and Figures	x
Chapter 1: Introduction	1
1.1 Hydraulic fracturing and shale gas development in New Brunswick	2
1.2 Research objectives, theoretical approach and design of the study	6
1.3 Key findings	10
1.4 Plan of the dissertation	12
SECTION I: Theoretical approach and research design	14
Chapter 2: Overview of the research	14
2.1 Hydraulic fracturing	15
2.2 Environmental impacts	19
Water	19
Greenhouse Gas (GHG) emissions	21
Land	22
Air contaminants	23
Seismic events	24
Human health and social impacts	24
2.3 Context in New Brunswick	25
2.4 Research approach	29
2.5 Ontological and epistemological approaches	46
Positivist paradigm	47
Post-positivist paradigm	49
2.6 Research design and methodology	52
2.7 Data collection methods	58
Documentary analysis	58
Semi-structured interviews	60
Purposive sampling	61
Media analysis	63
Measuring learning	64
Chapter 3: Policy change and policy learning: Advocacy coalitions	69
3.1 Policy change	70
Explaining policy change: Different analytical approaches	71
3.2 Policy learning approaches to policy change	76

Mechanisms of learning	81
3.3 Advocacy Coalition Framework: Overview and pathways to change	84
3.4 The glue: Beliefs and advocacy	88
3.5 Policy-oriented learning in the ACF: Key elements	89
Revisions and updates	93
3.6 Technocratic underpinnings: A critique	96
Chapter 4: Public engagement and learning in risk management: The element of trust	100
4.1 Democracy and discourse: Turns	102
4.2 Public policy and engagement in decision-making	106
Normative implications and practical approaches	107
Upstream and downstream engagement	112
4.3 Risk management and democratic governance	116
Trust in democratic governance	117
Trust in risk management	119
4.4 Pulling it all together	126
SECTION II: Case study analysis and research findings	127
Chapter 5: New Brunswick energy development	127
5.1 Establishing the context: Energy policy	127
5.2 Energy resources and development	132
5.3 Institutional context	135
Policy and regulatory landscape	136
5.4 Economic Context and Societal Considerations	145
Chapter 6: Shale gas in New Brunswick: Policy learning	153
6.1 Period 2007 – 2011: Upstream energy policy engagement	154
6.1.1 Public engagement	155
6.2.1 Parallel engagement: Natural gas development	167
6.1.2 Policy beliefs	183
6.2 Period 2011 – 2013: Regulatory engagement & public controversy	196
6.2.1 Public engagement	198
6.2.2 Engagement with First Nations in New Brunswick	219
Indigenous Engagement in the Canadian Context	222
Duty to Consult and Accommodate	227
Provincial policy	229
Consultation: Application and delegation	230
Opposition and controversy	234
6.2.3 Policy beliefs	243
6.3 Period 2014 – 2017: Moratorium and the commission on hydraulic fracturing	250
6.3.1 Public engagement	253
6.3.2 Policy beliefs	260

6.4 Research findings and discussion: Factors impacting the nature of policy learning and change	263
Chapter 7: Conclusion	272
Theoretical and empirical contributions	277
Limitations and future research	280
References	282
Appendix A: Interview Guide	324
Appendix B: Research Ethics Board Approval	326

Abstract

This dissertation examines a major policy change in the context of energy decision-making for shale gas development in the province of New Brunswick, Canada. After a long series of public engagement exercises aimed at regulating and promoting the safe development of shale gas resources in New Brunswick, the provincial government implemented a moratorium on hydraulic fracturing in 2014 and extended it indefinitely in 2016. The dissertation is interested in how policy-oriented learning may have influenced this policy change from both an empirical and a theoretical perspective.

Theoretically, in line with recent scholarship on policy learning, this study trains its sites on the *nature* of policy learning and how it may influence change. To this end, the dissertation is grounded in the Advocacy Coalition Framework (ACF), a theoretical approach with (i) clearly defined mechanisms of learning, and (ii) significant application to resource development and to case studies of resource development in jurisdictions across North America and globally. The study builds on the ACF by proposing a conception of learning drawing on post-positivist literature. The study argues that learning is too narrowly focused on policy elites in the ACF and should be expanded to consider the role of non-traditional actors. The analysis questions the notion that learning can be isolated to rational and technical understandings amongst policy elites, and aims to integrate interactive knowledge into the analysis as a fundamental component of learning. The research aims to contextualize learning and understand the *factors* that shape policy learning and policy change. The dissertation focuses on the role of three factors - public engagement, uncertainty and trust - in shaping policy actors' learning.

Empirically, the study examines the case of New Brunswick between 2007 and 2017. The province undertook multiple public engagement exercises regarding shale gas development in the context of unknown risks and uncertainty associated with the practice of hydraulic fracturing, an emerging technology that enabled the production of shale gas on a large scale. Two major coalitions emerged that advocated for and against shale development in the province, with the dominant pro-development coalition asserting that shale gas could proceed safely through stringent regulation. Through documentary analysis, interviews and a media analysis, the research reveals that interactive knowledge was a key component of how people learned in the case. The anti-shale coalition in New Brunswick brought its lived experience – notably its lack of trust in public authorities to successfully regulate fracking – to bear on decision-making, and was able to undermine and question the pro-development coalition’s position that the risks associated with hydraulic fracturing could be managed. The anti-shale coalition mobilized this knowledge through the government’s public engagement exercises and successfully contested the dominant coalition’s beliefs. Fundamentally, the study demonstrates that public engagement, uncertainty and trust are three key factors that can shape policy learning and change.

Acknowledgements

My PhD and life journeys, as all others, are intertwined in so many ways. I am incredibly fortunate to have been surrounded by many remarkable people to whom I owe my deepest gratitude. First on that list is my supervisor, Monica Gattinger. Thank you for being so encouraging and compassionate throughout this entire journey. Thank you for giving me the confidence in my ideas (without ever raising an eyebrow even at some of the more questionable ones). I am constantly inspired by your passion and dedication, and I count myself very lucky that I've had the chance to learn so much from you. Second, I am very thankful for my committee members Louis Simard and Jennifer Wallner. Your thoughtful and constructive feedback pushed me to make this dissertation better. Your patience and support throughout this journey have been such a source of motivation, especially in the midst of a pandemic. I would also like to express my sincere appreciation to the members of the committee for agreeing to join.

In my time as a student, I have had the opportunity to work with some great people both inside and outside the university. I always knew I had a passion for energy policy, but it was only when I met Michael Cleland, Stewart Fast and Stephen Bird through the Positive Energy project that I figured I could make a career out of it. I am thankful for their guidance and insights at different points of this journey. I have also been extremely fortunate to start my career in the public service as I completed my studies. I owe a special thank you to Eric Bélair, Laura Oleson and Paul O'Keefe for their support and encouragement in getting this dissertation done, and for creating a learning environment that has helped me grow both professionally and personally.

Additionally, I would like to extend my warmest thanks to all of the interview participants for their time and contributions to this study. I have learned so much. I would also like to thank the staff at the School of Political Studies, especially May Hamouie and Katherine Gignac, who were so attentive and helpful in navigating the University's processes.

I am deeply appreciative of the generous support from my friends. A special shout out goes to Zahra - from reading drafts to listening to me go on about my research, to joint writing sessions, she has been there through it all. I would also like to thank Hanieh and Sally who have helped me through

some of the toughest times, and laughed with me through some of the best ones. My PhD experience has also been considerably better with the camaraderie of Darlene and Etienne, with whom I have found so much joy in the learning process.

This journey would not be the same without my husband Micheal, who met me as a frazzled PhD student. His unfailing support and encouragement have seen me through all the highs and lows of the research and writing process. He has been a problem-solver extraordinaire and the strongest shoulder to lean on. I'm excited to see what the next phase of life together brings.

Finally, this journey would not be possible without the unconditional love and support of my parents, Maha and Fadi. At every step of the way, they have been fully committed to seeing me succeed and encouraging me to surpass even my own expectations. Their mentorship and guidance helped me get through it all and I am forever grateful. This also extends to my brother, Mouhib, who has been an unwavering cheerleader. His reminders to not take things too seriously, while also demonstrating what dedication and hard work can achieve, will always stay with me.

I dedicate this dissertation to my parents, Maha and Fadi Nourallah.

List of Acronyms

Advocacy Coalition Framework (ACF)
Association of First Nations Chiefs in New Brunswick (AFNCNB)
Bureau d'audiences publiques sur l'environnement (BAPE)
Chief Medical Officer of Health (CMOH)
Conservation Council of New Brunswick (CCNB)
Council of Canadian Academies (CCA)
Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)
Energy Utilities Board (EUB)
Environmental Impact Assessment (EIA)
Environmental Protection Agency (EPA)
Free, Prior, and Informed Consent (FPIC)
Greenhouse Gas (GHG)
Gross Domestic Product (GDP)
International Association for Public Participation (IAP2)
Liberal Party of New Brunswick (L)
Liquefied Natural Gas (LNG)
Local Service District (LSDs)
Member of the Legislative Assembly (MLA)
Natural Gas Group's (NGG)
Natural Gas Steering Committee (NGSC)
New Brunswick (NB)
New Brunswick Anti-Shale Gas Alliance (NBASGA)
New Brunswick Commission on Hydraulic Fracturing (NBCHF)
New Brunswick Energy Institute (NBEI)
New Brunswick Environmental Network (NBEN)
Non-Governmental Organizations (NGOs)
Policy, Plan or Program (PPP)
Progressive Conservative Party of New Brunswick (PC)
Regional Service Commission (RSC)
Right to Information and Protection of Privacy Act (RTIPPA)
Royal Canadian Mounted Police (RCMP)
Scientific Advisory Council (SAC)
Strategic Environmental Assessment (SEA)
Southwestern Resources Canada (SWN)
Trillion Cubic Feet (TCF)
Truth and Reconciliation Commission of Canada's (TRCC)
United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)

List of Tables and Figures

Table 1: Research study interview participants	62
Table 2: Belief system as a defining feature of advocacy coalitions	65
Table 3: Components of policy-oriented learning	67
Table 4: A modified taxonomy of policy components	67
Table 5: Advocacy Coalition Framework hypotheses	94
Table 6: 2012 – 2013 Indigenous consultation and engagement activities	231
Table 7: New Brunswick Commission on Hydraulic Fracturing	257
Table 8: Belief systems of pro-development and anti-shale gas coalitions in NB	263
Table 9: Learning by category	265
Table 10: Learning by category based on research findings in New Brunswick	266
Table 11: Policy content and focus in New Brunswick	269
Figure 1: Hydraulic fracturing processes	18
Figure 2: Policy learning and change in the Advocacy Coalition Framework	38
Figure 3: Hypothesis about the relationship between learning, belief change and policy change in the Advocacy Coalition Framework	40
Figure 4: International Association for Public Participation engagement spectrum	44
Figure 5: Hypothesis about the relationship between learning, beliefs and policy change developed in this dissertation	Error! Bookmark not defined.
Figure 6: Diagram of the Advocacy Coalition Framework	86
Figure 7: Levels of beliefs in the Advocacy Coalition Framework	Error! Bookmark not defined.
Figure 8: Map of oil and gas licences/leases in New Brunswick	134
Figure 9: Governance map of New Brunswick	139
Figure 10: Twelve Principles for the Environmental Protection Plan	141
Figure 11: Pro-development coalition claims distribution: analysis of media coverage in NB dailies 2007-2017	176
Figure 12: Anti-shale gas coalition claims distribution: analysis of media coverage in NB dailies 2007-2017	176
Figure 13: Pro-development coalition distribution of claims by year (2011-2017): analysis of media coverage in NB dailies 2007-2017	178
Figure 14: Anti-shale gas coalition distribution of claims over time (2011-2017): analysis of media coverage in NB dailies 2007-2017	179

Chapter 1: Introduction

In the face of increasing public opposition to hydraulic fracturing, the government of New Brunswick announced a moratorium on fracturing activities in the province in 2014. The announcement came with a set of conditions that the government identified as necessary to fulfill before the moratorium could be lifted. The establishment of the moratorium signified a decisive shift in policy after the province had spent four years (2010-2014) working on developing a comprehensive framework to govern hydraulic fracturing and shale gas development in New Brunswick. The exercise involved several public engagement mechanisms to inform the development of a framework to govern production of the resource. With strong impetus for resource development from government and industry, this dissertation is interested in examining what led to the change in policy governing the practice of hydraulic fracturing and natural gas production in the province.

This dissertation examines the empirical question of why, in a case with a high degree of public engagement and government initiative to advance shale development, was hydraulic fracturing banned indefinitely? While the answer may seem as simple as political response to widespread public opposition, this does not provide a nuanced understanding of the mechanisms that led to the change. Particularly, it does not illuminate the influences on policy decision-making in a context of scientific uncertainty and broad public engagement on an emerging and little understood technological process. In addition, it does not account for the role of learning by the public and other actors. This dissertation seeks to explore these factors. Using the Advocacy Coalition Framework (ACF), and drawing on the literatures on learning, risk and public

engagement, it aims to tease out the role of public engagement, trust, and uncertainty on policy decision-making. In so doing, it shines a light on a core weakness in the ACF, its presumption that policy decision-making is predominantly a technocratic expert-driven process. The remainder of this chapter provides an introduction to the empirical case context, and previews the theoretical and methodological approach of the dissertation.

1.1 Hydraulic fracturing and shale gas development in New Brunswick

Generally, hydraulic fracturing¹ has proven to be controversial across Canada. Although the practice has existed for some time², recent innovations in the technologies of horizontal drilling and hydraulic fracturing have enabled large-scale production of shale oil and gas from shale deposits³. The practice, commonly referred to as ‘fracking,’ has advanced considerably since the mid-2000s and has transformed the energy landscape, particularly in North America (Downey, 2010). With limited scientific research on its potential impacts on the environment and human health (particularly in the early years of its use), the fracturing process, which utilizes large volumes of water and chemicals, was feared by opponents to have many undue effects on the environment and human health. This has generated scientific controversy and a high degree of

¹ This study utilizes the term “hydraulic fracturing” to refer to the process of hydraulic fracturing combined with horizontal drilling. This involves a well that is drilled into the ground approximately 10,000 feet deep vertically and then drilled horizontally into layers of rock (Warner and Shapiro, 2013). Thereafter, large amounts of water combined with sand and chemical additives are pumped thousands of meters into the well and underlying shale rock. The use of pressurized fluid effectively fractures the rock and releases the oil or natural gas trapped there, allowing it to surface through the drilled well (Heikkila et al., 2014; Zoback, Kitasei, and Copithorne 2010). The study uses hydraulic fracturing to refer to the whole process of development including exploration, transportation and site work.

² Early applications began in 1903 but the recent innovation to the technologies of hydraulic fracturing are dated to 1980

³ Shale is the most abundant rock form on earth (Boyer et al., 2011). It is rich in organic content and has a high potential for the production of hydrocarbons. Shale deposits are referred to as both unconventional reservoirs and unconventional resource plays.

uncertainty based on the unknown effects across different communities. While shale gas is hailed by some as a key component in the transition towards a low-carbon economy, there are many who oppose the practice, citing potential negative health and environmental impacts related to its production. As such, the practice has led to the emergence of advocacy groups for and against shale development that seek to influence policy.

The response to shale development has been different across provinces, with the practice proceeding in Western provinces, including Alberta, Saskatchewan and British Columbia. The Eastern provinces, including Nova Scotia, New Brunswick and Newfoundland and Labrador have taken a more cautious approach and implemented bans or moratoria. Québec has banned development after extensive consultation through its environmental agency, le Bureau d'audiences publiques sur l'environnement (BAPE), that underscored the need for public confidence and social acceptance for hydraulic fracturing to proceed.

In NB, increasing industry interest in the province's geology for the potential of large shale deposits began in 2010. When faced with the potential to develop a major resource in a province with persistent deficits and a large public debt, the economic opportunity was a strong impetus for development for government and industry. It also fostered the government's desire to develop regulations that would ensure safe operations and an appropriate royalty regime (GNB, 2011a).

The timing of these developments coincided with other political changes in NB. In 2010, the provincial government set out to 'put citizens at the heart of decision-making' for all policy issues including energy, with the establishment of a citizen engagement unit (New Brunswick,

2010). The government made an explicit effort to engage citizens and launched ten major public engagement initiatives on shale development between 2010 and 2014. Some of this engagement took a more technical approach focused on developing regulations to control for and mitigate risks to ensure the safe development of shale. This involved stakeholder roundtables, a tour across the province led by a prominent professor of ecology, and virtual town halls. With 114 rules to regulate industry, the government asserted it was working on the most stringent framework in North America (CBC, 2013a; CBC, 2013b).

However, parallel to the government's effort to advance a comprehensive framework, public opposition to shale gas development increased in NB. Starting in 2011, there was a steady rise in organized rallies, protest camps, and protest marches to voice concerns against hydraulic fracturing (CBC, 2013c). Fearing the consequences on their environment and health, numerous groups organized and coordinated action to form a coalition in opposition to shale development in the province. The coalition's major concern was the unknown impacts of the practice of fracking, and they pointed to emerging risks of development and questioned the decision to proceed with high levels of uncertainty.

In response, the government implemented a moratorium in 2014 and undertook another public engagement exercise to inform future policy and to seek to fulfill the conditions it identified as necessary to proceed with shale development in the province. These conditions specified the need for appropriate consultations to establish 'social license' to proceed with hydraulic fracturing, 'clear and credible' information on impacts to develop a regulatory regime, a process to deliver on the province's duty to consult First Nations, as well as the development of a water management plan and a royalty regime (CBC, 2014a). To head the work in 2014, the

government appointed the New Brunswick Commission on Hydraulic Fracturing (NBCHF) to undertake a large-scale public engagement exercise across the province and provide recommendations on how to fulfill the conditions the government identified. The NBCHF was explicitly identified by the government as a ‘citizen focused commission’ and not an expert panel (NBCHF, 2016a). In response to the commission’s report in 2016, the government extended the moratorium on hydraulic fracturing indefinitely.

A key question for this dissertation is how engaging citizens fosters learning and policy change. Engagement represents a shift from traditional methods of decision-making, particularly in the natural resource sector, where technical expertise and knowledge are leveraged through regulatory and legislative means often with little opportunity for public input. Many public policy scholars advocate for the inclusion of people impacted by decisions in the policy process. This research asks what impact that has and if there are other factors that need to be considered in assessing the impact of engagement on policy change.

As such, the dissertation proposes a conception of learning building on the ACF, a widely applied theory of learning in natural resource policy studies. It then applies this conception to evaluate the role of policy-oriented learning on policy change in the case of shale development in NB, where two distinct coalitions advocating for and against shale development emerged between 2011 and 2014. Crucially, the ACF relies on a technocratic approach to learning based on ‘persistent behavioural or thought intentions’ and manifested materially by different policy outcomes (including policy change) associated with these intentions. In the ACF, the key factors that influence intentions are scientific evidence and experience. This dissertation expands this conception to consider learning based on interactive knowledge. It recognizes that people learn

in relation to their environments and that social constructions shape their interpretations (as explained in further detail in the next section).

1.2 Research objectives, theoretical approach and design of the study

While most scholarship using the ACF emphasizes policy elites and technocratic decision-making in understanding policy change, this dissertation seeks to examine how elite technocratic decision-making is mediated by the inclusion of the public in decision-making processes. The study examines the role of three factors on learning (1) a context marked by uncertainty (2) trust in public authorities, and (3) public engagement. The study explores these factors by examining the role of a different type of knowledge in learning: interactive knowledge. Interactive knowledge is socially constructed, is gained through communication and deliberative practices and shapes coalition actors' beliefs and policy preferences. It builds on their past experiences to inform their perceptions – and therefore strategies – in advocating for or against particular policy proposals (Bryant, 2002). In keeping with the ACF and building on Weible et al. (2020), the study examines the normative⁴ and empirical dimensions⁵ of learning that can lead to policy change. Such learning can serve to shift the parameters of the problem applicable to policy decisions. As explained at the end of this chapter, in the case of shale development in NB, rather than a question of regulation and safety, shale development became a question of public acceptance.

⁴ Beliefs related to 'basic values' and 'welfare priorities', such as the respective importance of environmental quality as opposed to economic growth.

⁵ Beliefs about general gravity and causes of the problem, such as the seriousness of groundwater contamination or the possible sources of contaminants.

In light of the above, the starting point of this thesis is the essential role of the context of policy development – specifically uncertainty, trust in public authorities and public engagement mechanisms – when it comes to understanding learning (i.e., change based on altering thought and behavioral intentions as defined by the ACF) and its impact on policy outcomes (Jenkins-Smith & Sabatier, 1994).

The ACF hypothesizes that policy-oriented learning can lead to change in policy, however, its conception of learning is relatively narrow. Focused on the impact of technical/empirical knowledge on actors' beliefs and corresponding policy preferences, the ACF provides a largely technocratic and rationalistic understanding of the role of learning, overlooking the role of factors that can shape learning, like trust (James and Jorgensen, 2009). Building on the work of Millar (2020), This dissertation augments this element of the framework to advance a more comprehensive understanding of learning in conditions of less institutional insularity and a broader constellation of actors. Going beyond the confines of the ACF's conception of learning, this dissertation draws on post-positivist literature to understand how engagement and deliberation may impact learning.

Scholarship demonstrates that the process of deliberation and communication between actors with a variety of perspectives can lead to learning and can affect policy outcomes (Callon et. al, 2009; Fischer & Gottweis, 2013). Research efforts on policy learning are still emerging (particularly as learning relates to policy change), but there are calls to leverage the role of cognition to understand how people learn (Moyson, Scholten and Weible, 2017; Dunlop and Radaelli, 2017). This research underscores that learning is not solely based on knowledge gained

through rational means, but encompasses knowledge based also on experience, interactions, and practical wisdom (Dunlop and Radaelli, 2017).

The dissertation addresses, therefore, the following research question: *Under what circumstances does policy-oriented learning amongst actors lead to policy change?* The dissertation does not discount that there are other factors driving change, however, the study is interested in assessing of learning *to understand how and whether engagement processes impact policy outcomes*. To this end, the research aim is two-fold: (a) to assess the factors that affect learning (specifically, a context of uncertainty, levels of public trust in government authorities, and public engagement mechanisms); and (b) to identify the nature of learning and its influence on policy change.

As articulated by the ACF, policy learning is an independent variable mediated by an intervening variable (a hierarchy of beliefs) that can lead to a change in policy (Jenkins-Smith & Sabatier, 1994; Sabatier & Weible, 2019). In line with the above, this study posits that scientific and technical information is not the only source of information that can lead to enduring alterations in thought or intention, but social interaction and lived experiences can be likewise influential. In so doing, the study strengthens the conception of policy learning in the ACF by drawing on the argumentative turn and postpositivism, which underscore the role of deliberation and engagement in learning (Fischer & Forester 1993; Fischer, 2003; Hajer & Wagenaar, 2003; Fischer, 2017).

Democratic governance scholars and public participation researchers underscore the role of government in being responsive, inclusive, transparent and responsible in the development of

policies (Goodin, 2008; Hajer, 2009; Dryzek, 2012). Scholars argue that the recognition of considerations for policymaking has shifted from decision-making taking strictly the empirical facts of science and nature into account, to expand and include consideration of the social contexts within which policies are applied. This literature also highlights the importance of integrating other types of knowledge into decision-making processes. In particular, the literature on engagement in the context of resource development and environmental decision-making emphasizes the role of knowledge, trust and policy learning in decision-making processes (Radaelli, 1995; Mayer, 2016; Olawoyin et al., 2016; Forrester, Cairney & Wellstead, 2021). Through the processes of deliberation and communication, actors share their various perspectives, which can lead to learning and policy change. This research emphasizes the need to incorporate different views into decision-making, and undertakes a shift away from technocratic models of decision-making. As explained above, the study draws on understandings of communicative action and knowledge to expand the conception of learning as articulated by the ACF. In addition, given the study's interest in exploring the role of uncertainty, this research draws on theories of risk that demonstrate the linkages between uncertainty and decision-making, and the role of risk perception, which may influence learning and help to explain change (Barke & Jenkins-Smith, 1993; Gabehart et al., 2022). This consideration is particularly important given that scientific research on the fracturing process and its impacts only just began to emerge in the period under study. The study focuses on how actors engage and interpret their own interests in this context of uncertainty.

The dissertation focuses on a single case study, that of policy change for hydraulic fracturing in New Brunswick, Canada. It examines a ten-year time frame, 2007 to 2017, to examine policy change as articulated by the ACF. The research utilizes three methods to assess the case: 1)

process tracing of energy policy and regulatory development through primary and secondary document analysis; 2) thematic review of anti and pro shale positions according to actors in provincial news media; and 3) key informant interviews with government officials, politicians, environmental advocates, industry representatives, grassroots activists, scientific experts and media officials.

1.3 Key findings

Overall, the findings suggest that public engagement, uncertainty and trust are three key factors that influence policy-oriented learning. With scientific uncertainty and the perception of significant risks associated with shale development, New Brunswickers questioned the provincial government's claims that hydraulic fracturing could proceed safely. Importantly, New Brunswickers did not believe that government policy and regulation could protect them from potential risks posed by hydraulic fracturing given their pre-existing lack of trust in provincial public authorities. Crucially, the process of engagement appears to have magnified mistrust: members of the anti-shale gas coalition had a deep understanding of their context based on experience and they mobilized this knowledge through public engagement exercises. They focused on how policy and regulation would negatively impact their livelihoods and less on the technical aspects of managing resource development.

The use of public engagement mechanisms in NB provided the anti-shale gas coalition opportunities to learn based on experience and updated their strategies accordingly. Ultimately, they were able to contest the goals and means of the pro-development coalition's strategies. In a context of scientific uncertainty and public distrust, they were able to successfully drive home

their assertion that there was not enough information to proceed with hydraulic fracturing in NB. In so doing, they undermined the provincial government's approach to focusing on regulatory measures to ensure safe development by questioning the very ability of the government to do so based on the available scientific information and the government's capacity to deliver. In response, the government turned course and enacted a moratorium on hydraulic fracturing in NB in 2014 and extended it indefinitely in 2016. The question in NB was no longer about technical feasibility and the ability to safely regulate, but rather whether it was publicly acceptable to proceed with shale development in the first place.

These findings demonstrate that a technocratic understanding of learning associated simply with scientific evidence, that studies assessing the magnitude of risk and how to manage it, and that learning isolated to policy tools do not provide a complete picture of policy-oriented learning and how learning can lead to policy change.

The case of NB is only one example in Canada of public engagement on energy policy issues. There are numerous examples in the Canadian context at the national⁶, provincial⁷ and municipal⁸ scale. It is therefore increasingly relevant to understand how policy is shaped by different mechanisms implemented by governments. Ultimately, this dissertation contributes to scholarship on policy learning and change, as well as energy decision-making, trust and

⁶ These include Generation Energy, a national dialogue conducted by Natural Resources Canada about Canada's energy future and the National Energy Board (NEB) Modernization Expert Panel, an exercise to modernize the National Energy Board and restore public trust in the institution that involved extensive public engagement with Canadians.

⁷ Nova Scotia Electricity System Review Consultation (2014-15) to determine the province's energy future, and Alberta's coal policy engagement process to develop a responsible coal policy (2021).

⁸ City of Surrey in British Columbia public engagement (2011-13) on the development of the city's Community Energy and Emissions Plan to address challenges associated with energy security and climate change.

democratic governance. As discussed in the conclusion, the dissertation also has practical implications for governments undertaking public engagement and it advances understanding of the development of hydraulic fracturing in Canada.

1.4 Plan of the dissertation

The dissertation proceeds in two sections. The first, containing Chapters 2, 3 and 4, is focused on the research design and theoretical approach. Chapter 2 specifies the research questions, introduces the theoretical framework and describes the methodology. It also identifies the study's working hypotheses regarding the role of learning in shaping policy change.

The following two chapters further detail the theoretical framework. Chapter 3 explains how policy change is understood in the public policy literature and how learning approaches to change are conceptualized. It describes the parameters of the ACF and discusses key theoretical and methodological considerations for the dissertation's conceptual approach. Chapter 4 reviews the literature on public engagement and learning in the context of uncertainty. It demonstrates the linkages between different areas of scholarship, in particular, democratic governance and risk management. It also highlights the role of engagement and inclusion in decision-making in contexts of uncertainty as well as the significance of trust in learning.

The second section of the dissertation, containing Chapters 5, 6 and 7, presents the empirical case and research findings. Chapter 5 highlights the policy and regulatory context for shale development in NB and describes the parameters of proposed shale gas development in NB articulated by industry proponents.

Chapter 6 presents the three major phases of public engagement on shale development that took place in the province between 2010 and 2017. It demonstrates the range of different public engagement mechanisms employed at various levels of policy and regulation. It traces the expansion of the anti-development coalition in the context of rising public opposition and distrust in public authorities. Chapter 6 also delineates the coalitions and their key beliefs, and assesses the factors that affected learning and learning's influence on policy change. The dissertation concludes with Chapter 7, which reviews the key findings and suggests further avenues for research.

SECTION I: Theoretical approach and research design

Chapter 2: Overview of the research

Introduction

This chapter specifies the research questions, research framework and methodology, and identifies the study's working hypotheses regarding the role of learning in policy change. It begins with an overview of shale gas development and the hydraulic fracturing process, describing what differentiates shale development and makes shale an unconventional type of energy resource. It includes a brief review of the scientific literature to highlight the risks associated with hydraulic fracturing, including health, environmental and social risks. This first part of the chapter aims to establish an understanding of the policymaking context for shale development, which includes the technological advancements of hydraulic fracturing and the degree of uncertainty resulting from the associated risks and scientific controversy. When coupled with the implementation of engagement processes, social considerations are brought to bear on the policy process. This is a situation that the ACF, a major framework seeking to explain policy change, is not fully equipped to account for as part of the policy-learning pathway.

The remainder of the chapter is dedicated to articulating the research questions and establishing the theoretical framework, including the limitations of the ACF and the integration of concepts to bolster its ability to explain policy change. In particular, the chapter identifies three key factors that this dissertation aims to explore in terms of their influence on learning: uncertainty, public engagement and trust in public authorities. An in-depth review of the ACF as well as the

policy literatures on trust, engagement and risk are provided in Chapters 3 and 4. Lastly, the third section of this chapter outlines the methodology of the dissertation.

2.1 Hydraulic fracturing

What differentiates shale development from other types of energy development is that it is unconventional. This is due to (a) the low permeability of the type of reservoir that produces the resources, and (b) the methods used to extract the oil and gas (NRCan, 2020a). Shale resources are found in geological formations in many different areas across the world. The significance of the resource is well known, and has been around since the early 1900s, when the first technique for the extraction of shale oil and gas was used in 1903 (Kramer, 2011). This method involved projects where vertical wells were drilled to release the hydrocarbons from the rock (Boyer et al, 2011; Warner and Shapiro, 2013). The application of vertical drilling would produce high flow rates that would quickly decline over the lifecycle of the project. Therefore, the use of the practice was not particularly advantageous or cost-effective and its application was limited (Rahm, 2011). More recently, in the 1980s⁹ the technological innovation of horizontal drilling was developed as a secondary aiding technology to complement vertical drilling (House, 2013). This helped produce higher and more sustained flow rates, and also allowed for more extensive reach throughout the geological formations from just one point source.

The combination of the twin technologies of vertical and horizontal drilling is what is modernly referred to as hydraulic fracturing. It is a process that begins with drilling a well vertically into

⁹ The roots of development are often traced to the work done in Texas starting in the 1980s by an American company, Mitchell Energy and Development.

the ground, approximately 10,000 feet deep, and then drilling horizontally into layers of rock (Warner and Shapiro, 2013). Thereafter, large amounts of water combined with sand and chemical additives are pumped thousands of meters into the well and underlying shale rock. The use of pressurized fluid effectively fractures the rock and releases the oil or natural gas trapped there, allowing it to surface through the drilled well (Heikkila et al., 2014; Zoback, Kitasei, and Copithorne 2010). It is then collected at the surface and transported to processing plants.

The application of this emerging technology to extract a formerly untapped resource has transformed global energy markets (IEA, 2019a). Shale development fundamentally changed outlooks about oil and gas resource availability globally, and is deemed a ‘game changer’. Not only did it mean abundance of shale gas, it is also relatively inexpensive to produce and represents a major new energy source. The International Energy Agency projects that by 2040 global production growth for natural gas is dominated by shale gas, growing four times faster than conventional gas (IEA, 2019b). For the United States (US), this led to the country becoming a net exporter of liquefied natural gas (LNG)¹⁰ in 2016, whereas it had previously relied heavily on Canadian imports of natural gas (EIA, 2021).

In Canada, the Canada Energy Regulator valuations suggest that there are 1,087 trillion cubic feet (Tcf) of remaining gas resources that are marketable. Of this remaining portion, 750 Tcf (approximately 69%) is from unconventional shale (NRCan, 2021b). Alberta and British Columbia are the largest shale producers in Canada with Saskatchewan following closely behind, while Québec, Nova Scotia, New Brunswick and Yukon have banned shale development

¹⁰ “Liquefied natural gas (LNG) is natural gas that has been cooled to a liquid state, at about -260° Fahrenheit, for shipping and storage. The volume of natural gas in its liquid state is about 600 times smaller than its volume in its gaseous state” (EIA, 2021).

in their jurisdictions. In Newfoundland and Labrador, a government commissioned report determined shale development to be economically not viable and therefore halted the industry in the province. While shale deposits in Alberta have the most significant potential for development and economic viability (estimated 3424 Tcf of technically recoverable resource), New Brunswick was posited to also have a significant play, with estimates of approximately 77.9 Tcf (NRCan, 2021c; NRCan, 2020b). Public debate and controversy over shale development have led to different regulatory and engagement approaches across the country.

Shale gas has garnered advocates and critics arguing for and against the unconventional development. Those in favour assert that shale gas can meet rising global energy demands, contribute to energy security, create jobs and boost economic growth, and function as a bridge fuel to support the transition to a low-carbon economy (Gamper-Rabindran, 2018). Those critical of development have mainly raised concerns around the potential adverse effects on the environment (including air but predominantly on water). They argue that methane leakage from wells negates the environmental benefits of gas, and that investment in infrastructure to support shale development will hinder efforts to transition away from fossil fuels to combat climate change (Gamper-Rabindran, 2018).

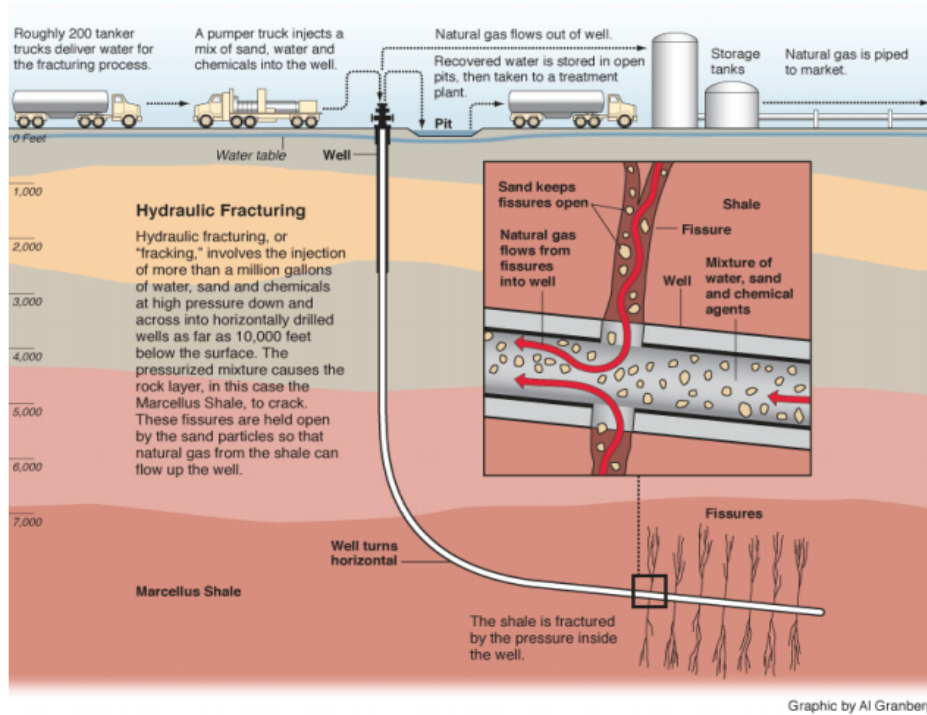
Governments where shale resources exist were presented with the economic opportunity to advance development. For jurisdictions with reliance on coal, it also presented the prospect of integrating shale gas into their energy mix domestically to transition their energy systems, as well as find opportunities to liquefy and export the gas to international energy markets (Inman, 2012). This unconventional development, however, required updated or new regulatory

frameworks to govern the process. Hydraulic fracturing involves many stages to extract the shale resources and requires:

- (1) Large volumes of water, chemicals and proppants used to hydraulically fracture the shale; this combination is commonly referred to as ‘frac fluid’;
- (2) Sizeable areas of land for construction of well pads and for additional facilities (worksites);
- (3) Energy to power major equipment such as drills rigs; and,
- (4) Local roads and infrastructure to transport the gas to other sites.

(CCA, 2014)

Figure 1: Hydraulic fracturing processes



(Granberg, 2019)

The process itself has many potential negative environmental impacts, particularly on land, water and air. These include potential adverse effects on surface and groundwater, on

availability of fresh water resources, climate impacts through the release of greenhouse gas (GHG) emissions even though shale can supplant more carbon intensive energy (e.g., coal)¹¹, methane leakage from wells, air quality, seismic activity, and finally human health from contaminants in the water or air (CCA, 2014). Considering the extent of impacts, researchers and medical health professionals have often argued that a holistic approach is necessary. Importantly, throughout the research period for this dissertation, much of the research around shale development was still emerging. The following section highlights the potential risks associated with shale development drawing on the scientific literature in the period between 2007-2017.

2.2 Environmental impacts

Water

The top concern associated with shale development has been impact on water. Some of the key impacts on water include the possibility of accidental releases of chemicals used in the fracturing process. These may affect groundwater and surface water resources. There has also been significant concern about the risk of migration of gases from the well cases or remaining fractured rock to freshwater aquifers (Green, 2015). While industry argued that the risk of contamination is low, experts posited that the scientific data was limited. In particular, the lack of baseline water testing was a commonly recognized issue in Canada (Parfitt, 2011). As a vital component of understanding the quality of water and its characteristics, baseline testing would provide a clear representation of any impacts to water that may be linked to development. Without it, experts contended that the risk could not be appropriately assessed, and argued for

¹¹ Natural gas releases less carbon dioxide when burned than coal or oil (CCA, 2014)

the increase of testing under scientifically acceptable methods to provide accurate information (Rivard et al. 2012).

In the public debate, the impact of hydraulic fracturing activities on water took on a very prominent role in the early stages of controversy over shale development. A documentary by Josh Fox titled *Gasland* displayed images of tap water in people's homes lighting on fire (Fox, 2010). These were homes in communities where shale development had ramped up significantly in 2010 in Dimock, Pennsylvania. Images of tap water on fire were circulated in the media and by anti fracking campaigners to raise awareness of what they deemed the impact of fracking on groundwater (Rahm, 2011). The scientific research at the time pointed to the existence of methane in water resources, and the evidence linking fracking with contamination was contested (Holzman, 2011).

Additionally, the frac fluid re-emerges to the surface as wastewater (also known as flowback) containing chemicals as well as hydrocarbons that are hazardous to human health and the environment. In the early days of fracking, wastewater was often transported and disposed in open air sites that posed risk of leakage and groundwater contamination (CCA, 2014). Another way to dispose of the wastewater is by reinjection into the ground several layers deep, however this poses risks of induced seismic activity (Green, 2015). Some jurisdictions proposed the use of municipal water treatment systems to treat the wastewater, but there are technical considerations associated with this approach. In recent years, the wastewater is often reused in hydraulic fracturing operations; however, there is still a portion of the water that remains as wastewater and it poses challenges for wastewater treatment (Schmidt, 2013). And finally, the

degree to which freshwater resources are used in the practice caused significant concern about the availability and conservation of freshwater resources.

The use, disposal and treatment of the wastewater served to be a very controversial issue, since companies were able to withhold information to protect their proprietary information (Ingelson & Hunter, 2014). Without knowing exactly what chemical compounds are used in fracking operations that could be impacting them, communities and organizations advocated for mandatory disclosure on public websites. In the US, this led to the establishment of a public disclosure website called FracFocus in 2011, however, academic research has demonstrated that without federal oversight there has been high levels of information withheld by companies (Trickey et al., 2020). In Canada, FracFocus is registered with the British Columbia Oil and Gas Commission and has been operational since 2012. Levels of disclosure have not been examined in the Canadian context and it is worth noting that several provinces, territories and regulators are involved in the Canadian FracFocus initiative. Industry maintains that certain elements of the frac fluid mix are trade secrets and therefore full transparency remains an issue associated with development.

Greenhouse Gas (GHG) emissions

The major concerns with shale development with regards to GHG emissions are (a) potential leakage of methane from wellheads and throughout the process, and (b) flaring and venting practices to release the excess gas that cannot be captured¹². Fundamentally, there are differing

¹² This is more specific to tight oil extraction where burning the gas leads to the release of carbon dioxide in the air. “Natural gas flaring is the controlled combustion of volatile hydrocarbons and venting is the direct release of natural gas into the atmosphere, typically in small amounts. While flaring is more common than venting, both of these

perspectives on the role of natural gas in displacing other carbon intensive sources of energy and in transitioning energy systems. Experts do not agree on the impacts on the climate: some argue that natural gas can facilitate the transition to a low carbon economy, while others worry that the risk of potential leakage does not offset the benefits of integrating natural gas into energy systems and locks Canada into fossil fuel high carbon infrastructure (Tsafos, 2020). In the public domain, those against shale gas pointed to the increase in GHG emissions that would result from fracking operations and the risks to climate change adaptation and mitigation efforts. Advocates for development argued that shale gas could displace coal-generated electricity and would significantly reduce emissions (Tsafos, 2020). Again, the research existed on both sides of the debate given that scientific research and evidence was emerging in the early days of shale development.

Land

As noted earlier, hydraulic fracturing necessitates the development and use of extensive infrastructure. This includes well pads, roads, pipeline infrastructure and work sites (refer to Figure 1). Most companies have integrated the use of multi-well pads and expanded the horizontal reach of their fracturing activities which reduces the number of individual well pads, however, they still use substantive areas of land affecting ecosystems and potential fluid migration. These are impacts that are only beginning to be understood, as research to assess the effects of the practice require long timeframes. The major impacts may include “deforestation,

activities routinely occur during oil and natural gas development as part of drilling, production, gathering, processing, and transportation operations” (DOE, 2019, p.i) It is an issue that still plays into the perception of shale development.

the destruction and fragmentation of wildlife habitat, and adverse effects on existing land uses such as agriculture and tourism. It is difficult to estimate these impacts without information on the location, pace, and scale of future shale gas development” (CCA, 2014, p.xv).

What is clear is that the practice of fracking requires large areas and can transform the landscape. What remains unclear is the full extent of impact from shale development on communities (Small et al., 2014). This is an area of research that is still ongoing, and during the years of this study (2007 to 2017), created a high degree of controversy in New Brunswick (CBC, 2013c). This was due to the Chief Medical Officer of Health’s (CMOH) review of the impacts of fracking on human health, where she highlighted publicly the need for more evidence around the practice and advocated for the establishment of a cumulative health assessment to supplement environmental assessments of shale development.

Air contaminants

Shale gas development can potentially emit air pollutants, and emissions from shale may be higher than those from conventional development due to the intensity of the fracturing process. The pollutants that pose risks include volatile organic compounds, hydrocarbons and particulate matter that could negatively impact the quality of air in some regions and contribute to the generation of ozone. They could also have severe implications on human health: “exposure to this pollution can cause eye, nose, and throat irritation, respiratory illnesses, central nervous system damage, birth defects, cancer, or premature death” (Srebotnjak et al., 2014, p.2). During the early phases of this research, established academics and leading medical health officials in the US pointed to the significant potentially adverse impacts of fracking on air. The research in

this area is still emerging, with scientists advocating for more systematic research on the impacts of fracking on pollution (Bolden et al, 2018).

Seismic events

Hydraulic fracturing operations are linked with seismic activity in certain jurisdictions. Research in the early days of fracking disagreed on the extent of correlation or causation between fracking and increased seismic activity. The majority of experts have evaluated the risk of hydraulic fracturing in causing earthquakes as low (CCA, 2014). However, there is some evidence to link earthquakes to wastewater injection, a practice that requires close monitoring. In public debate, Tulsa, Oklahoma became the case that people against fracking referred to as an example of more earthquakes in areas where hydraulic fracturing was underway (USGS, 2021). Experts researching the linkage appeared to disagree on the relationship between seismic activity and fracking, arguing about the premises of correlation versus causation. Everyone generally agreed that more research was necessary.

Human health and social impacts

The impacts of shale gas development on humans were not well researched or understood during the period under study. In addition, experts argued (and continue to argue) that the range of impacts of development require cumulative assessments. Key health concerns include the risk of contaminants in the air or water supply and adverse effects on community well-being due to the expansion/development of infrastructure associated with the practice and the quick growth of the industry in rural areas (CCA, 2014). Further, there are potential psychological impacts that

health professionals are concerned about, including noise pollution, transformative change (related to land use, air pollutants, water quality, and landscape effects) and a perceived lack of trust in government or industry (CCA, 2014). In particular, development may affect Indigenous peoples' ability to preserve their traditional way of life and their land rights.

The Council of Canadian Academies (CCA) notes that “the Canadian regulatory framework governing shale gas development is evolving and remains untested” (CCA, 2014, p. xx). The CCA report also asserted that “public engagement is necessary not only to inform local residents of development, but to receive their input on what values need to be protected, to reflect their concerns, and to earn their trust” (CCA, 2014, p. xix). Several other reviews of literature regarding fracking in Canada have identified a lack of public confidence in government as a fundamental factor underpinning public opposition to the practice (Winter et al. 2016; Fast, 2016). As provincial and territorial governments developed regulatory policy, they took different approaches across the country, including a variety of engagement mechanisms to regulate shale development and build trust.

2.3 Context in New Brunswick

New Brunswick is an Eastern province of Canada, and even though it is one of the oldest ‘oil provinces’ in the world, there are low levels of experience with oil and gas production in certain areas of the province. However, the province is familiar with natural resource development - specifically forestry - and jobs in the province were often tied to the natural resource sector

(Chouinard et al., 2002)¹³. The province has historically been faced with significant debt and deficit, as well as other economic issues such as unemployment. In a fiscal update towards the end of 2010, the Minister of Finance in the province described the debt issue plainly: “Without corrective action, the province is facing a deficit in the order of \$1 billion in the 2011-2012 Budget, with continued pressures moving forward. Our net debt will grow to the \$15 billion range by 2015 unless decisive measures are taken. Compare that with our net debt of \$6.6 billion in 2006-2007” (Higgs, 2010).

In the wake of a provincial election with energy as a key issue earlier in 2010, shale development would later be seen as a promising economic opportunity for some. The 2010 election in NB dealt with energy as it related to the province’s electricity utility, NB Power. High power rates were impacting residential but mainly commercial customers, and the utility’s burgeoning debt made it an issue that the government needed to deal with (Desserud, 2010). The Liberal party in power between 2006 and 2010 decided to negotiate the potential sale of NB Power to Quebec. This move damaged their credibility considerably in the time frame leading up to the election, and in the face of mounting public backlash in NB, the deal was eventually called off (Desserud, 2010).

In the run up to the election, a key plank of the Progressive Conservative Party’s platform was the establishment of an Energy Commission to deal with the question of debt-management for NB Power but also the province’s energy strategy (Desserud, 2010). This initiated a series of public engagement mechanisms when they were elected into power in the fall of 2010 beginning

¹³ This is no longer as true in recent years, with mechanization has come shrinkage in the resource economy and less good paying jobs in the sector (Bronson & Beckley, 2018)

with an Energy Commission on the future of energy in the province, and later evolving into specific engagements around the promotion of shale gas development. 2010 is also the year that companies with search licenses from the government (granted in 2009) launched their shale exploration activities.

While the energy commission focused on a broad and holistic set of recommendations for energy in the province, the immediate advantages to be gained from shale development took precedence. As noted, shale gas provided significant economic potential and in this vein, the government launched a series of key public engagement initiatives starting in 2011 for the development of: (1) rules and regulations to ensure responsible development, and; (2) the design of a royalty regime (GNB, 2011a; 2011e). A full discussion of the public engagement initiatives is included in Chapter 6, what is important to note at the outset is that coalitions (for and against shale) began to emerge in the province (also described in detail in Chapter 6). These developments posed a challenge for the governance of the resource and impacted the development of a regulatory approach.

Shale development, like any other type of energy development, poses risks, as highlighted in the section above. Provincially, different jurisdictions proceeded to regulate fracking activities with varying degrees of public engagement in policy processes. Jurisdictions traditionally associated with oil and gas development such as Alberta, undertook engagement mechanisms that were very limited in scope (Truong, 2021). Jurisdictions with less experience regulating oil and gas, such as New Brunswick launched extensive engagement processes. All did so in the context of emerging scientific research. The contestation of the science around the impacts of hydraulic fracturing is part of the normal process of science (Shwed & Bearman, 2010), but how this

relates to citizen uptake of science however, is something that is less understood. What became clear in the case of shale is that hydraulic fracturing technology and its impacts were uncertain in the early years of the analytic period under assessment in this study (2007-2017). Experts advocated for more research and the establishment of an evidence base to better understand not only the impacts of shale development, but how to appropriately regulate it (RNNR, 2011).

The coalition in NB against shale development pointed to the controversy and highlighted the potential risks associated with the practice and the need for more information to decide on shale. They argued that fracking could harm the environment and human health. Those for development including the provincial government argued that it would create well-paying jobs and promote economic prosperity in NB. Lewis et al. (2017) describe the opportunity that proponents in favour of fracking saw: in essence, it would create jobs, help eliminate deficits, and “allow the province to climb out of chronic "have-not" status as one of the largest per capita recipients of equalization grants” (p.16).

The public engagement processes in NB meant that actors were involved in decision-making to different degrees. In the effort to promote a governance approach that was normatively inclusive and open, the government created opportunities for citizens to interact with experts. The academic literature on democratic governance, argues for such approaches to decision-making. As detailed in Chapter 4, engagement processes are considered a primary method for building trust and learning amongst policy actors, with the aim of revising policy outputs to align with emerging perspectives. In New Brunswick, the government implemented significant public engagement mechanisms to build trust and support policymaking regarding shale development.

There were a total of ten engagement exercises in the province on hydraulic fracturing, varying from virtual and physical town halls to royalty regime and regulatory papers released for public comment that are outlined in detail in Chapter 6. How then do we explain the shift in policy towards the implementation of a ban that represented a major change away from developing a risk management regulatory frame? The lines between those advocating for and against shale development were quickly drawn in NB, and by 2014, it was clear that the public had major concerns about the risks of fracking to their province. How then did the controversy surrounding the impacts of hydraulic fracturing and the accompanying uncertainty influence decision-making?

For some, the implementation of a moratorium on hydraulic fracturing that established a decisive change in policy, was a clear response by government to rising public opposition to the practice. However, the government's establishment of five necessary conditions for fracking to proceed tells a larger story. As noted earlier, the top two conditions to lift the moratorium were the establishment of social license and 'clear and credible information on the impacts on air, health and water' (CBC, 2014a). How do the technical and social considerations interact in learning processes to inform policy? This dissertation examines how a major framework like the ACF that advances learning as a key pathway of change can help to account for this.

2.4 Research approach

The ACF is a comprehensive conceptual framework that seeks to understand how interests influence the policy process and what brings about policy change (Sabatier, 1988; Sabatier & Jenkins-Smith, 1994; Weible & Sabatier, 2007). For the ACF, the basic unit of study is a policy

subsystem, which the authors argue consists of advocacy coalitions. These coalitions compete to dominate the subsystem whereby they succeed in translating their beliefs into policy (Sabatier & Jenkins-Smith, 1999). The ACF contends that there are four major paths to policy change – through policy-oriented learning, external shocks, internal shocks, and a hurting stalemate. The pathways for change will be discussed in further detail in Chapter 3.

For the purposes of this dissertation, the focus is on policy-oriented learning in the ACF, a path to policy change that occurs as a result of belief change within a coalition. Here, knowledge plays an explicit role in the change of beliefs that ultimately creates a change in policy through the process of policy-oriented learning (Jenkins-Smith and Sabatier, 1994). According to the ACF, for learning to happen the authors have specified a set of conditions and a requirement for knowledge to be evidence based, and relying on ‘scientific and technical information’ (Sabatier and Weible, 2007).

Knowledge theorists have different ways of understanding the concept of knowledge that is useful to highlight for this research. One example is Habermas, who in his writing on the theory of critical knowledge, posits that there are three forms of knowledge through which people relate to each other and to the world. Habermas (1985) argues that these categories help people relate to the world in which they live, and relate to the people they share it with. Different adaptations of these three types of knowledge have been developed, of particular interest is that by Park (1993), who has outlined these as instrumental/traditional scientific knowledge, critical knowledge and interactive knowledge. Instrumental/traditional knowledge is scientific knowledge, produced through systematic research and developing generalizations. It is based on research objectivity and the development of explanatory models and theories. Critical knowledge

involves understandings of how powerful socioeconomic and political forces influence society, and is derived from critical reflection by questioning the conditions of life. Interactive knowledge is created by lived experience and by information sharing and discourse between community members, where people communicate based on common experience (Park, 1993). These forms of knowledge can be possessed by different types of policy actors (citizens and decision-makers alike) and are brought into the policy process (Bryant, 2016).

Thoughts and behaviour are altered through experience and while the theorists in public policy account for this as it relates directly to program and policy implementation (Howlett, 2009; Schneider and Ingram, 1994, 1997) there are social experiences that can alter policy beliefs as well. Policy learning is not only contingent on knowledge that is factual; it also depends on the perceptions and understandings developed from social interaction between people (Jasanoff, 1997). People have knowledge about their universe that is beyond technically based rational explanations of the quantifiers of risk and magnitude of harm posed by technological advancements. Interactive knowledge then works alongside different types of knowledge to influence outcomes, and in accounting for learning it is an important consideration (Park, 1993). Public policy accounts in frameworks such as the ACF have focused on the role of expert knowledge in facilitating learning, particularly in professional forums, but societal processes¹⁴ are occurring in parallel and the shared meanings that people create are important in driving their behavior and advocacy.

¹⁴ Social facts are not objective (Burrell and Morgan, 2017), They are shared meanings that are created and shape behaviour.

Many scholars have advanced significant critiques of the ACF (James & Jorgensen, 2009; Hajer, 2003); they argue against such a technocratic understanding of policy-oriented learning as a process, and make calls for its revision (Fischer, 2003; James & Jorgensen, 2009; Hajer and Wagenaar, 2003). The ACF contends that informed debate is what stimulates learning between participants, and that certain technical capacities are a requisite for this to take place. “Taken together, Sabatier's explanatory factors spell out a technocratic conception of policy learning that neglects the social and political aspects of learning” (Fischer, 2000, p.109). Rather than the sole focus on the role of empirical evidence in explanations of policy change, Fischer (2003) argues that credibility and trust have a major role to play.

In this vein, researchers contribute analyses of the role of knowledge, experience and learning in policy change. “Whereas the ACF claims that science can bring about a consensus on policy matters based on exchange and comparison of objective findings, social constructionists point to a wealth of research showing such findings, particularly in policy forums, are intermingled with discourses about political acceptability and social trust” (Fischer 2000, p.133). Shulock (1999) argues that it is insufficient to only consider technical and scientific information, and highlights the importance of an approach that includes knowledge from those affected by policy.

This is not without support in the empirical context, where we see changes in how governments engage the public and how stakeholder relations have evolved. In Canada, levels of trust in government have declined and been accompanied by a general decline of deference (Nevitte, 1996, 2014; Edelman, 2021). The restoration of the public’s trust and confidence is a large impetus for all levels of government to ensure effective public engagement (EMMC, 2017).

Increasingly, governments are consulting with the public in different sectors on both policy and regulation of emerging technologies and resource development.

Contemporary analyses of energy decision-making establish the significance of public participation through engagement with public institutions. From a policy studies perspective, theories of the policy process have committed continued attention to the role of engagement and scholars continuously advocate for more sustained and meaningful engagement to help decision-makers address large problems through cooperation and collaboration with societal actors (Coleman, Skogstad and Atkinson 1996; Abelson et al., 2015; Cvitanovic et al., 2015). Increasing demands of the public to participate and be meaningfully engaged in decision-making on both regulatory and policy decisions is also evident (Cleland and Gattinger, 2019). “The renewed interest in citizen involvement is not a passing fad, but stems from shifts toward more horizontal models of governance and toward a more organized, diverse and empowered civil society” (Phillips and Orsini, 2002, p.iii).

Technical knowledge and calculations of risk have tensions within democratic decision-making and the social context of communities where the risks apply (Mayer, 1997; Jasanoff, 1998; Van de Kerkhof, 2006). This is not a new phenomenon and the academic literature has advanced different understandings of the conflict and has proposed solutions. One such solution is to include those who are affected by technological advancement and associated development in the decision-making process (Laird, 1993; Fischer, 1999; Renn, 2004). Trust is therefore something that is also built through the establishment of communicative practices with people that are impacted by development to ensure that their perspectives, in particular their framing of the problem and participants’ needs, are represented in decision-making (Irwin, 2006). “Trust is a

key component of democratic decision-making and becomes even more salient in highly technical policy areas, where the public relies heavily on experts for decision making” (Gupta et al, 2020, p.493).

The process of communicating perspectives and engaging with decision-makers is one where two parallel developments are taking place: (a) learning amongst decision-makers and participants as they both engage in understanding different viewpoints with a mix of technical and non-technical considerations; and, (b) potentially revised outcomes/decisions. As such, it is increasingly important to understand what impact engagement has on learning and policy change. The decision-making stage in policy processes involves a range of policy actors, including public officials, politicians, industry representatives, academics, and in the case of public engagement, citizens. Over time, these actors interact through a variety of ways, and throughout the process obtain, interpret and disseminate information and knowledge to ascertain the parameters of policy problems and determine appropriate solutions (Sabatier and Jenkins-Smith, 1993). By participating in policy processes, policy actors uphold, strengthen or modify their beliefs and policy beliefs (Weible et al., 2009). The revision of beliefs is both a social and reasoning process, and is referred to as ‘policy learning’ in the scholarly literature.

Acknowledged for its role in policy change, policy learning is the focus of much policy research. “It is recognized [by the literature] that human learning is a fundamental intermediate factor in change processes” (Moyson, 2017, p.320). When it comes to the ACF, the central argument that forms the basis of the framework is that policy participants will partner with those who share similar beliefs, and that if they partake in a ‘nontrivial degree of coordination,’ they form an

advocacy coalition (Sabatier and Weible, 2007). As such, beliefs play an important role in their ability to ally participants together and form the interests that they then aim to transform into policy. The ACF contends that there are four major paths to policy change (that are outlined in detail in Chapter 3), however, as discussed above, it relies on traditional notions of decision-making and does not account for the establishment of public engagement practices in policy processes.

This dissertation seeks to contribute to the theoretical and empirical scholarship in this domain. The study's focus is on learning in the context of public engagement on shale development, and it seeks to make meaningful contributions to the understandings of the factors that influence policy change in policy decision-making.

The central research question of the study is the following:

Under what circumstances does policy-oriented learning lead to policy change?

While this research does not discount that there are other factors that produce policy change, it is interested in focusing on an assessment of policy learning. To this end, the research aim is two-fold: (a) to assess the factors that effect learning; and (b) to understand the nature of learning and its influence on policy change.

As such, the secondary questions are:

- i. What factors account for the nature of policy-oriented learning regarding shale development in New Brunswick?**
- ii. How does this impact policy change in New Brunswick?**

The study posits that there are three major factors that influence the relationship between policy-oriented learning and change. These include:

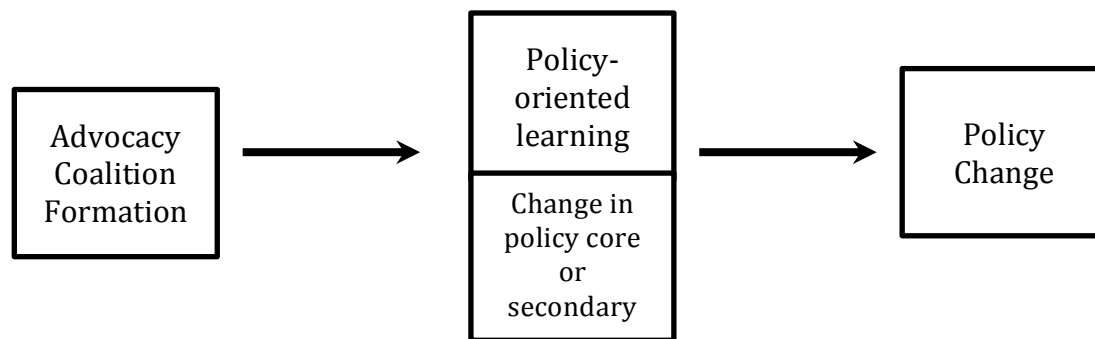
- (a) Context of uncertainty
- (b) Public engagement
- (c) Trust in public authorities

This study defines learning consistently with Sabatier's conception of learning in the ACF as "relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of the precepts of one's belief system" (Sabatier and Jenkins-Smith, 1987, p672). This dissertation acknowledges that policy actors seek to influence policy to align with their beliefs, but emphasizes that experience and knowledge are socially constructed. The study also seeks to understand how the nature of learning is shaped by factors such as trust. The causal links between these factors are discussed in more depth in the next chapter.

For this research, policy change is defined as 'fluctuations in the dominant belief systems (i.e., those incorporated into public policy)' (Sabatier, 1988, p.158). In the case of New Brunswick, this dissertation refers to the change in policy regarding shale development whereby an amendment to the *Oil and Natural Gas Act* was legislated to prohibit hydraulic fracturing from

taking place in the province in 2014. This amendment was applied temporarily and further extended indefinitely in 2016. By placing the research firmly within the broader confines of the ACF, the dissertation consequently adopts the causal role of policy-oriented learning as a factor that may lead to policy change (see Figure 2). In particular, the ACF positions learning as the independent variable that leads to a change in policy (the dependent variable) through a change in beliefs (intervening variable). This dissertation advances its critiques by focusing on the factors that shape learning and belief change.

Figure 2: Policy learning and change in the Advocacy Coalition Framework



(Figure created by a author, adapted from Sabatier, 1993)

With regards to belief change, this dissertation adopts the characterization of belief structure used by the ACF. Beliefs are a core component of the theoretical frame since they are the interests that members seek to convert into policy (Sabatier, 1988). There are three levels of belief: a deep core belief that deals with fundamental ontological assumptions, the policy core and the secondary level. Ontological assumptions deal with norms and values, and are much more difficult to alter than alteration of cognition that is concerned with what we understand and believe about the world. Therefore, the deep core is almost inalterable; however, the policy core is the level that deals with both empirical and normative elements, providing a higher potential

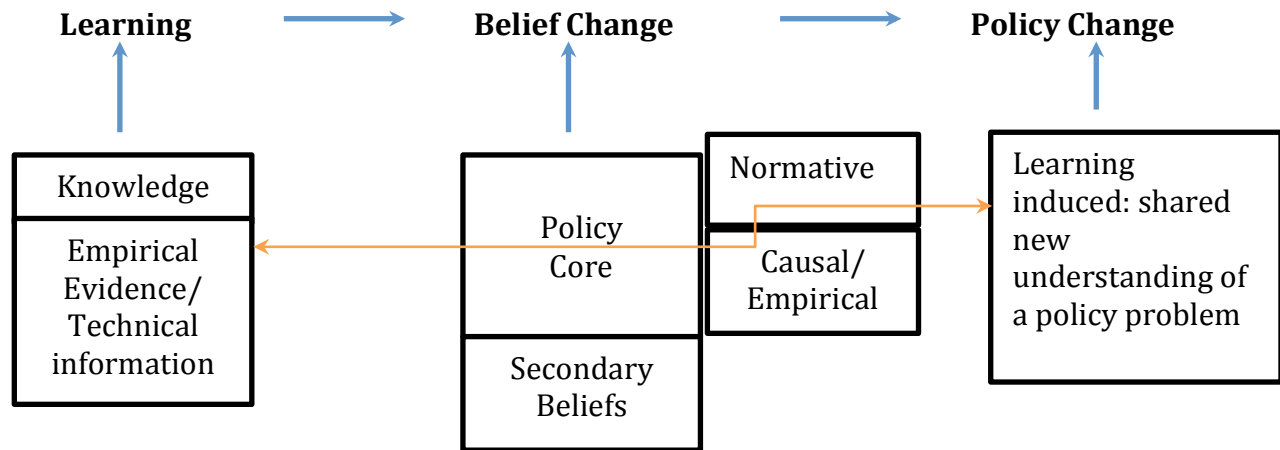
for change (Bennett and Howlett, 1992). Finally, the secondary level of beliefs is where strategies are determined to realize the notions of the policy core.

With a higher degree of susceptibility to change, policy core beliefs are the focus of this research. As noted, policy core beliefs encompass both normative and empirical beliefs. On the one hand, normative beliefs relate to ‘basic values’ and ‘welfare priorities’ (Sabatier, 1998). A practical example of this is the respective importance that actors place on environmental quality versus economic growth. On the other hand, empirical beliefs are related to the general gravity and causes of the problem. For example, the seriousness of groundwater contamination or the possible sources of contaminants, which in this case is informed by scientific research and expertise. It is only in more recent updates to the ACF that Weible et al. (2009) explore the nuances between these two types of beliefs at the policy core level.

For this dissertation, the emerging distinction between empirical and normative beliefs has significant implications for understanding change in the context of uncertainty and scientific controversy. The ACF posits that scientific and technical information largely impacts causal dimensions of the policy core and therefore empirical beliefs are more likely to change¹⁵. This relationship is highlighted in Figure 3 below. It is an assumption that this research seeks to assess in light of three factors, particularly trust, uncertainty and public engagement on learning. This includes how social experiences and the social context influence learning and how these are translated into policy beliefs.

¹⁵ Empirical policy core beliefs are more susceptible to verification and refutation from scientific and technical information—and therefore are more likely to exhibit change compared to normative policy core beliefs (Weible and Sabatier, 2009, p197). They can for example relate to causal links between carbon-intensive crop-based biofuels and food shortages in developing countries.

Figure 3: Hypothesis about the relationship between learning, belief change and policy change in the Advocacy Coalition Framework



(Figure created by author, adapted from Weible and Sabatier, 2006)

As noted, policy-oriented learning in the ACF is defined as *experience* and/or *new information* influencing the revision of objectives. Knowledge therefore plays a central role in shaping the policy beliefs that coalitions advocate for and is what underpins learning. Through their lived experience, actors gain new knowledge but also by interpreting new information they further build their knowledge base. However, as described above, the ACF emphasizes the role of empirical data that is generated within the context of professional norms of scientific research and restricts learning to policy elites (Weible and Sabatier, 2009). The framework posits that actors' knowledge about the parameters of the seriousness of the problem determine the link to policy objectives that they advocate for. Therefore, the authors argue that *empirical beliefs* are more likely to change than *normative beliefs* (Weible, Sabatier et al., 2011).

Experience takes on a secondary role in altering beliefs in the ACF, which the framework defines as experience with implementation of different mechanisms for achieving policy objectives (mainly in reference to policy elites) (Weible, Sabatier et al., 2011). The authors contend that policy actors learn from their involvement with adopting different types of instruments. Therefore, by doing, actors better understand what instruments are not suited to achieve their outcomes and that need to be revised in the future ¹⁶ ¹⁷(Weible, Sabatier et al., 2011). Ultimately, these two main types of knowledge are what the ACF argues aid in explaining belief change and potentially therefore policy change.

Rather than focus on instrumentation, this dissertation instead questions the role of experience as a type of knowledge gained through interaction and engagement. Risk scholars argue that cultural underpinnings shape actors' understandings of risk, and accordingly, that beliefs about the world emerge directly from human experience (Douglas, 2004). These insights are drawn on in social-psychological research in the context of uncertainty to assess how citizens process information. The research demonstrates that people draw on their lived experiences to make judgments, but it also shows that in the absence of information, people will rely on their knowledge of social processes (Hill, 1992)¹⁸. This study seeks to understand how this insight factors into public engagement on resource development where decision-making involves significant technical considerations.

¹⁶ This conception of experience in the ACF necessitates that actors gain/have the knowledge of performance gaps or unintended consequences of implemented policies (Jenkins-Smith and Sabatier, 1994).

¹⁷ The ACF posits that beliefs about appropriate instruments to achieve objectives are at the secondary level of beliefs. Researchers have demonstrated that enough changes at the secondary level will lead to a change in belief at the policy core. This is related to understanding of what actions have been unsuccessful and leads to a change in the understanding of parameters of the problem, but it is not clear to what extent this relates to the normative components (Weible et al., 2009).

¹⁸ Although many advocates in psychology and risk communication studies have argued for the role of broad-based energy literacy to inform citizens, the limitations in this "knowledge deficit model" challenges those assumptions.

Therefore, this research argues that a type of knowledge that is different from technical knowledge – interactive knowledge – can be integrated into the ACF to bolster the framework’s conception of learning. To assess learning in a context underpinned by uncertainty and engagement, it is important for research agendas to integrate an assessment of interactive knowledge that can inform how policy objectives are determined.

To examine the role of interactive knowledge, this dissertation is focused on determining the nature of learning that is not strictly based on empirical research within the confines of expert engagement in scientific forums. Therefore, the focus is on the *nature* of learning, and as outlined above, the study adopts the perspective of social constructivist critique that rejects strict empiricism and rational approaches to knowledge. This is not evaluated through testing hypotheses, verification and refutation but is grounded in experience – it is their social knowledge of the world in which they live. “From the constructionist position the process of understanding is not automatically driven by the forces of nature, but is the result of an active, cooperative enterprise of persons in relationship” (Gergen, 1985, p.267).

One immediate consideration when assessing interactive knowledge is trust, and the literature demonstrates that trust is shaped by experience. As it pertains to technology, the literature argues that it is perceived by people as a mix of institutional elements and physical features, and is therefore based on sociohistorical context (Cope et al., 2010)¹⁹. If relationships of mistrust exist between the public and public authorities governing risk, then perceptions of risk are augmented.

¹⁹ There are both interpersonal dynamics affecting trust and the broader institutional level of trust to consider. This will be discussed in further detail in the next section.

Some research exists to differentiate the role of trust in government versus regulators; however, in this case, the dissertation focuses on trust in public authorities as those making decisions and implementing policies and programs broadly. There are two reasons for this choice: (a) in New Brunswick, the government department responsible for promoting resource development is also responsible for regulation (there is no independent energy regulator) (b) for shale development specifically in New Brunswick, it was a relatively new topic on the policy agenda and both policy and regulatory decision-making is where the public was engaged. This research questions how this impacts the policy core beliefs of coalitional actors, and in particular the link to normative core beliefs.

For the purposes of this research, engagement is defined as ways that the public can participate in the policy process²⁰. The Government of New Brunswick defines public engagement as: “a way of bringing citizens, community non-profit organizations, businesses, and government together to solve problems that affect people’s lives. It is a very inclusive problem-solving approach to deal with complex public problems. When everyone in a community is affected by a problem, everyone should take part in finding solutions to that problem. In this way, a partnership is formed where people work together to achieve a common goal” (New Brunswick, 2008). This study relies on the International Association for Public Participation’s (IAP2) spectrum of participation, as a standard reference internationally to identify the level of participation in each phase of public engagement in NB over the course of 2007 to 2017. The

²⁰ There is a large body of literature that questions the effectiveness of engagement as a one-way form of communication flow from public authorities to the public (Rowe and Frewer, 2005; Phillips and Orsini 2002). This is deemed to be consultation and does not involve a genuine effort to include citizens at the heart of decision-making. Researchers posit that collaborative approaches facilitating two-way communication flows between public authorities and the public in an iterative process are arguably more effective in producing decisions that are accepted by people (Phillips and Orsini, Abele et al., 1998). While the discussions on involvement versus engagement are important and valuable, they are not the focus of this study.

spectrum developed by the IAP2 as shown below in Figure 4, outlines five key approaches to public participation that range from least amount of public impact to most influence in decision-making. While it only provides a guideline for researchers to understand the level of engagement, it is very helpful for community groups to identify their role in a democratic decision-making process.

Figure 4: International Association for Public Participation engagement spectrum

INCREASING IMPACT ON THE DECISION					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

© IAP2 International Federation 2018. All rights reserved. 20181112_v1

(IAP2, 2021)

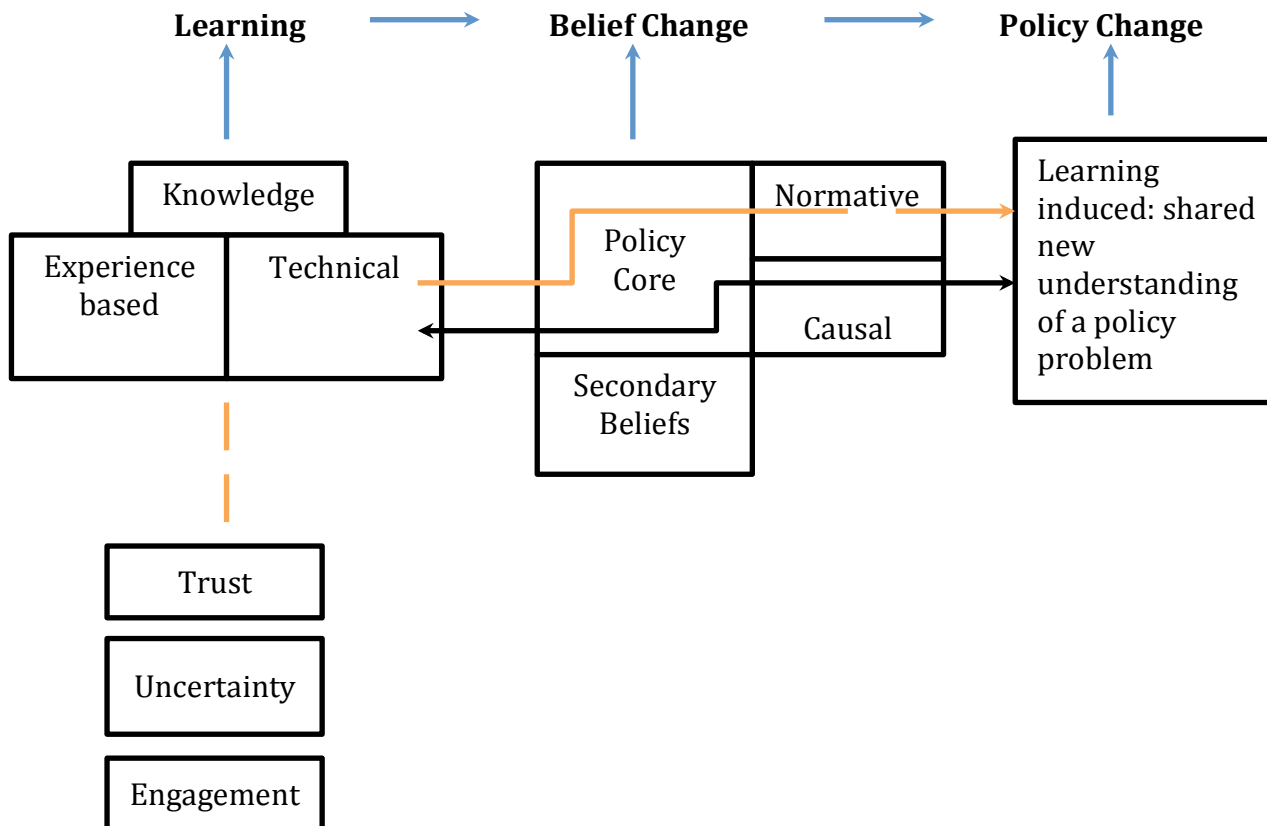
This study does not assess the effectiveness of the government of New Brunswick’s commitment to work with the public and use public input in decision-making. The research is aimed at understanding how the context of engaging the public on policy and regulatory decisions influenced learning, and how that links to the level of participation as identified by the IAP2 spectrum. Accordingly, this dissertation argues that the broader public can become involved in a

policy issue and uses public engagement to refer to both the participation of individual citizens and to the participation of citizens in organized groups.

More specifically, this study hypothesizes that preferences of coalitional actors are determined and altered through social interaction and that they have a strong effect on normative components of the policy core. Important aspects of learning that can shape policy change are hypothesized to be trust and experience as mediating factors that influence learning and relate to the normative components. A secondary supporting hypothesis is that the normative components of the policy core are more likely to change than the causal components²¹ (see Figure 5) and this is evident in the strategies that actors undertake to influence policy. As we see non-traditional actors engage in policy formulation and develop strategies to influence policy outputs, understanding policy change requires a nuanced understanding of the mechanisms of change. This research argues that through learning, policy actors adapt their strategies to contest the goals and means of policy and broaden the scope of policy to advocate for new understandings of policy problems.

²¹ The markers and indicators of which will be discussed in the following section of this discussion.

Figure 5: Hypothesis about the relationship between learning, beliefs and policy change developed in this dissertation



(Figure created by Author, adapted from Weible and Sabatier, 2006)

2.5 Ontological and epistemological approaches

The research for this dissertation is dealing with different epistemological stances that influence the study. On the one hand, the ACF is a framework of research that is built on positivist assumptions (Fischer, 1998; Knox, 2010). On the other, this research aims to integrate a strengthened assessment of learning in the ACF that is influenced by post-positivist research postulates. Specifically, this research seeks to reintegrate the context within which policy actors learn and elucidate the role of engagement and communication in influencing policy change. To

do so, this section provides an overview of the positivist and postpositivist paradigms, in particular how post-positivism builds on positivism through critique to advance the notion of embedding action in the social world within which it exists. The section then provides an overview of the paradigms and highlights how the methodology will square off these practices in the study.

Positivist paradigm

The positivist paradigm has been the traditional approach to inform the causal mechanism of policy change (Brady and Collier, 2010). It has dominated social science research and public policy studies, and emphasized rationality in decision-making (Fischer, 1998; Fischer, 2003). According to the positivist agenda, human behavior can be explicated in terms of universal laws and in relation to persistent relationships that represent a constant underlying reality that exists in the world (Dryzek, 1993; Fischer, 2019). For positivism, the external world exists autonomous of human interpretation, and human beings can acquire information about their world through sense and direct observation. Observations are classified and understood within the framework of scientific methods (Levers, 2013).

According to the positivist stance, the scientific method then is the system of knowledge production that is reliable. On the basis of this epistemology, objective hypothesis testing to generate understanding of our world through rigorous causal generalizations is the best approach to produce knowledge. There is a systematic approach associated with the scientific method through the principles of reliability, objectivity and validity (Levers, 2013). The aim is to produce a corpus of empirical generalizations that are able to explain behavior across different

social and historical contexts (Forester, 1993; Fischer, 1998). In the effort to do so, positivism tends to rely on reductionism and ultimately examines behavior separate from the context in which it exists or takes place.

Positivism maintains that science is neutral and objective to produce universal understandings that can be empirically tested and are determined from logically consistent hypotheses (Ormston et al., 2014). Behind this is a strict emphasis on the separation of facts and values. Accordingly, there is an explicit rejection of normative values with the emphasis on the use of facts that are neutral and limit research orientations to empirical assessment. Research is therefore conducted ‘independently of normative context or implications’ (Fischer, 1998, p.130). There is little consideration given to the impact of context on the phenomena to be explained. Context is minimized as an explanatory factor that may shape phenomena in social reality.

How this relates to the role of knowledge in the policy process is rooted in the notion that science is the basis of objective knowledge, which is effective in dealing with social problems to achieve policy objectives. It is evident that politics are treated separately, where the policy process can be seen as a rational one (Dryzek, 1990; Kay, 2011). Accordingly, this fostered a technocratic approach to policy analysis where intrinsically normative social problems are rendered into technically defined ends to be attained via administrative means. Rational processes of decision-making are therefore embedded in this understanding that does not account for different types of knowledge creation and use.

Post-positivist paradigm

The postpositivist turn stresses the significance of the inherently normative nature of the field of public policy. Postpositivism does not see observations of objective things as separate from human subjectivity (Fischer, 2003). Postpositivist researchers argue that what is known as modern science is very much rooted in the social and historical considerations grounding the pursuit and determinations of truth. On a general basis, postpositivists assume an epistemological orientation that highlights the subjective foundations of social reality (Fischer, 2003). “Postpositivist theory emphasizes science's dependence on the particular constellation of presuppositions, both theoretical and practical, that pre-structure empirical observations” (Fischer, 1992, p.2). Therefore, the positivists’ scientific approach is based on and framed by existing social meanings and normative suppositions of the world it studies. This is the social constructionism that postpositivists seek to reveal; their approach aims to restore the social and normative context that gives empirical findings meaning (Fischer, 2003; Fischer, 1992; Dryzek, 1994). As Fischer (1998) explains:

“With the recognition of the socially constructed character of a given reality, neopositivism’s theory of falsification loses its fixed anchor to the social world. Because the empirical object the researcher seeks to measure is rooted in his or her own understanding of it (i.e., assumptions, expectations, and experience of the very object), efforts to treat the world and its representations as isomorphic can only lead to misrepresentations” (p.133).

Postpositivists criticize the technocratic approach to analysis, and instead ‘search for subtle influences such as material forces, discourses, and ideologies that act so as to condition the content of policy’ (Dryzek, 2002, p.32). They seek to show the ways in which activities of science are very much a result of the social world that they aim to explain. Importantly, postpositivism does not reject positivism but advocates for a fulsome understanding of what scientific research is involved in doing. By integrating an understanding of the situational environment they focus on the discursive practices that form the construction.

Knowledge according to this perspective is produced through discursive processes but more specifically according to Fischer by way of conflicts between competing interpretations. Knowledge through discourse is seen as accepted belief rather than absolute truth, and as such beliefs are the result of a series of interpretative judgments that arise through research on both a technical and social basis²². This approach shows that any given policy problem can be considered in a multiplicity of ways, and consequently policy analysis should take into account numerous perspectives and incorporate them into the process (albeit to different degrees) (White, 1994).

Numerous perspectives are communicated through discursive practices in different policy contexts and forums. Accordingly, the argumentative turn to policy analysis there is recognition that language reflects reality. Fischer and Gottweis (2012) argue that language is “a constituent of reality, shaping – and at times literally determining – what we understand to be reality” (p.8). Argumentation itself is the process where people engage in logical inquiry to reach

²² In this case, empirical data turns into knowledge within the interpretative action and interaction of different viewpoints.

conclusions. Importantly, while this is based on formal logic, there is also logic and practical reasoning. “This technocratic model of the social scientist as detached observer (rather than reflective participant) always needs to be contextualized in the social relationships it constitutes as a form of socially distributed practical knowledge” (Bohman, 2003, p.96).

While the ACF acknowledges the social construction of policy problems, Sabatier and Jenkins-Smith (1993) maintain a model of rational decision-making within their framework. It is an approach justified by science, and although the theoretical framework is meant to explain how interests influence the policy process, it privileges the role of science over other forms of knowledge. In a different way, “the discursive analytic approach takes argumentative interaction to operate through an informal interpretive logic more complex than seen in the empirical-deductive logic of the ACF framework” (Fischer, 2003, p113).

Against this backdrop, this dissertation seeks to reintegrate the social context into an understanding of what the conditions are under which learning occurs. In this vein, the research aligns with a post-positivist realist perspective, that acknowledges that there is an objective reality but that it remains ‘imperfectly knowable’ and influenced by the researcher (Della Porta and Keating, 2008). Post positivists study the problem by reflecting a need to examine causes that affect results. As such, “a deductive approach, which is emphasized in post-positivism, tests theory or a hypothesis against data. An inductive approach, which is usually emphasized in interpretive and critical belief systems, generates theory directly out of the data” (Hesse-Biber & Leavy, 2011, p.5). This dissertation is targeted at testing a proposed hypothesis for the ACF, and in doing so subjecting an existing hypothesis on policy learning to empirical falsification. The study also seeks to contribute to the understanding of knowledge that emerges in social contexts,

and how this knowledge can influence the nature of learning and policy change. In line with Della Porta and Keating (2008), the methodology recognizes context and is mainly empiricist, employing mixed methods and triangulation. As outlined by Riccucci (2010), “post positivists emphasize the importance of triangulation, multiple measures, and observations, each of which possess different types of error” (p.51). Accordingly, the research undertakes documentary analysis, media analysis and semi-structured interviews which is highlighted in further detail below.

2.6 Research design and methodology

Scholars like Fischer (2003) argue that social processes and interactions influence different realities, and this is something that requires research and explanation (Fischer 1998; Bacchi 2000; Fairclough, 2000). Relying on interpretive approaches can show how different actions are interrelated and influenced by the context wherein which they occur (Yanow, 2000). According to this approach, knowledge is shaped by shared understandings and discourse plays a role in how policy actors accordingly develop interpretations of policy problems (Yanow, 2000). Problem definition plays a key role in the policy process, and as it relates to decision-making specifically, it impacts the parameters of possible options that are considered as solutions. In the case of hydraulic fracturing in NB, this manifested in contested responses to what policy actors deemed as the problem with shale development. The pro-development coalition advanced anticipatory comprehensive regulations to ensure the safety of operations, but the anti-shale coalition’s initial calls asked for a tempered approach to development overall. This call by the anti-shale coalition advocated for the need for more information before any decisions could be made to proceed with fracking, but eventually throughout the public engagement process in the

province between 2007 and 2017, the anti-coalition's call solidified in 2013 to request a moratorium on hydraulic fracturing in the province.

As such, it is important to understand the local implications of decision-making in the face of uncertainty (the case with shale development). The province also has a complicated history as well as a broader set of evolving policy issues that helps understand the change in policy in 2014. This thesis is focused on reintegrating the social and local context in the case of shale development in NB. It proposes to do this by assessing the role of three key factors: public engagement, trust, and uncertainty in decision-making. Accordingly, the researcher adopts the post-positivist stance underlining the need for explanation as outlined by Gamlen & McIntyre (2018), which requires descriptions of 'patterns of social interaction' and discerning what the actions represent for those involved.

The challenge with this approach is to reconcile the model of the individual in this research study. The ACF ontologically posits a model of individuals on the micro-level where individuals involved are goal-oriented with restricted cognitive abilities, and therefore, the framework assumes bounded rationality. To make sense of the world around them, individuals 'filter perceptions through their belief system' (Fischer & Miller, 2006, p127) and the process of learning is rational and comprehensive. In contrast, post positivist approaches, as noted above, see cognition as based on shared understandings that are constructed through discourse (Hajer and Wagenaar, 2003; Fischer, 2003). To advance an examination of the nature of learning, this study emphasizes the importance of cognitive aspects in determining beliefs but aims to also build in the role of social processes on belief formation (Heikkila and Gerlak 2013; Moyson, Scholten, and Weible 2017; Dunlop and Radaelli 2017; Cairney and Weible 2017). Therefore,

the study leverages the model of the individual where policy actors are boundedly rational but are constantly looking to ‘learn and adapt their strategies’ (Cairney and Weible, 2017, p.625)²³. In processes of policy learning, policy actors learn through lived experience that serves to change their beliefs about the parameters of a policy problem (at the policy core level) and the appropriate instruments (at a secondary core level) based on interactive knowledge. In updating their preferences, the learning process is inclusive of the broader policy community and not restricted to technocratic learning.

The learning literature is very much focused on the role of policy elites (government officials, regulators, bureaucrats), and as will be demonstrated in Chapter 3, most advanced conceptions of learning focus on how policy elites update their preferences according to the efficacy of certain policy instruments in a process more akin to ‘lesson-drawing’: what they learn from other jurisdictions or epistemic communities (social and policy learning) or based on the feasibility of political choices (political learning) (May, 1992; Hall, 1993; Bennett and Howlett, 1992; Schmidt, 2008; Jenkins-Smith and Sabatier, 1994; Dunlop and Radaelli, 2017). This study does not discount the role of policy elites in learning in these ways; however, it aims to strengthen the understanding of learning beyond just elites to other policy actors that are fundamentally involved in policy processes through mechanisms of public engagement and in settings where there are uncertainties. The ACF is well positioned to shed light on the nature of learning and what can lead to policy change in this way.

²³ Cairney and Weible (2017) aim to “articulate convincingly the iterative relationship between individual actors and the organizations and wider contexts in which they operate” (p.620).

On a broader societal scale, it is clear that societal dynamics interact with science and in some cases produce unanticipated consequences (Slovic, 1993). In the case of fracking, policy objectives were being developed in the context of scientific controversy regarding the impacts of fracking. Having squared off the model of the individual at the micro level leaves the question of the meso and macro levels for this research. Expanding from the micro level to beyond individuals' learning, this dissertation adopts a mechanistic perspective on causality as outlined by Capano and Howlett (2020), whereby outcomes are produced through 'interactions of a series of parts that transmit causal forces from X to Y' (citing Beach and Pedersen, 2013, p.176). By this definition, it is a mechanism that connects causes with effects in a causal chain. The authors assert that these mechanisms can extend over micro to meso and macro level phenomena. The meso-level is where "*action-formation* mechanisms [...] link individual activities or behaviour to individuals' actions and *transformational* mechanisms [...] generate intended and unintended outcomes" (Capano and Howlett, 2020, p146). Separately, the macro level is where the existing political system, institutions and the external environment exert influence on the policy subsystem (Van der Heijden et al., 2019).

For the purposes of this research, the researcher adopts the ACF's perspective of assessing change at the subsystem level over a period of 10 years or more (Jenkins-Smith and Sabatier, 1994). It is therefore focussed on the meso-level assessment of policy learning where action mechanisms link behaviour to the generation of outcomes in the case of NB between 2007 and 2017. This helps reveal the nature of learning and will seek to elucidate how learning can influence change, by focussing on the role of policy core beliefs and the causal and normative claims associated with learning at this level. This research responds to the call by Jenkins-Smith, Weible, Nohrstedt and Ingold (2018) to advance theory and measures of learning in the ACF.

They argue that “despite its centrality to the framework, conceptual development of policy-oriented learning – including causes, kinds of learning, and implications – is among the least mature components of the ACF” (Jenkins-Smith, Weible, et al., p.154). The following chapter will discuss in detail the key parameters, hypotheses and drivers of change outlined by Sabatier and Jenkins-Smith in the ACF. For now, this next section will focus on the components that are relevant for the methodology and will outline the methods employed in this dissertation.

This research seeks to explain policy change and to identify the scope of policy learning and the role of different factors in shaping learning as a causal mechanism of change. To do so, the study focuses on a single in-depth case study of policy change in New Brunswick. The case study design is used to gain an in-depth understanding of phenomena in their real-world context (Yin, 2009). For single case studies, case study research allows for the selection of a case that is rich with information and offers deeper understanding of conditions over time as well as contextual underpinnings that impact outcomes (Yin, 2009). Over the course of 2007 to 2017, the government of New Brunswick – while different governments were in power – undertook a large range of activities to address shale gas development in the province. In particular, it adopted many different mechanisms of public engagement to engage citizens on issues related to development. The extent of activities/engagement is not well documented in existing research and literature; therefore, a major contribution of this study is a detailed account of empirical developments in New Brunswick.

A key post positivist assumption is that “knowledge can be best gained through a search for regularities and causal explanations” observed in the physical and social world (Miller, 2000, p.60). To examine the causal chain of learning and link the events together, this study employs

the process-tracing method²⁴. Process-tracing is employed to determine the “how” and “can be used to identify and describe policy events, and to elaborate on the single or multiple paths by which they come about” (Kay and Baker, 2015 p.2). Causal Process Tracing provides a detailed account of the ways in which policy emerges in all its complexity, which is increasingly utilized in post positivist approaches (Kay and Baker, 2015). Here, the study uses theory-testing process-tracing, formulating a causal mechanism from standing theory to test how the mechanism functions (whether it does so as expected). This method also provides important guidelines in terms of the identification of theoretically informed hypotheses, and context specific predictions, which structure the empirical test (Beach & Pedersen, 2011; Gerring, 2007).

The process-tracing method emphasizes the mechanisms linking the independent and dependent variables. According to Ulriksen and Dadalauri (2016):

Rather than testing multiple instances of a relation between an independent and a dependent variable [...], one examines a single instance of a causal chain where multiple factors may lead to an outcome; this causal path is not necessarily linear, but may be circuitous with multiple switches and feedback loops (p.226).

Since process-tracing researchers study causal processes over longer periods, it is possible to single out when and how different factors influenced each other (Ulriksen and Dadalauri, 2016). The study draws on policy document analysis, media research analysis and key informant

²⁴ It is also beneficial for assessing complex causal relationships extending over a large period of time (George and Bennett, 2005).

interviews to establish patterns and provide account evidence²⁵. The aim of the research is to provide an understanding of the mechanism of change (policy learning) and the factors that contribute to influence policy change. It is particularly focused on how knowledge influences the policy process.

2.7 Data collection methods

The study consists of documentary and media analysis and in-depth interviews with key informants.

Documentary analysis

The study relies on literature in public administration, political science, environmental studies, and risk management in the development of the conceptual framework. Additionally, with the strong focus on the role of the ACF and learning, the study draws heavily on literature analyzing and defining the theoretical framework and ways to assess and measure learning. To examine learning in empirical terms, the study draws on scientific reports, publicly available government policy documents, and reports from industry, environmental organizations, and think tanks between as early as 2005 up until 2022. Also, through the *Right to Information and Protection of Privacy Act* (RTIPPA), the researcher submitted requests on September 11, 2018 to (a) the Department of Energy and Mines (which later became the Department of Energy and Resource Development) and (b) the Department of the Environment and Local Government in NB. The requests submitted asked for all documents, internal and external memos, meeting agendas and

²⁵ Account evidence is defined as: “a type of evidence in the form of a statement or narrative that gives a description of an event or thing. Common sources of account evidence include participant interviews” (Beach and Pedersen, 2019, p.175).

meeting minutes, briefing notes and policy briefs related to the work of the Natural Gas Steering Committee between January 2011 and January 2014.

In response to the RTIPPA request, the researcher received redacted materials on December 10, 2018. Relevant records were provided by the Department of Energy and Mines, and were relied on to trace engagement timelines and objectives. The researcher received 29 documents with some portions of the documents withheld pursuant to different sections of the Act. The documents included several agendas for the Natural Gas Steering Committee and the Natural Gas Group (the roles of which are outlined in Chapter 6), in some instances the agendas were annotated including updates and discussion points. Also included were a Natural Gas Development Action Plan detailed summary update to the Steering Committee (July 13, 2011), a memorandum to the Minister regarding the Inter-Jurisdictional Collaboration Government Renewal Project outlining the Department of Natural Resource's advice towards Natural Gas Regulation Harmonization (with Nova Scotia), detailed email summaries providing updates on the shale gas file and the department's work under the Natural Gas Steering Committee, emails from industry and NGOs outlining their stance and considerations in response to the government's proposed regulations for shale gas, a resolution from the Village of Doaktown with requests of the province to secure the water supply in light of potential natural gas extraction, an evidence based volume of case studies and lessons learned from jurisdictions across North America in regards to hydraulic fracturing activities, and the appendix to a memorandum outlining in detail the government's public consultation initiatives with respect to shale gas development.

The documents were analyzed to establish historical context, an overview of the policy and regulatory context in NB, the timeline of key events and the key actors involved. The documents were also analyzed to determine the fundamental arguments and strategies employed by policy actors, to assess for support of learning. In this vein, the study employed thematic analysis to identify and assess patterns of meaning, focused on ‘identifying and describing’ themes in the information (Guest, MacQueen & Namey, 2012, p.9). Key themes to assess learning included: (i) core beliefs (ii) secondary beliefs (iii) strategies and arguments supporting each (i & ii) and is outlined in more detail in the section below on measuring learning.

Semi-structured interviews

To assess thought and behavior, 17 semi-structured interviews were conducted for this research between May 2016 and July 2019, in order to understand policy actors’ perceptions. The researcher visited New Brunswick and conducted in-person interviews where possible, and undertook phone interviews where necessary. In addition, the researcher drew on secondary data from 12 additional semi-structured interviews in the Spring of 2016 undertaken for another project related to trust in public authorities in NB for shale development, for which the researcher was a primary investigator. The researcher interviewed community leaders, public advocates for and against shale development in the province, industry leaders, bureaucrats, and politicians (detailed further below in the next section). There is a large constellation of actors involved in the case, and interviews were crucial to understand the views and importance of various individuals and organizations representing them. With approval from the University of Ottawa’s Research Ethics Board to proceed (Appendix B), potential interview participants were

contacted by email with a detailed overview of the proposed study and a request to discuss their experience if interested.

As noted, interviews conducted for this research were semi-structured which enabled the researcher to capture different experiences and perspectives. The interviews were about an hour to an hour and a half in length and asked NB participants about their beliefs and views on shale development, how those views may have evolved, their level of knowledge about fracking and degree of participation in public engagement exercises, and their reflections on policy (see Appendix A for the Interview Guide). All of the interviews were transcribed and analyzed for arguments for or against hydraulic fracturing, and the framing of the problem and strategies associated with shale development. To triangulate the documentary and interview data, a media review was also conducted. The researcher also drew on primary data from a Nanos public opinion study conducted in Kent County, NB²⁶ (Nanos, 2016). For selection of the participants this research undertook purposive sampling.

Purposive sampling

The sampling for this case study was purposive; this facilitated the selection of participants that represent the knowledge dimension assessed in this research.

In NB, pro and anti fracking coalitions formed and were vocal about their perspectives. Some groups shared information and circulated perspectives amongst each other and with the media and government workers regarding the practice of fracking. Key informants were drawn from

²⁶ The poll surveyed Kent County residents, the community directly implicated in shale development in NB.

both coalitions and the research proceeded with snowball sampling. The criteria for the sampling process involved:

- Participants from the most vocal communities in New Brunswick, located along the Moncton to Miramichi corridor. This included Riverview, Dieppe, Bouctouche, Rexton, Richibucto, Doaktown and Elsipogtog First Nation and involved:
 - Government officials working on energy files, mainly in Fredericton
 - Proponents of hydraulic fracturing in the province
 - Elected officials: city mayors and Members of the Legislative Assembly (MLAs)
 - Former band council members from the Elsipogtog community
 - Journalists
 - Citizens involved in either coalition
 - Members and organizers of the Commission on Hydraulic Fracturing

Interview participants were granted anonymity if they preferred it, and the researcher validated quotations from the interviews with the participants. The interview participants are categorized below in Table 1.

Table 1: Research study interview participants

Category	Participants
Elected representatives	<ul style="list-style-type: none"> ▪ Anonymous 1 - Former provincial politician ▪ David Coon - Leader of the Green Party of New Brunswick ▪ Bruce Northrup - Former Minister of Natural Resources ▪ Anonymous 2 - Local Service District representative ▪ Anonymous 3 - Municipal government leader in Kent County

	<ul style="list-style-type: none"> ▪ Anonymous 4 - First Nation leader
Public authorities including regulators and bureaucrats	<ul style="list-style-type: none"> ▪ Anonymous 5 - Bureaucrat, NB Department of Energy and Resource Development ▪ Anonymous 6 - Bureaucrat, NB Department of Environment and Local Government ▪ Anonymous 7 - Bureaucrat, NB Department of Environment and Local Government ▪ Anonymous 8 - First Nations Representative ▪ Paul Lang - Executive Director of the Kent Regional Service Commission ▪ Eilish Cleary – Former Chief Medical Officer of Health of NB
Civil society leaders	<ul style="list-style-type: none"> ▪ Denise Melanson - Upriver Environmental Watch ▪ Paul Melanson - Upriver Environmental Watch ▪ Jim Emberger - New Brunswick Anti-Shale Gas Alliance ▪ Anonymous 9 - Grassroots Organization Representative ▪ Anonymous 10 - Grassroots Organization Representative
Industry representatives	<ul style="list-style-type: none"> ▪ Chad Peters – Former Industry Representative, SWN Resources Inc. ▪ Anonymous 11 - Industry Representative, Energy Development ▪ Anonymous 12 - Association Representative ▪ Anonymous 13 - Association Representative ▪ Colleen Mitchell - Atlantica Centre for Energy ▪ Sherri Somerville - Formerly Canadian Association of Petroleum Producers ▪ Steve Moran - Former President and CEO, Corridor Resources
Journalists and engaged citizens	<ul style="list-style-type: none"> ▪ Anonymous 14 - Local Journalist ▪ Anonymous 15 – First Nation Community Member ▪ Dallas McQuarrie - Local Journalist
Other	<ul style="list-style-type: none"> ▪ Lisa Hrabluk – Founder, Wicked Ideas ▪ John McLaughlin - Commissioner, New Brunswick Commission on Hydraulic Fracturing

Media analysis

To triangulate with additional data, the study included a media analysis to assess key coalitional actors, and their policy core and secondary arguments. The researcher searched the Canadian

Major Dailies database for Telegraph-Journal²⁷ articles, with the terms “shale gas”, “hydraulic fracturing”, and “fracking”. The search resulted in 439 articles, and by employing the methodology outlined by Lodge and Matus (2014), the articles were coded for key claims by actors, associated dates of the claims, and then further subdivided to identify the occurrences by actor of sub-claims. The groupings of claims that emerged included broadly: (1) economic benefits of shale development claims (2) environmental risks of shale development. These two broad groups served as the umbrella under which the researcher further identified strategies that actors used to support their claims. The strategies were also coded by date to provide a level of nuance to the data to inform the assessment of learning. Under economic development, the key strategies included: (i) fracking can be done safely (ii) shale development is needed for a domestic supply of natural gas, and (iii) shale promotes the region’s growth. Under environmental risk the main strategies included: (i) more information about environmental impact is needed to make a decision (including a moratorium call) (ii) governments should be investing in sustainable alternatives, and (iii) there is just too much uncertainty (not specifically tied to a moratorium call). The researcher exported the data into Microsoft Excel to manage the data and develop tables or figures to represent the information.

Measuring learning

To assess beliefs according to the ACF, it is important to determine the parameters of beliefs that may impact policy change. As noted earlier in this chapter, the ACF differentiates between two kinds of policy core beliefs – (a) *fundamental normative precepts* as normative beliefs (e.g.,

²⁷ The Telegraph-Journal is the largest newspaper in circulation at the provincial level.

value priorities; and groups whose welfare is the greatest priority²⁸) (b) beliefs with a *substantial empirical component* as causal beliefs (Sabatier, 1998; Jenkins-Smith and Sabatier, 1994). Policy core beliefs by definition concern the subsystem level and involve general goals for the subsystem as well as positions on welfare priorities and the degree of government involvement. Secondary beliefs are more instrumental in identifying the means to achieve ends. Table 2 highlights the definitions of the layers of beliefs and highlights the different components of each.

Table 2: Belief system as a defining feature of advocacy coalitions

		Definition	Example
Three-tiered belief system	Deep core beliefs	Fundamental normative orientations	<ul style="list-style-type: none"> ● Political ideologies ● Normative values (e.g., religious beliefs) ● Identities ● Cultural orientations ● Basic priorities (e.g., freedom vs. security) ● Views of human nature
	Policy core beliefs	Normative and empirical beliefs concerning policy subsystems	<ul style="list-style-type: none"> ● General goals for a policy subsystem ● Positions on general policy solutions and policy instruments ● Problem severity and cause ● Role of government in subsystem affairs (e.g., as opposed to markets)
	Secondary beliefs	Instrumental beliefs or beliefs about a subset of a policy subsystem	<ul style="list-style-type: none"> ● Instrumental means for achieving policy-core ends (or goals) ● Relative weight of various causal mechanisms of problem ● Solutions and problems associated with part of a policy subsystem

(Weible and Ingold, 2018, p.334)

²⁸ “Normative assessments are based on values, such as equality, efficiency, security, democracy, enlightenment, and beliefs about the preferable balance between state, communal and market solutions” (Cairney, 2021, p.13).

Accordingly, to measure learning the researcher relied on all three components of the research - the media analysis, document review and interview data - as outlined above to identify assertions:

(1) For or against hydraulic fracturing (coalitional actors)

- a. Associated positions in terms of basic priorities and political ideologies for deep core beliefs;
- b. Statements regarding policy goals and positions on solutions, including: problem severity and cause and normative precepts for policy core beliefs; and,
- c. Instrumental means for achieving policy outcomes for secondary beliefs.

(2) About information

- a. Statements about scientific claims or in reference to scientific studies or other information resources associated with shale development.

(3) About uncertainty

- a. Statements about perceived risk and the context of uncertainty associated with shale development and fracking technology specifically.

(4) About public engagement, including participating in engagement activities

- a. Claims about the public engagement processes, including participation in them and assessments of their impact.

Examining assertions regarding information, perceptions of risk, as well as public engagement will help inform the normative vs. causal claims, especially where causal claims rely more heavily on scientific evidence. This study assumes that normative precepts will be informed by actors' engagement and lived experiences. The researcher used the data to determine coalitional perspectives and chart the key beliefs at play in the period between 2007 and 2017 regarding

shale development in the province. The key policy change for this study took place in 2014 when a moratorium on hydraulic fracturing was applied and then indefinitely extended in 2017. Assessing whether policy-oriented learning led to this change requires building on Bennett and Howlett (2009), and identifying who learns, what they learn and to what effect. The research is therefore focused on (a) advocacy coalitions as the agents of learning, (b) alterations in belief at the policy core level, and (c) regulatory/legislative changes to policy as outlined in Table 3 below.

Table 3: Components of policy-oriented learning

<i>Type of Learning</i>	<i>Who Learns</i>	<i>Learns What</i>	<i>To What Effect</i>
Policy-oriented learning	Advocacy Coalitions; actors include: bureaucrats, government officials, regulators, journalists, industry and environmental representatives, members of the public	Policy core policy preferences – involving beliefs about the role of government, severity of problem cause and goals for policy (including based on scientific expertise and experience) around shale development	Goals, instruments and settings related to shale development (regulation and legislation predominantly) – policy change

To help further assess policy change, the study draws on Howlett and Cashore (2009), who developed a modified taxonomy of policy components (see Table 4 below) that builds on Hall’s orders of change, to calibrate the elements of policy and help identify the drivers for change.

Table 4: A modified taxonomy of policy components

Policy Content

		High level abstraction	Programme level Operationalization	Specific on-the-ground measures
	Policy Ends or Aims	GOALS <i>What general types of ideas govern policy development?</i>	OBJECTIVES <i>What does policy formally aim to address?</i>	SETTINGS <i>What are the specific on-the-ground requirements of policy?</i>
Policy Focus				
	Policy Means or Tools	INSTRUMENT LOGIC <i>What general norms guide implementation preferences?</i>	MECHANISM <i>What specific types of instruments are utilized?</i>	CALIBRATIONS <i>What are the specific ways in which the instrument is used?</i>

(Howlett and Cashore, 2009, p.39)

As noted earlier, a key contribution of this research is the establishment of the timeline and mechanisms for public engagement regarding shale gas development in the province. Another key contribution is the potential to strengthen assessments of learning under the ACF and the implications for policy change.

Chapter 3: Policy change and policy learning: Advocacy coalitions

Introduction

When policy changes, there are several conceptual approaches that can serve to explain the mechanisms of change. This chapter highlights how policy change is assessed, what conceptual approaches can be utilized from the literature to explain it, and why certain frameworks work better than others in cases where public engagement and learning take precedence. For shale development in NB, the change in policy occurred amidst public controversy around the government's approach to advancing shale, with a constellation of actors publically and repeatedly advocating either for or against the resource's production. Departing from the traditional methods of decision-making, the provincial government decided to engage broadly and often between 2007 and 2017.

This dissertation, in looking to account for the factors and nature of policy change in light of engagement processes, seeks to problematize policy-oriented learning and its influence on policy change as advocated by the ACF. As this chapter will show, the learning literature focuses on the role of elites and how they update their beliefs related to policy instruments, paradigms and political choices. However, what is missing is the role of learning through more open democratic processes involving the public. The chapter demonstrates that the type of learning in the ACF is well positioned to understand learning in the context of citizen engagement if the limitations of the theory's approach are addressed. It concludes with a fulsome discussion of the parameters of the ACF and the key theoretical considerations deriving from it that are pertinent the conceptual approach this dissertation adopts.

3.1 Policy change

Policy change as defined in the previous chapter refers to a change in existing public policy. Since change involves a targeted new course of action, scholars and researchers are interested in how change comes about, what the action is meant to address in terms of policy objectives (Bauer & Knill, 2014; Howlett & Cashore, 2009). This creates a linkage between the means and objectives of policy. Theoretically, the causal mechanisms and conditions for change vary according to different conceptual models and different theories of the policy process.

Ideas, interests and institutions are the three predominant analytical approaches used to explain who or what influence policy processes. Before proceeding to highlight the major contributions of each of the analytical approaches, it is worth re-emphasizing that this study is interested in how actors engage in policy processes to come to understand and act in pursuit of their interests based on their beliefs. Each of the approaches provides its own distinctive contributions in the valuation of the dynamics that exert influence on policy change. In light of ideational, interest and institutionally based analytical approaches (highlighted in more detail in the section below)²⁹, the role of actors is problematized differently. While there are significant contributions from each approach³⁰, it becomes clear that the interests approach is the most applicable in the case of shale development in New Brunswick. Not only does it help to account for the rise in

²⁹ These three approaches are recognized as the predominant ones in Public Administration literature and are often described as such (Irwin & Kroszner, 1999; Shearer et al., 2016).

³⁰ The approaches are presented separately to demonstrate the merits of each and highlight their utility analytically; it is important to note that they are not analytically distinct.

non-traditional³¹ actors and coalitions in the policy subsystem, but it accounts for the scope of change that took place in 2014 with the imposition of a moratorium on hydraulic fracturing.

Explaining policy change: Different analytical approaches

Institutionalism as an analytical approach seeks to understand the influence of institutions on public policy, and on social and political outcomes more broadly. Institutionalists roughly define institutions as “sets of formal, or informal rules, broadly construed, that constrain behaviour” (Campbell, 2004, p36). According to this understanding, institutions have the capacity to shape the behaviour of actors within them and their decisions since they formalize the rules and norms of conduct (Peters, 2019). Furthermore, institutions affect the distribution of power and resources that in turn influence not only preferences but also constraints on individual choice (Peters, 2019).

As it relates to policy change, institutionally based approaches seeking to explain change have tried to rigorously identify causal mechanisms (Campbell, 2002). Accordingly, scholars point to the ambiguous differentiation between stability and change (Thelen, 2010). To bring some clarity, scholars highlight the dynamics of evolutionary and revolutionary change. Evolutionary change refers to the state in which policy undergoes a process of continuous adaptation. It is normally characterized by slow increments and gradual changes (Capano, 2009). On the other hand, revolutionary policy developments are evident through ‘radical, discontinuous, unpredictable’ disruptions from the past (Capano, 2009). Thus, ‘punctuated equilibrium’

³¹ Traditional actors in a policy subsystem are typically politicians, bureaucrats, industry representatives, and experts (Howlett, Ramesh, and Perl 2009).

explanations of change envision long periods of stability disrupted by rapid change (Baumgartner and Jones, 2010).

Importantly, for the most part, institutionally based approaches have been critiqued for their ability to explain stability more than they can explain change. In response, scholars have demonstrated that policy subsystems with fewer actors in governance arrangements display more stability over time, however, change is possible with the inclusion of new actors and the expansion of the scope of conflict (Schattschneider, 1960). The scale of radical versus incremental change can be attributed to the degree of openness of institutional structures. Where they are more closed, policy change is more probable at the level of policy instruments without a radical break from the existing policy (Skogstad 2008; Hall 1993). More open institutional structures allow for more actors to be involved (via different methods, whether public engagement processes or court appeals) and can lead to radical change in policy (Atkinson and Coleman 1992; Hall 1993). Therefore, institutional context can influence the scope of policy change by restricting or allowing for a broader range of actors participating in policy-making.

In a different way, an ideas based approach to public policy emphasizes individuals' values and beliefs that guide behaviour and decision-making. It is an approach that responds to the limitations of the institutional approach and underscores agency that is rooted in individuals' ideas and broader notions. As such, individuals' ideas influence policymaking by constraining the range of policy choices that decision-makers are likely to consider (Campbell, 2002). One general assessment that different authors posit is based on three main levels of ideas (Mehta, 2010; Schmidt, 2008). The levels of ideas are interdependent, thus they do not exist in a vacuum. As such, public philosophies constitute world-views and deep-seated convictions that operate in

the background of policy debate (Schmidt, 2008). At this level, Campbell (2002) also ascribes ideas as cognitive paradigms that are ‘taken-for-granted descriptions’ that mandate causal relationships. The next level is problem definition, where ideas influence perception by limiting the array of options considered suitable and frame the way that a problem is defined. Finally, the last level views ideas as policy solutions that encompass specific notions about how policy problems can be solved. Ideas as policy solutions operate at the foreground of policy debates (Mehta 2011). Accordingly, problems and objectives are simultaneously given, and the idea acts as the means by which the issue is solved and goals are achieved (Mehta, 2011). Ideationally based approaches, importantly, assert that ideas are social constructions that influence actors’ perceptions. They shape their beliefs and values – and contribute another layer of assessment when considering the role of the actor.

The ideas based approach is useful in illuminating the scope of conflict within which policy decisions are made, and in particular, where problem definition occurs. There is a large literature on agenda-setting that highlights the struggle of defining problems that require policy action, and where a variety of actors use discourse to construct certain definitions of policy problems associated with favoured policy solutions (Cobb and Elder, 1971; Stone, 1989; Schon and Rein, 1995). Schneider and Ingram’s (1990) work is instrumental in this vein; they demonstrate that the behavioral assumptions on which certain policy instruments rest are very important to their effects. Behavioural aspects of policies are important because they provide insight into the appropriate strategies towards implementation of policies and illuminate the link between policy processes and the choice of tools, in addition to the link between policy tools and policy participation of target populations (Yanow, 2003).

Another explanation for change emerges in Hall's three orders of change (Hall, 1993). The three orders relate to three key variables of the policymaking process: the broad goals that guide policy, policy instruments applied to achieve policy goals and the calibrations of the instruments. Accordingly, first and second order change (instruments and their calibrations) can be viewed as 'normal policymaking' or incremental change. It is third order change that is most likely to lead to major change in the broader terms of policy discourse and link to a paradigm shift. This includes a shift in all three orders and changes the policy discourse overarching the field (Hall, 1993).

Ideationally based explanations help provide a partial explanation of policy change. They help explain the type of discourse surrounding an issue and some of the factors that influence the type of decision to be made. However, they do not bring to light some of the other major issues at play, such as power, knowledge, and access. It is clear, therefore, that a wide range of actors and ideas they hold, in addition to the processes of interaction within the institutional context, are key influences on policy.

Finally, there are interest based approaches to the study of public policy attempt to account for the role of a variety of actors from state and society that influence policy production and implementation. The actors are arguably linked together through mutual interests, common resource sharing and patterns of interaction. Some of the key contributions of this approach are the concepts of policy community and policy network (Atkinson & Coleman, 1992). Policy is assumed to occur in a subsystem whereby all actors from various public and private organizations are actively involved in a policy area. A policy community that operates at this level can be defined as "all actors or potential actors with a direct or indirect interest in a policy

area or function who share a common policy focus and who, with varying degrees of influence shape policy outcomes over the long run” (Coleman and Skogstad, 1990, p25). Policy network refers to “the properties that characterize the relationships among the particular set of actors that forms around an issue of importance to the policy community” (Coleman and Skogstad, 1990, p28). As such, at the core, is a shared interest that arguably provides the motivation for coordination and the objective to influence policy.

In focusing on the policy process and the role that different actors have within the policy context, the literature has started to identify clearer linkages to change. One major theoretical framework that clearly outlines a model for change is the ACF. Subsystems are the basic component of analysis in the ACF, and coalitions compete to translate their beliefs into policy (Jenkins-Smith & Sabatier, 1994). According to this framework, change in policy is mainly a function of either exogenous events or endogenous subsystem dynamics of competition among advocacy coalitions. Coalition membership is explained by two factors – knowledge and experience – which is what Sabatier (1988) advocates is the best way to understand policy change. Accordingly, Sabatier decidedly rejects institutional and organizational networking analyses of subsystem membership. An advocacy coalition is a way to encompass unengaged policy actors that potentially interact and share the same belief system as those not already engaged in routinized interaction (Bennett and Howlett, 1992). This assumption is one that has allowed for the theory’s expansion and lends itself well to this analysis. As noted in the introductory chapter, a full description of the ACF follows in this chapter.

Accordingly, germane to this dissertation is the role of actors in the policy process, not only in the sense of how they engage, but also how they come to understand their material interests to

influence decision-making. As mentioned earlier, the proposition of shale development in New Brunswick evoked a strong public response. Many actors mobilized and coordinated in their approach to advocating for their interests that formed two distinct camps: either in support of advancing or halting fracking in the province. Traditional actors in a policy subsystem interacted with citizens through various engagement mechanisms, with the objective of advancing shale gas development. But eventually, as mentioned earlier, hydraulic fracturing was banned in a jurisdiction with strong impetus for its advancement. This research is interested in examining what this means for theoretical understandings of the nature of learning and what factors influence policy change.

Learning as a factor shaping change is a largely recognized approach that focuses on the role of knowledge in the policy process, and is the approach under assessment in this study. Therefore, of relevance to this study is the role of learning approaches that are concerned with knowledge, policy-oriented learning, policy change and the role of non-state actors. Ultimately, interest-based approaches can support the analysis of this dissertation by focusing on the role of expert knowledge and the interaction through public engagement.

3.2 Policy learning approaches to policy change

The previous section of this chapter has demonstrated the ways that various analytical approaches describe policy change. It is clear that the approaches lend different weight and varying insights to the role of policy actors in precipitating change. Interests based models focus on the ways in which actors identify or come to understand their interests and actively pursue translating them into policy objectives.

The main policy learning approaches in the literature include (a) Hall's conception of learning based on Kuhn's (scientific) paradigms and (b) policy-oriented learning in the Advocacy Coalition framework based on Hecló's conception of learning outlined below. For Hall (1993), social learning is defined as "a deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information" (Hall, 1993, p278). More specifically, learning is evident when policy has changed as a consequence of this process taking place. As with scientific change, small changes within a broader paradigm can occur without creating a paradigm shift in policy approaches.

Hall (1993) brings to the forefront the notion that a paradigm shift is most likely to occur through a sociological rather than scientific process. Science alone does not have the magnitude to change the policy paradigm: it is the interaction of science with political and societal components that brings change (Hall, 1993). The model signifies the role of society and its interaction with the state. This is something that the ACF has yet to bring comprehensively to the forefront. However, Hall's model based on social learning is limited in identifying the drivers of change.

In contrast, the ACF bases its conception of learning on Hecló's (1974) definition of learning as enduring alterations of thought or behavioral intention (Sabatier, 1988). In common with Hall is the notion of metaphysical principles and a worldview that provides a normative assessment that orders the way actors view the world. The ACF is more explicit, however, about the role of 'policy elites' that include interest group leaders, politicians, policy analysts, academics and industry representatives. For Sabatier (1988), policy actors are driven by the desire to learn more

about their world to further their policy objectives. They coordinate together on the basis of a belief system that they use to interpret the world – explicitly it is a set of basic values, causal assumptions, and problem perceptions (Jenkins-Smith & Sabatier, 1994). The framework emphasizes technical information: the knowledge produced and acquired through systematic research processes of assessment and hypothesis testing. This is discussed in detail in the next section of this chapter.

There are differing interpretations in the literature of whether or not learning is a conscious activity or one that occurs in response to stimulus. Hall's notion of learning is linked to the normative betterment of government policymaking: learning is meant to achieve 'better' goal attainment by government. It is a deliberate activity to adjust the policy objectives or instruments to achieve better outcomes (this includes impacts on society) (Hall, 1993). This is different from the conception of learning developed by Heelo and used in the ACF, which happens more in response to a perceived stimulus. It is also different from an evaluative learning perspective where policy makers try to learn which initiatives implemented succeed and why. The perceived stimulus response refers to changes in the policy environment impacting the types of decisions needed (Howlett and Bennett, 1992). As a relatively enduring change in behavior due to experience, it is linked to outcomes in a more functional/instrumental sense of identifying interests based on belief, and pursuing them in terms of objective policy outcomes. This articulation helps us understand learning of the engaged public as well, in a context where there is less institutional insularity and policy elites actively engage with citizens. The ACF highlights the role that information plays in learning that drives policy change.

One additional approach to assess the role of learning in policy is developed by May (1992) to distinguish ‘policy learning’ (as instrumental or social learning) and ‘political learning’. This conceptual approach is valuable in addressing the links between policy interventions on means and ends that are implicit in Hall and Sabatier’s definitions of learning, but are not differentiated to the same extent.

Policy learning as instrumental learning concerns what May (1992) deems ‘generic’ lessons about policy instruments. This is not limited to learning about means to specified ends, but includes ‘new understandings about the viability of policy interventions or implementation designs’ (p. 335)³². The link does not need to be parsimonious between goal and means: some instruments may fail regardless of agreement on policy objectives. Therefore, exhibiting instrumental learning requires indicating a higher degree of aptitude and complexity of thought regarding policy design or implementation design. As such, “instrumental lessons are less precise understandings drawn from others’ experiences or from observing the results of trial-and-error policy evolution” (May, 1992, p.335).

Separately, social learning is concerned with social constructions of policy and involves coming to a new or fixed construction (May, 1992). It encompasses a fundamental rethink amongst policy elites about the policy problem and its scope. The causal reasoning is either revised or confirmed, and so is what actors believe regarding cause and effect. “Social learning concerns social construction not only of goals but of policy problems and solutions. Social learning may entail changed goals. In addition, social learning may entail reaffirmation of existing goals,

³² The term ‘instrumental’ here is focussed on policy instruments and does not mean instrumental in the rational-analytic sense of the policy analysis literature.

altering the scope of a policy (i.e., changing targets) while maintaining the existing goals, or changing expectations about an existing set of goals” (May, 1992, p.340). To identify this type of learning, May (1992) argues that it must demonstrate either a change in policy elites’ beliefs, or a reconfirmation of beliefs as a result of policy experience.

So far, this section has discussed policy learning in terms of its association to policy objectives (or goals) and the role of learning linked to instruments to achieve these goals. All major definitions of policy learning encompass this and define learning as concerned with lessons about the content of policy (problems, tools, objectives, implementation design). Policy learning is different from political learning, argues May (1992), where political learning is learning about the policy process itself. This means lessons concerned with maneuvering within the process and manipulating it to promote an idea or problem to be addressed. Therefore:

“Policy learning entails learning across multiple advocacy coalitions, leading to shared understandings of the viability of policy interventions and goals. Political learning takes place within advocacy coalitions, leading to more sophisticated advocacy of particular proposals or problems.” (May, 1992, p.340)

Political learning may in fact lead to policy learning. If certain actors strengthen their advocacy, it is possible for them to convince those they are competing against of the practicality of their proposed instruments. Alternatively, they may be able to bring about a change in the competing coalitions’ social construction of a problem. In terms of the approaches to learning, May’s

(1992) approach provides guidance grounded in the framing of policy processes and accounts more fulsomely for the dynamics of power and politics.

As demonstrated above, there are different conceptions of learning with the fundamental three seen as social learning, instrumental learning and political learning. The key driver underpinning these approaches is to examine if and how beliefs and knowledge evolve over time to drive policy change. For the purposes of this research, differentiating between the types of learning can contribute to the understanding of the nature of learning, and the factors that influence it. The concept of learning is best understood through the lens of existing theoretical frameworks that have been continuously examined and in certain cases have adapted the concept of learning to apply to different contexts³³. In this vein, the dissertation seeks to build on existing theory and contribute to literature.

Mechanisms of learning

Generally, the literature still grapples with the notion of learning and much research has been published to push the theoretical advancement and refinement of the concept, its factors, mechanisms and linkages to identify the appropriate effects (Moyson et al., 2017; Montpetit & Lachapelle, 2017). For the most part, the literature on learning has focused on policy elites, including bureaucrats, political officials, industry representatives, journalists and academics. Howlett and Bennett (1992) were among the earliest critics to signal the ambiguity embedded in understanding learning. Their review of the research demonstrated that different actors, modes and outcomes of policy learning were inaccurately contrasted by many scholars in a way that

³³ Determined by Howlett et al's (2015) review of the emerging analytical frameworks to examine learning.

contributed to ‘conceptual fragmentation and stretching’ of the concept of learning (Howlett and Bennett, 1992). The authors concluded that research moving forward should specify who learns, what do they learn and to what effect (Howlett and Bennett, 1992).

More recently, scholars have focused on the conceptual foundations of policy learning (Heikkila and Gerlak, 2013; Dunlop and Radaelli, 2018) and some have also advocated for its use as an analytical framework applicable to the policy process (Dunlop and Radaelli, 2018). Many studies since then have contributed to the evolution of understandings of learning but there is still a lot of attention by policy scholars on conceptual refinement and expansion of its application to the field of public policy³⁴. In an attempt to identify ways that learning can provide value as an analytical framework in itself, Dunlop and Radaelli (2018) have built an explanatory typology to provide a more useful framework of the policy process. According to these authors, learning has tended to be explained as a mechanism supporting policy frameworks or used in policy cycle research in the evaluation stage.

Generally, policymaking is conceived of as a process of “collective puzzlement on society’s behalf” (Heclo, 1974), a process that involves identifying objectives, as well as the means associated with achieving those ends. Learning is very much a part of this process as actors revise and adapt their perceptions. Learning in the policy literature is an approach in so far as it is founded on the idea that its normative and cognitive components may have a significant impact on how actors interpret and explain the world (Surel, 2000). As Surel (2000) notes, Hall has identified cognitive components as defining “legitimate strategies with respect to objectives

³⁴ This research is no exception and aims to contribute to knowledge by advancing the notion of learning within a particular framework (the ACF).

more or less explicitly prescribed by general principles” (p.498). Similarly, for the ACF, cognitive components identify the basic causes of problems and favoured solutions (Sabatier, Weible & Baumgartner, 2015). Ultimately, cognitive and normative elements are the ways in which actors find the ‘most appropriate’ means to attain specified values and objectives. Recently, empirical evidence to support policy learning as a mechanism of change has demonstrated that this can take place by altering normative and cognitive perceptions as a factor of not only scientific evidence, but based on experience as well (May 1992; Hall 1993; Weible 2008; Heikkila and Gerlak 2013; Dunlop and Radaelli 2017). Dunlop and Radaelli (2017) argue that the less normative emphasis on rationality obscures seeing what is happening in the real world. Evidence can come from what people see or from the interactions they partake in.

Alternatively, Heikkila and Gerlak (2013) have developed a schema to differentiate between three factors: (1) at what level learning takes place (either system level or actor level); (2) the process and outputs of learning; and (3) the role of learning endogenously through understandings of the attainment of information, interpretation and dissemination. Their work is helpful in producing an understanding of learning more broadly in a variety of collective contexts according to policy cycle heuristics.

Heikkila and Gerlak (2013) provide certain insights on how to treat the notion of learning in terms of the relationship between individual and collective learning. They also shed light on the different phases of the learning process and dynamics that may influence it. As such, they treat information attainment, interpretation and dissemination as phases of learning whereby different

mechanisms affect the products of learning. They define collective learning³⁵ as: “1) a collective process, which may include acquiring information through diverse actions (e.g., trial and error), assessing or translating information, and disseminating knowledge or opportunities across individuals in a collective, and 2) collective products that emerge from the process, such as new shared ideas, strategies, rules, or policies” (Gerlak & Heikkila, 2013, p. 486). This is similar to the processes of individual learning; however, it is aggregated to understand the process as a collective one. According to this definition it is conceivable then that the acquisition of information through social interaction and lived experience, translated and disseminated through discourse can lead to collective products that emerge from the learning process.

3.3 Advocacy Coalition Framework: Overview and pathways to change

The ACF is a major theoretical framework to consider when it comes to understanding policy change, and it has been widely applied in the literature to study energy and environment subsystems (Litfin, 2000; Elliott and Schlaepfer, 2001; Bomberg, 2013; Heikkila et al., 2014). Numerous analyses of policy change regarding shale development in Canada and the US have demonstrated the utility of the framework. For the ACF, the basic unit of study is a policy subsystem of advocacy coalitions that compete to dominate the subsystem and translate their beliefs into policy (Sabatier & Jenkins-Smith, 1999). For this to occur, they need to gather allies, formulate strategies and share resources. The central argument that forms the basis of the framework is that policy participants will partner with those who share similar beliefs, and that if they partake in a ‘nontrivial degree of coordination,’ they form an advocacy coalition (Sabatier

³⁵ Heikkila and Gerlak (2013) recognize that “learning processes often start with individuals and move up into levels of subunits” (p.486) therefore emphasizing a difference in scope at the collective level.

and Weible, 2007). As such, beliefs play an important role in their ability to ally participants together and form the interests that they then aim to transform into policy.

The ACF contends that there are four major paths to policy change: through policy-oriented learning, external shocks, internal shocks, and a hurting stalemate demonstrated in Figure 6 below (Sabatier and Jenkins-Smith, 1999). Policy change itself can be characterized as either a major or minor policy change. This is a concept developed based on different types of policy components. Secondary features are components that are involved with ‘technical components’ or just one segment of the subsystem. A change in the secondary features is what is referred to as a ‘minor policy change’. For ‘major policy change’ to happen, the condition is for a change in policy core features to occur, which represents major change in the subsystem (Sabatier and Jenkins-Smith 1999: 147–8). For example, (Kübler, 2001) demonstrates that Swiss drug policy experienced both a major and a minor change between 1980 and 2000 through a two-step learning process in response to the Aids epidemic in the health subsystem. A major change occurred through the emergence of a new policy core replacing the ‘abstinence’ core and implementing national harm reduction approach in the 1980s with local facilities. This was followed by a minor change in the 1990s to ensure the safety of the facilities and the maintenance of public order, involving an instrument change in response to intense conflicts between neighbourhood groups and harm reduction specialists (Kübler, 2001; 2007).

According to the ACF, subsystems (and the coalitions they are composed of) are subject to the effects of four stable system parameters: basic attributes of a problem area, basic distribution of natural resources, fundamental socio-cultural values and social structure, and finally basic constitutional structure. The ACF argues that the parameters are influential since they have the

capacity to restrict the quantity of resources available to the members, shape the type of problem, and largely frame the values that impact policy (Fischer & Miller, 2006, p126). Furthermore, subsystems are prone to exogenous events that may influence gradual changes to the system or even cause major shocks to it. These are considered to be changes in mass opinion or socioeconomic conditions, changes in the reigning coalition, and finally policy choices and impacts from other subsystems. The framework thus provides an analysis of the highest level of abstraction that influences behavior from a macro-level perspective within subsystems (Sabatier, 2007).

Figure 6: Diagram of the Advocacy Coalition Framework

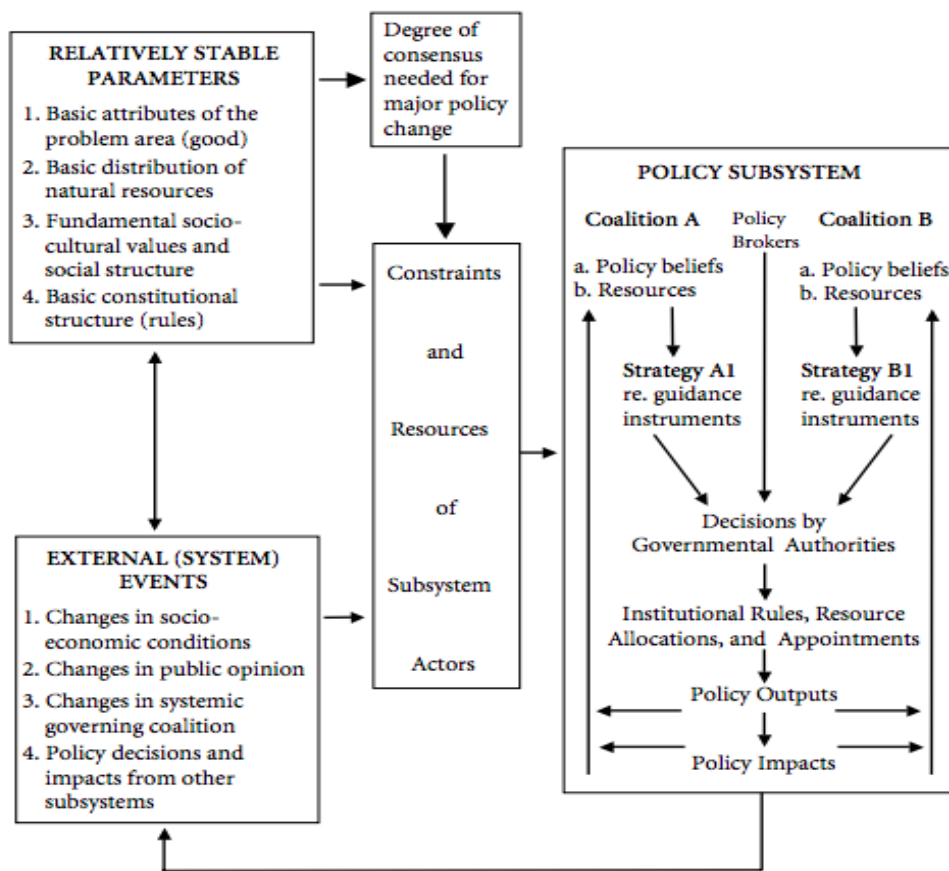


FIGURE 7.1 1998 Diagram of the Advocacy Coalition Framework

(Sabatier and Weible, 2007, p.191)

Theorists emphasize that subsystems may have a substantial role in policy change (Coleman and Skogstad, 1990; Marsh & Rhodes, 1992; Sabatier & Jenkins-Smith, 1994). This observation arises from analysis of the interaction between processes of actors competing and membership in the policy subsystems. For example, Baumgartner and Jones (1993) argue that agenda setting includes competition amongst policymakers to affect the image of a policy since the image affects the membership of the subsystem. For the ACF, coalition members compete to translate their beliefs and interests into policy and therefore “the nature of the subsystem responsible for policy formulation is an important element in Sabatier and Jenkins-Smith’s analysis of policy change” (Howlett and Ramesh, 2003). The ACF proposes that changes in subsystem membership may induce important changes in policy outcomes. For example, Nohrstedt (2011) found that in the case of intelligence gathering in Sweden, policy change was influenced by changes in coalition membership that impacted the distribution of resources resulting in an expanded intelligence gathering mandate. Subsystem membership involves the coordinated efforts among members to shape the policy, a dynamic this dissertation explores to understand the impacts on policy outcomes when citizens get engaged in the process.

Another main component of subsystem analysis is the focus on external and internal effects. Sabatier and Jenkins-Smith (2007) discuss the impact of external perturbations such as elections, accidents, and crises that may disrupt subsystems. Accordingly, internal change can occur due to external shocks to the subsystem and affect the resources available to coalition members (such as money, expertise, legal authority) and lead to changes in their behavior (Sabatier, 1987). This

exogenous view demonstrates the importance of linking with an endogenous view of how learning occurs within the policy process to produce change.

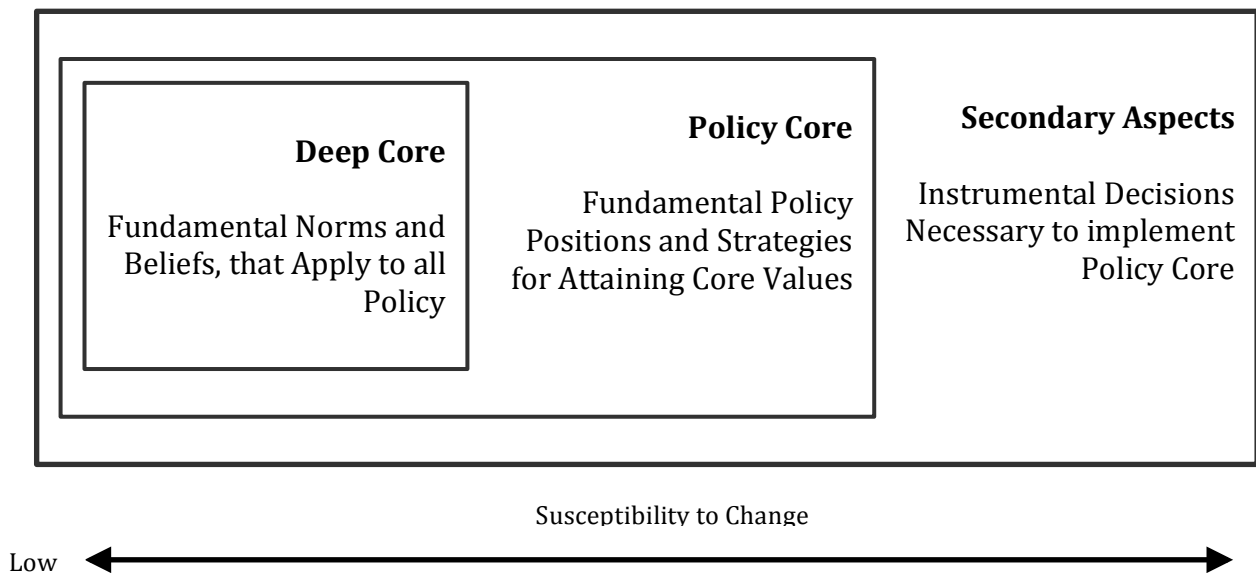
3.4 The glue: Beliefs and advocacy

Looking at it from a micro-level perspective, the ACF offers a model of the individual that stems from the field of social psychology (Sabatier, 2007). Coalition members have limited rationality, resulting in constrained cognitive capacity. To comprehend the world they live in, members engage in a process where they ‘filter perceptions through their belief system’ (Fischer & Miller, 2006, p127). Knowledge that challenges their beliefs is discredited, while any information that serves to reinforce their beliefs is easily accepted (Fischer & Miller, 2006). Individuals in the ACF are assumed to be generally self-interested, boundedly rational, and likely to use preexisting beliefs to filter and simplify the world (Quattrone & Tversky, 1988; Simon, 1985). This last assumption is important because “participants screen out information dissonant with preexisting beliefs, which impedes adaptive learning and belief change” (Weible and Sabatier, 2009, p196). The ACF posits that beliefs are the binding factor between members that form coalitions, and more specifically it assumes that beliefs at the policy core level are the ones driving coordination (Zafonte & Sabatier, 1998).

Beliefs are a core component of the framework as they relate to the interests that members seek to convert into policy (Sabatier, 1988). There are three levels of belief: a deep core belief that deals with fundamental ontological assumptions, the policy core and finally the secondary level. Ontological assumptions deal with norms and values, and are much more difficult to alter than alteration of cognition, that is concerned with what we understand and believe about the world. Therefore, the deep core is almost inalterable (Sabatier and Weible, 2007). Sabatier and Jenkins-

Smith (1998) specify that policy core beliefs can be both normative and empirical (or causal) beliefs. Normative beliefs are those that “may reflect basic orientation and value priorities for the policy systems or whose welfare in the policy subsystem is of utmost concern” (Jenkins-Smith et. al, 2014, p191). Empirical core beliefs include “overall assessments of the seriousness of the problem, its basic causes, and preferred solutions for addressing it” (Sabatier, Weible & Baumgartner, 2015, p191). Thus, empirically they are causal since they are linked with understanding of causes and linked to the means for dealing with the policy issue. It is at the secondary level where strategies are determined to realize the notions of the policy core. The most susceptible level for policy change is the secondary level that deals with the instruments to implement beliefs as shown in Figure 7 below (Sabatier, 1988).

Figure 7: Levels of beliefs in the Advocacy Coalition Framework



(Adapted by Author from Sabatier and Jenkins-Smith, 1993)

3.5 Policy-oriented learning in the ACF: Key elements

Policy-oriented learning in the ACF emphasizes the notion of metaphysical principles and a worldview that provides a normative assessment that orders the way actors view the world. Learning as an approach is founded on the idea that normative and cognitive components may have a significant impact on how actors interpret and explain the world (Surel, 2000). Sabatier specifies that the “determination of defined objectives is fundamentally linked to cognitive and normative frames specific to a given subsystem” (Surel, 2000, p.501). It is on the basis of pre-existing beliefs that actors perceive the world in the ACF – beliefs that are layered starting with the deep core (worldviews), policy core and then secondary beliefs on the most abstract layer.

For the ACF, cognitive (empirical) components are typically seen as ‘operational’ in the sense that they identify the basic causes of problems and favoured solutions (Sabatier, Weible & Baumgartner, 2015). The ladder of belief ordering provides an understanding of scope from broader system dynamics to a more focused policy subsystem dynamic. Nonetheless, cognitive and normative elements are the ways in which actors find the *most appropriate* means to attain specified values and objectives.

For this research, the focus is on policy-oriented learning, a path to policy change that occurs as a result of belief change within a coalition. Importantly, policy-oriented learning relative to policy participants is defined as “relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of policy objectives” (Sabatier and Jenkins-Smith, 1999, p123). Thus,

knowledge plays an explicit role in the change of beliefs that ultimately creates a change in policy through the process of policy-oriented learning. However, for this to happen the authors have specified a set of conditions and a requirement for knowledge to be evidence-based ‘scientific and technical information’ (Sabatier and Weible, 2007). The basis of this type of learning is a forum held by scientific experts and is focused on evidence, which would have to be strictly designed as such and is different from how modern engagement forums unfold (see Table 5 below). For example in NB, the forums that brought together the scientific experts, also included the key stakeholders for policy, economic and social perspectives.

The framework in its original conception frames policy learning as a process that involves ‘internal feedback loops’ where key aspects are the perceptions of external factors and increased knowledge of the ‘state of problem parameters and the factors affecting them’ (Sabatier, 1988, p133). The focus of policy learning is on how knowledge is incorporated with the values and causal suppositions (policy core components) of beliefs of an advocacy coalition. Notably, the ACF posits that this learning is instrumental and that in seeking to know more about the world to advance their policy objectives, members will resist information that does not align with their beliefs. Additionally, they will use expert-based information to support and elaborate their beliefs.

For the ACF, key features of the policy context explain the nature and scope of policy-oriented learning. These involve the nature of the forum where discussion takes place³⁶, the analytical tractability of the main issues, and the degree and intensity of conflict around beliefs (Heintz &

³⁶ Sabatier and Weible (2007) argue that learning is most likely to occur in a forum that is (a) prestigious enough to force professionals from different coalitions to participate; and, (b) dominated by professional norms (p. 220).

Jenkins-Smith, 1988). In the original conceptions of the framework, policy learning was posited to occur within coalitions (intra-coalition learning) or across coalitions (cross-coalition learning) within a subsystem. The difference is that intra-coalition learning takes place during periods of intense conflict, and the ACF predicts that information becomes a key resource for coalitions in order to organize with their allies and dispute their opponents (Sabatier, 1988). This promotes in-group learning and is seen as an adaptive process based on experience, where new strategies and strategic adjustments are made among individuals within a coalition (Weible, 2008). Intra-coalition policy learning is mainly involved with strengthening or reinforcing preexisting beliefs. These are endogenous factors within the subsystem that are different from the major external shocks that can trigger policy change (e.g., global oil prices).

Cross-coalition learning, on the other hand, is more likely to take place when the level of conflict is intermediate, and there is a 'professionalized forum' whereby the coalitions can argue and participate in an 'analytical debate' (Weible, Sabatier & McQueen, 2009). The ACF argues that certain issues are more tractable, and the level of tractability pertains to the "concepts, methods and guidelines" that enable comprehension and decisions (Jenkins-Smith, 1990, p98). Here, coalitions must have access to the technical resources required to participate in discussions and must bring the experts together in an 'apolitical forum' to confront one another under the norms of expertise, in order to discuss issues with high analytical tractability. These are issues that are more complicated and complex, making it more probable that individuals will need to find areas of understanding to begin deliberations (Weible et al., 2010). As a result, the greater the analytical tractability, the more learning is promoted between the experts and the participants. "Within the Advocacy Coalition Framework, science indirectly influences policy through learning and belief change, and it is also dependent on both the level of conflict among

coalitions and the availability of institutional forums enabling discourse among coalitions” (Weible, 2008, p619).

Notably, in early versions of the ACF the framework posited an important role for policy brokers in policy learning and change. According to the ACF, policy brokers are actors that can be present within subsystems that aim to decrease conflict between the advocacy coalitions and work towards manageable solutions (Weible et al., 2019). Technical information may not lead to a change in beliefs of one of the competing coalitions, however, the ACF posits that it may alter the views of policy brokers that may influence policy change if the brokers are engaged in mediating a solution. For example, Ingold and Varone (2012) demonstrate that in the case of Swiss climate policy, policy brokers acting in their institutional roles were able to stop a conflict from escalating to the point of referendum in regards to a tax incentive for the reduction of carbon dioxide emissions, and impacted policy change by implementing a carbon dioxide tax on combustibles through their strategic behavior.

Revisions and updates

While intra- and cross-coalition learning are the main types of learning, the theory has since evolved and been updated. Sabatier and collaborators (Jenkins-Smith, Weible, Heikkila, Nohrstedt) have continued the work to better understand conditions for learning and provide hypotheses for testing. Building on their original emphasis on the role of scientific and technical knowledge and expertise, they have added hypotheses to specify that where ‘accepted’ quantitative data exists, it is more conducive to learning across ‘belief systems’ rather than qualitative (subjective) data (Hypothesis 3, see Table 5). Furthermore, another hypothesis builds

on this by specifying that problems related to ‘natural systems’ are more conducive to learning across ‘belief systems’ than social or political systems due to the ability to perform controlled experimentation in natural systems (Hypothesis 4). Finally, where the gathering of technical information cannot change the perspectives of a coalition, it can have significant impacts on policy by changing the views of policy brokers (Hypothesis 5).

Table 5: Advocacy Coalition Framework hypotheses

Hypothesis 1	Policy-oriented learning across belief systems is most likely when there is an intermediate level of informed conflict between the two coalitions. This requires that: (a) each have the technical resources to engage in such a debate; and that (b) the conflict be between secondary aspects of one belief system and core elements of the other or, alternatively, between important secondary aspects of the two belief systems.
Hypothesis 2	Policy-oriented learning across belief systems is most likely when there exists a forum which is: (a) prestigious enough to force professionals from different coalitions to participate; and (b) dominated by professional norms.
Hypothesis 3	Problems for which accepted quantitative data and theory exist are more conducive to policy-oriented learning across belief systems than those in which data and theory are generally qualitative, quite subjective, or altogether lacking.
Hypothesis 4	Problems involving natural systems are more conducive to policy-oriented learning across belief systems than those involving purely social or political systems because in the former many of the critical variables are not themselves active strategists and because controlled experimentation is more feasible.
Hypothesis 5	Even when the accumulation of technical information does not change the views of the opposing coalition, it can have important impacts on policy – at least in the short run – by altering the views of policy brokers.

(Weible and Nohrstedt, 2012, p.131)

Notably, there is an expanding range of studies and assessments of collaborative learning and the ACF. Scholars are accounting for the collaborative governance and mechanisms of consultation and collaboration in policy making to understand learning. This work is not clear in articulating coalition structures and as noted above – ‘belief systems’ as articulated in original conceptions

of the ACF do not demonstrate how people with similar beliefs engage in coordinated activity. This is a component of their work that has evolved to deal with different dynamics of learning. Weible and Sabatier (2009) have developed the analysis further in adversarial versus collaborative policy subsystems based on different governance approaches that appears to utilize the concept of ‘coalitions of actors’ rather than focusing on actors’ joint beliefs via ‘belief systems’. Collaborative policy subsystems are different mainly in the degrees of coordination and share characteristics such as (i) some degree of belief convergence between coalitions and cooperation as well as coordination across coalitions (ii) collective access to authority (iii) the presence and utilization of consensus-based institutions; (iv) policy designs that underscore ‘win-win’ and ‘voluntary’ solutions.

Weible and Sabatier (2009) argue that adversarial policy subsystems, contain (i) competitive coalitions that hold polarized beliefs and engage in low levels of coordination; (ii) fragmented authority either between governments or government departments that are associated with a competing coalition; (iii) high levels of venue shopping where opposing coalitions look to seek advantage over rivals in an ‘amiable venue’; and (iv) policy designs where the delineation between winners and losers is clear, and where there is little compromise (Weible and Sabatier, 2009, p197).

Conflict and distrust is high within the adversarial subsystems as coalitions aim to succeed without compromising. It is worth noting is that the authors hypothesize that “actors will more likely use empirical (causal) policy core beliefs and will less likely use normative policy core beliefs to formulate policy preferences in collaborative policy subsystems compared to adversarial policy subsystems” (Weible & Sabatier, 2009, p199). However, they find no support

to confirm this in their 2009 study. For Sabatier and Weible, the empirical beliefs are linked with scientific research and technical information based on the assumption that evidence will facilitate belief change. Importantly, this distinction is where the role of interactive knowledge (Park, 1993) can be questioned and is something this research seeks to explore.

3.6 Technocratic underpinnings: A critique

While the drivers of change according to the ACF are many, in the face of energy decision-making that is meant to include and reflect public input, learning is a relevant explanatory factor of change to assess. Sabatier and collaborators put forward a very ‘rationalistic, technocratic understanding of learning’ (Fisher, 2003, p109). Informed debate is what stimulates learning between the participants, and it is argued that certain technical capacities and specific contexts are a requisite for this to take place emphasizing the role of experts. Furthermore, the approach neglects the social aspects associated with learning, and the socially constructed foundations of expertise (Fischer, 2003). Similarly, James and Jorgensen (2009, p144) argue that policy learning is narrowly defined within the ACF. According to them: “the ACF focuses primarily on technical, scientific policy knowledge and the forum in which this knowledge can be disseminated to cause learning at the cost of other social, economic, and political analyses and other forums in which learning can occur” (James and Jorgensen, 2009, p145).

Many scholars have argued against such a technocratic understanding of policy-oriented learning as a process, and made calls for its revision (Fischer, 2003; James & Jorgensen, 2009; Hajer and Wagenaar, 2003). In addition, from the perspective of Habermas and critical theorists, objective third person inquiry that provides strategies detached from the consequences of action is technocratic (Bohman, 2003). Scholars therefore reveal not only the socially constructed

foundations of expertise, but also argue that the same scientific knowledge entering the policy process will be interpreted differently by policy actors and play a different role for them. The ACF furthermore, does not adequately address the role of uncertainty in data where the empirical evidence may be open to many different interpretations (Fischer, 2003). According to Jasanoff (1990), it is therefore essential to include citizens in exchanges between scientists and policy actors; the author adds that the resulting decisions ought to be deemed more acceptable and appropriate.

Within the ACF, the role of social relations, social experiences, and trust pose major questions for belief change and consequently further research. Different social factors shape what people learn and how this learning relates to the policy process. Cairney and Weible (2017) argue that:

“The context in which we study policymaking changes across space and time. Its complexity and dynamism poses important challenges. [...] The solution is not to give up on lesson learning and generalizability, but to emphasize the shifting context and often ephemeral nature of our recommendations. For policy scholars, the best we can do for people engaged in the policy process is to offer multiple theoretical depictions of the context, and our best portrayal of its dynamics, and emphasize the pros and cons of the ways in which people can adapt and learn to achieve their goals” (p.622).

A context of uncertainty is one such example, where government and regulators seek to engage on governing and regulating emerging technologies. In the particular case of hydraulic fracturing, scientific controversy surrounded the technology in its early stages and the data

regarding its impacts was uncertain (particularly environmental and health impacts). Weible, Heikkila et al., (2016) in their volume, *Policy Debates on Hydraulic Fracturing*, utilize the ACF to understand coalitional approaches to shale oil and gas development across seven different countries in Europe and the US. They demonstrate the utility of the ACF in contexts of high uncertainty, where the framework can “help researchers understand and explain advocacy coalitions, learning, and policy change within a contentious policy issue” (Weible, Heikkila et al., 2016, p.4). In the countries examined including Canada, two advocacy coalitions developed: one in opposition due to the environmental and health risks associated with development, and the other believing in the economic development potential and therefore in favour of shale development. They argue that through their comprehensive comparative analysis, the ‘study of coalitions resources and activities remains a ripe area for advancing the ACF’ (p. 261). This validates the necessity to further understand how learning occurs in such a context and in particular the role of experience based knowledge and trust in influencing learning.

In the case of New Brunswick, there is one instance of policy change regarding hydraulic fracturing between 2007 and 2017 where different types of participatory practices to inform regulation and policy were advanced starting as early as 2010. On the one hand, the ACF provides a notable way of looking at the policy process as one of negotiation between coalitions based on the beliefs that they seek to directly translate into policy. On the other hand, the mechanisms of learning are not clearly understood in the ACF when it comes to participatory practices.

The technocratic underpinnings of policy-oriented learning have been outlined here in an effort to demonstrate the way that different ways of knowing can influence policy learning and change

that are not accounted for in the ACF. Furthermore, there are social factors that are important to integrate into assessments of learning that can shed light on who learns, what do they learn and how. This dissertation, then, in looking to account for the nature of policy learning, seeks to bridge a gap in the literatures on the three proposed factors (trust, uncertainty and public engagement) that can influence learning.

Chapter 4: Public engagement and learning in risk management: The element of trust

Introduction

This chapter provides an overview of the literature associated with the key factors – uncertainty, trust and public engagement. As this chapter demonstrates, the literatures related to these three factors all advance learning as a key driver for public engagement. They reason that engaging the public supports trust-building, leads to increased public acceptance of risks, and importantly facilitates learning and supports the integration of different perspectives in decision-making. The arguments are fundamentally rooted in normative conceptions of inclusive governance and discourse. As such, this chapter is divided into three main parts. First, it begins with a review of the democratic governance literature, in particular democratic theory and policy analysis, and the associated turns in the literature that emphasize the importance of engaging the public in policymaking. A section regarding the practical dimensions/implications and how the normative conceptions are applied within the Canadian context follows this. It explicates the different types and levels of public engagement in Canada and outlines the implications in the context of energy policy. The chapter then turns to the policy implications of the context of uncertainty, before highlighting the role that trust plays in subsystems of policy actors.

These are important considerations for the theoretical frame proposed in this study, as well as the practical implications for the case of fracking in NB. As the study will demonstrate in the following chapter, after conducting a major upstream policy engagement exercise in NB to determine the strategic direction for energy policy in the province broadly, the government then proceeded to engage the public on only one element of that strategy. Specifically, the

establishment of a regulatory framework to manage the risks of hydraulic fracturing in the province before a moratorium was imposed on hydraulic fracturing. Regulation is mainly based on expert knowledge and in this case the province chose to engage the public on the development of a technical approach to assessing risk and a framework to mitigate against those risks. A framework that would apply across shale gas projects in the province. This study in arguing that social interactions and lived experiences are key to understanding how actors learn, seeks to assess how the factors of uncertainty, public engagement, and trust can shed light on the how actors learn and the objectives they seek to collectively achieve as a result.

Literatures related to these factors have all advanced normative arguments asserting the importance of engaging the public in decision-making. For democratic governance theorists “over the last two decades, public participation, and specifically engagement through deliberation, has emerged as a prerequisite of democracy” (Held, 2008). Furthermore, in a review of the recent history of citizen engagement initiatives, Polletta (2016) argues that “overall, there has been expansion not only in the number of initiatives but also in the kinds of issues seen as appropriate for public discussion. Science and technology, once seen as the purview of experts, are now common topics of citizen forums” (p.233). Public engagement is advanced in the literature as a way to integrate different types of knowledge in the decision-making process, to allow for considerations to emerge beyond the technical to provide a more fulsome understanding of issues and shape policy alternatives in ways that integrate realities from social worlds (Jasanoff, 2010). It is also advanced as a key mechanism to facilitate learning involving citizens and public authorities alike (Diduck et al., 2013).

Where uncertainty exists, as in the context of a new and little understood emerging technology such as hydraulic fracturing, the risk literature highlights the need to involve citizens through deliberative methods to understand what beliefs they hold regarding different decisions to be made (Irwin and Wynne, 1996; Renn, 2008; Rowe and Frewer, 2004, 2005). “Fundamentally, deliberative engagement has emerged as the ‘right thing to do’, not least in the context of risk decision-making under high uncertainty” (Petts, 2008, p821). Again, learning takes on a prominent role as scholars assert the role of deliberation and engagement in creating shared understandings and eliciting policy alternatives.

However, uncertainty impacts the ways in which people perceive risks and the extent to which they are willing to defer authority to the appropriate bodies to keep them safe from harm (Slovic, 1993; Frewer, 1999). In systems of democratic governance where public authorities, namely governmental agencies and regulators, are responsible and accountable for protecting people from risks, the literature points to the need for public authorities to build trust with the public for effective risk communication and engagement (Siegrist, 2019). Fundamentally, trust emerges as a key factor in determining the ways in which policy actors interact.

4.1 Democracy and discourse: Turns

Theories of democratic governance and policy analysis have both taken turns in the 1990s. What these turns have in common is that they are rooted in the normative objective of society’s betterment. Democratic theory’s turn was a *deliberative* one, with emphasis on democracy’s “processes of judgment and preference formation and transformation within informed, respectful, and competent dialogue” (Dryzek, 2010, p.3) to deliver decisions and outcomes. This

turn meant that theorists no longer only thought about democratic decision-making as a simple aggregation of preferences; decision-making was transformed into a process of deliberation. This thinking also had impacts in policy analysis³⁷ at around the same time, where theories and approaches to problem solving experienced an evident shift away from the ‘empirical’ to involving the study of communication and language (Fischer and Gottweis, 2012). According to this *argumentative* turn, policy inquiry recognized “policymaking as a fundamentally ongoing discursive struggle over the definition and conceptual framing of problems [...] that motivate policy responses” (Fischer and Gottweis, 2012, p.7).

For deliberative democratic theorists, there were a few more turns into the 2000s including an institutional, systemic, practical and empirical turn, in that respective order (Dryzek, 2010). What the turns advanced is first the integration and adoption of different deliberative mechanisms through institutions (e.g., citizens’ juries), second, integrated thinking about a whole system approach where deliberation is just one component of democracy (across different levels of governance), third, introducing deliberative practices more broadly in politics (such as consensus conferences), and finally, theorists began conducting empirical research to assess their work and refine their assumptions. Underpinning all of this work is the drive towards empowered societies engaged in the decisions that affect them. It is a model of democracy that aims to be ‘authentic, inclusive and consequential’ (Dryzek p.10).

To be consequential, processes of deliberation that take place in the public sphere must drive democratic outcomes. The public sphere constitutes more than just the formally constructed

³⁷ Policy analysis is seen as knowledge in the policy process and is concerned with generation, dissemination and utilization of knowledge in the process (Radaelli, 1995).

structures of political authority; it is also constituted by the spaces beyond formal institutions where deliberation and discourse take place. This is not to say that deliberation cannot happen within the formal structures, but authors like Dryzek and Benhabib emphasize the broader public sphere. Others have built on this to argue that discourse is a fundamental component promoting learning amongst participants that can lead to better policy outcomes. This positions ‘communication and reflections at the center of democracy’ (Dryzek, 2010, p3). Learning is inherent in the approach because deliberation is not just about gathering preferences, it is about critically engaging through forming preferences and even transforming them through dialogues between a larger range of participants (Dryzek, 2010; Fischer & Gottweis, 2012; Hajer & Wagenaar, 2003).

The argumentative turn in policy analysis originally offered a different approach to policy research, one based on how we understand knowledge to be produced and used in policy-making. This led to an expansion of the study of policy analysis to include work on deliberative democracy and processes of deliberation in the policy process (Mayer & Tijnik, 1997). The role of local knowledge in decision-making came to prominence as a result of the argumentative turn, especially in cases of increasing complexity involving technical solutions. Drawing on critical theorists like Habermas (1987), the enlightenment function of argumentation is posited as a key to transforming perspectives and influencing policy outcomes (and therefore potentially policy change) (Forester, 1993; Fischer, 2000). It is also based on fundamental democratic principles of an engaged public that can influence outcomes through generating shared meanings. The opportunities to engage in policy processes, whether via citizen forums or formal engagement mechanisms instituted by public authorities, became valued for their role in combatting “the

public's alleged loss of trust in government" (Polletta, 2016, p.234) and for generating shared meanings of common problems (Hajer & Wagenaar, 2003).

Democratic theorists are concerned with how engagement discourse in the public space is transmitted to public authorities. In terms of energy and environmental decision-making, the public space has increasingly expanded but there is a limited degree of standing institutional venues at the level of local decision-making (Colton et al., 2003). This is particularly the case in Canada where the key venues are environmental assessments processes, regulatory tribunals and agencies, and finally courts. As formal avenues to engage the public, these have limited scope and impact on upstream policy-making. To engage communities in decision-making, many Canadian public institutions at the federal and provincial levels create ad-hoc public engagement mechanisms. Québec is an exception in this case with the establishment of a permanent engagement body, the BAPE with a mandate to inform, consult, advise and engage the public on decision-making. The more general ad-hoc mechanisms elsewhere tend to be around specific agendas (e.g., introduction of shale development and regulation in a jurisdiction) and for an allotted period of time with limited mandates³⁸. While the mandate to deliver on these engagement exercises is not always clear, what the engagement process does is create a lower degree of institutional insularity (Pierson, 1993).

Accordingly, the role of the policy analysis literature is important in explaining how public engagement practices facilitate learning amongst citizens and public authorities. In situations where institutional structures are open to a larger range of actors, via public engagement

³⁸ This is true of the public engagement mechanisms for shale development in New Brunswick. We can also see this in large-scale national engagement exercises in energy (e.g., Generation Energy) (NRCan, 2021a).

processes or municipal town halls for example, the policy analysis literature lends itself well to understanding the role of learning and its impacts on policy change (Atkinson and Coleman, 1992; Hall 1993). According to these models, social interactions are the agents of learning (May, 1992).

There are epistemological and ontological underpinnings to the ‘turns’ in literature that determine the use of methods (Mayer, 1997). As noted earlier, this dissertation adopts a postpositivist stance in line with the avenues of research posited by the argumentative turn. According to this perspective, the social and cultural realities of policy problems are critical and understandings of the social construction of these problems can provide more effective ways of dealing with them. The local knowledge of citizens (both the empirical and normative) related to the social context to which policy is applied, is incorporated into decision-making (Fischer, 2000). This is one way to build public trust in energy and environmental decision-making and can facilitate broadly accepted decisions that resonate with communities, particularly in the context of uncertainty where there is a high degree of perceived risk (US National Research Council, 2008).

4.2 Public policy and engagement in decision-making

The following section outlines the normative implications and practical approaches involved in energy decision-making in Canada. Arguably, the implications for upstream and downstream policy differ. The interplay between uncertainty and trust on a project level is more evident as public engagement is limited to a narrow set of considerations associated with project development (e.g. mapping major routes, setback distances from schools/homes). What the section will highlight is the less understood role of those factors at the upstream level in policy

development (e.g. overall energy mix for a jurisdiction, including whether unconventional shale resources should be included in that mix). The section will also highlight the dynamic with the development of regulatory policy and initiatives to govern the development of resources, and manage the risks associated with development practices (e.g., hydraulic fracturing).

Within the realm of upstream and downstream policy, there are some established processes and tools deployed by governments in Canada such as Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs). They are meant to account for broad policy objectives and support the coordination amongst different levels of decision-making. Some of these tools and processes have their own public engagement mechanisms associated with them (mainly EIAs), and exist alongside more ad-hoc government approaches to public engagement and consultation in the realm of energy policy. This following section provides an overview of the decision-making landscape in an effort to highlight the implications for knowledge and policy learning.

Normative implications and practical approaches

Whereas deliberative democracies in the truest form may not exist, democracies have indeed adopted avenues of engagement and participatory approaches to policymaking (this is particularly true of Canada). This section is dedicated to the explication of the central mechanisms of engagement in Canadian energy and environmental policy subsystems, and highlighting different types of policy engagement.

With increasing attention and public opposition related to policies and projects in the energy and environmental sectors, there has been a surge of public engagement mechanisms aimed at engaging citizens in either consultation or direct influence on decision-making for both policies and projects. Bherer, Gauthier & Simard (2017) argue that there is a professionalization of public engagement that has taken place and that these mechanisms have been institutionalized. Institutionalizing participation means “to make it a routine practice, incorporating it into the ways that public decisions are taken” (Lewanski & Ravazzi, 2017, p.17). In terms of the public decisions taken, it is useful to distinguish between upstream and downstream decision-making (Wynne, 1992). Upstream is defined as decision-making at the policy level for strategic objectives and downstream as decision-making at the project and organizational level that deals with implementation and management (Cleland and Gattinger, 2017). This section will first highlight considerations in the literature and practice at the downstream level and then the upstream level.

Within the policy field of energy and environmental decision-making, there are three waves of public participation that have taken place since the 1970s. The first wave rose out of increased concerns over environmental and social issues that facilitated experimentation with citizen involvement in resource and environmental management in Canada and the United States (Mitchell, 2004). The second wave in the late 1980s was brought on by the interest in sustainable development and rekindled the attention towards citizen involvement and building public trust³⁹. This wave is characterized by the development and use of different techniques of involvement and uptake of citizen input at all levels of government and on many different aspects of

³⁹ The UN Brundtland Report proposed an agenda for change in terms of sustainable development, with emphasis on global multilateral and bilateral action (Brundtland, 1987).

governance (Dorcey, 2010). Finally, the third wave began in the millennium with focus on governance systems and how they would be able to truly accommodate the processes introduced and all the innovation that took place in the second wave. Questions of fundamental change and reform are still present in the debate as the waves generated disappointment regarding anticipated change (Simard, 2013).

Governments introduced EIAs starting in the 1970s when sustainable development was acknowledged as an important policy goal. Importantly, EIA is a tool of governments to achieve the broader objective of sustainability that was introduced in the first wave and regained attention in the second wave. EIA is a “systematic process designed to identify, predict, and propose management measures concerning the possible implications that a proposed project's actions may have for the environment, and includes various provisions for community participation and consultation in its use” (Prno and Slocombe, 2012, p351). It is a widely accepted environmental management tool that is used across provinces in Canada (Noble, 2010).

The EIA process is meant to identify any potential risks and proposed mitigation measures by proponents to ensure compliance with standards established by the jurisdictions where projects are to proceed. Specifically, throughout the period of research for this study, the Department of Environment and Local Governance in NB defines EIAs as “a process through which the environmental impacts potentially resulting from a proposed project are identified and assessed early in the planning process. EIA identifies steps that can be taken to avoid negative environmental impacts or reduce them to acceptable levels before they occur” (GNB, 2018a).

EIA processes are fundamentally technical in orientation, with proponents usually in the position of hiring consultants to work with the company to identify the key risks and provide full descriptions of proposed project details such as drilling activity, material handling and transportation, drill targets and construction and operation of well pads in the case of fracking. Public consultation and engagement are mandated requirements through all phases of an EIA, however, in most cases, the main onus is on the project proponent to undertake public engagement exercises (Mulvihill et al., 2013).

EIAs undergo a determination review on their technical bases to determine whether projects can proceed; the conditions of the review are different across jurisdictions. In NB, project managers from the government's EIA branch work with a 'specially constituted Technical Review Committee' (TRC) that is made up of experts and specialists from different levels of government and different departments. The TRC determines if public participation and stakeholder engagement are needed beyond the minimum requirement (GNB, 2018a). Participation and engagement at this level are restricted to the bounds of the project but there have been calls by a variety of scholars for EIAs to be integrated more holistically and to include a broader range of factors for consideration (Kobayashi et al., 2015). To consider different factors, scholars advocate moving from specific project assessments to a broader consideration of the cumulative effects of policies and programs on the environment in Canada.

The technocratic approach underpinning these mechanisms can serve to hinder the objective of inclusion and decision-making that is sustainable over the longer term (Sinclair and Diduck, 2001; Renn and Webler, 1995; Ali-Khan and Mulvihill, 2008). The argumentative turn in policy

analysis and planning impacted the scholarly research around EIAs by bringing different values to the forefront of research. According to this perspective, discourse and argumentation amongst policy analysts, planners, clients, decision-makers and community members can lead to social learning and the emergence of new understandings (Forester, 1993; Healy, 1997). In the field of resources and environmental decision-making, public participation is seen to improve the content of decision-making and enhance the process of decision-making itself (Sinclair & Diduck, 2000;2001).

In terms of the basis of policy development and policymaking, as noted earlier, there is a strong normative rationale for engagement based on democratic decision-making. Liberal democracies have many avenues of representation and are to varying degrees open to political influence from the public. The shift towards modern governance⁴⁰ approaches highlight the role for civil society in decision-making in many different sectors. It is important to recognize that along with this there is also a shift in understanding from consultation (seen as a one way form of communication that does not create meaningful opportunities to participate) to engagement that facilitates policy learning through the intersection of many perspectives engaged in working together toward better outcomes (Rowe and Frewer, 2005). Accordingly, “the shift from talking about public consultation to citizen engagement reflects an interest in creating more interactive forms of participation that lead to policy learning and promote the development of citizenship skills and community capacity” (Phillips and Orsini, 2002, p31).

⁴⁰ Network governance whereby there are “state-sponsored participatory forums that attempt to engage governance networks in deliberation around particular policy issues” (Bogason & Muso, 2006, p.5).

Upstream and downstream engagement

While public participation has been explicitly built into many regulatory frameworks at the local level and at the federal level consultation on a broader policy basis is still taken on an ad-hoc basis by governments of all levels. In short, governments in Canada have conducted public engagement on policy development less systematically. There are no clear guidelines on when it is required/necessary to undertake public engagement on energy policy if it does not relate directly to the regulatory process. Examples at the federal level date all the way back to the Borden Commission (also known as the Royal Commission on Energy) and more recently to Generation Energy in 2016.

The Borden Commission established in 1957, was mandated by the Order in Council to assess and provide recommendations regarding "the policies which will best serve the national interest in relation to the export of energy and sources of energy from Canada" (Borden Commission Report, 1958, p.v). Given the nature of the inquiry, the recommendations in both the first and second report focused on regulating oil and gas in Canada, and as such the role of the National Energy Board. Generation Energy was a national consultation launched in 2016 by the Federal Government to engage Canadians on Canada's low-carbon energy future. Engaging not only stakeholders (industry, academia etc.) but also citizens, the process gathered input from across the country that was provided to the Generation Energy Council. The council, appointed in 2017, and composed of 14 thought leaders in the energy field recommended focusing the energy transition in Canada via four key pathways (wasting less energy, switching to clean power, using more renewable fuels, and producing cleaner oil and gas) (NRCan, 2021a). As upstream

exercises, both the Borden Commission and Generation Energy have served to shape Canadian energy policy in different ways.

At the provincial level, specifically in New Brunswick, the most recent engagement was on the development of an energy policy for the province conducted by the New Brunswick Energy Commission, a process subject to assessment in this study. As discussed later in this dissertation, this was a commission established in 2010 in the wake of widespread backlash to the proposal of selling NB Power assets to Hydro-Québec⁴¹. Ultimately, at both the provincial and federal levels, upstream policy is focused on establishing the strategic objectives for energy, and even though it informs regulatory policy, it does not directly deal with addressing risks associated with energy production, transportation and use on a project basis. Risk assessment and management is largely within the realm of regulatory policy, and with regulators.

In Canada, the executive branch of government determines policy (Bird, 2018). This is the case for most western industrialized democratic systems where elected politicians and public authorities in government departments have the authority to legislate policy. They appoint regulators and determine the parameters of regulatory design and the institutional design of the regulatory agencies. The enforcement of regulation is undertaken by regulatory agencies, and it is within the regulatory mandate that risk management is fundamentally implicated (Bird, 2018). Regulatory staff is usually composed of highly professional and specialized experts overseen by appointed officials. Regulatory agencies in most western democracies are quasi-judicial and independent bodies. “Ultimately, policymakers in government must provide clear guidance and

⁴¹ Notably, this was a public engagement exercise on the future of energy in the province, and it was not limited to hydraulic fracturing.

policies to regulators (especially on what key objectives and values underpin the public interest), and then defer specific decision-making to the regulatory bodies” (Bird, 2018, p18). Regulatory bodies have specific parameters for public engagement that is often centered on project approval processes through EIAs. Public participation regarding the broad objectives of policy (upstream) is different than public engagement built into regulatory activities (downstream) where technical considerations of risk are predominant.

It is worth noting that in between the realm of big policy and specific regulatory decisions on energy projects, is SEAs. As an intermediary, the objective of SEAs is to ensure that there is coherence between the different levels of decision-making from overarching policy to environmental impact assessments (Verheem and Tonk, 2000). Specifically, Bidstrup and Hansen (2014) argue that “SEA represents a process which can improve decision-making and spark sustainable development. The strategic SEA is therefore arguably related to planning objectives, timing of the planning process and inclusion of what is referred to as strategic elements - i.e. assessment of alternatives and cumulative impacts” (p.30). In Canada, SEAs were established in the early 1990s as a separate process from environmental assessments, and are required with Policy, Plan or Program (PPP) submitted to Cabinet at the federal level. However, SEAs are often used as a tool more so than a strategic process to ensure alignment across the range of activities in a policy subsystem (Noble, 2021). SEAs in Canada are used to assess and disclose the environmental impacts of PPPs, and in the majority of cases function simply as impact assessments (Noble et al. 2019). SEAs at the federal level have “no mandatory provision for public engagement” (Noble et. al, 2019, p. 345).

The objectives of engaging differ at the different levels of engagement. While the literature alludes to the role of learning amongst participants for both upstream and downstream engagement, it is important to note that the scope of engagement influences decision outcomes differently. The types of input required could be quite different as well, where at the downstream project level the process is focused on reviews of technical aspects of proposed development versus broad social and policy objectives at the policy level.

Cleland and Gattinger (2017) argue that the societal context within which policy and regulation function has changed in recent decades. Driving the change are increased political polarization, the expansion of digital communications, a decrease of trust in government and finally, much larger public demands for public participation (Cleland and Gattinger, 2017). Citizens no longer content with being engaged only once decisions have been made for projects and resource development, demand to be engaged early and often. In response to this, Simard (2018a) argues that regulators are only one piece of the energy decision-making system in Canada, and there's a need to formalize "collaborative policy development based on [...] identifying and assessing alternative approaches and objectives" (Simard, 2018a, p.5) and integrating them not only at different phases of the policy cycle (Simard, 2018b) but also at macro-, meso and micro levels. He recommends the development of formal engagement activities upstream, the integration of SEAs in policy development processes that link policies to projects, and encourage co-management processes at the project level. Therefore, different avenues to integrate different types of knowledge in decision-making may have different implications for policy learning at different levels of decision-making (Simard, 2018). This study seeks to shed light on these implications.

4.3 Risk management and democratic governance

Technological advancements in resource development across jurisdictions require choices to be made and in democracies public authorities are expected to design policies that are responsive to citizens demands. A key component of the rise of the modern state is its embedded responsibility to protect the public from harm. The state's legitimacy in part derives from its ability to protect citizens and to this end, make decisions to ensure risks are regulated and reduced. Policy and regulatory functions of public institutions in the modern day rely on risk assessments in decision-making for risk management (Fiorino, 1989). The challenge with technology and decision-making is that the advent of newer technologies brings more complexity and a greater dependence on expertise to understand and mitigate risks (Plough and Krimsky, 1987; Shiroyama et al., 2012).

However, technical knowledge and calculations of risk have also conflicted with democratic decision-making and the social context of communities where the risks apply. Callon, Lascoumes & Barthe (2011), argue that scientific and technological development has led to increased uncertainty. The authors posit that scientific and technical uncertainties interact leading to the reformulation of problems in the public space. This is not a new phenomenon. The academic literature has advanced different understandings of the conflict, but moreover has proposed solutions. One such solution is to include those who are affected by technological advancement and associated development in the decision-making process and learn about it. "It is now widely agreed that it is beneficial for experts, policy-makers to involve the public in discussion about possible scientific and technological innovations and their associated risks" (Flynn, Bellaby & Ricci, 2009). As a result, decision-making processes have evolved in many

jurisdictions and contexts to engage the public. They emphasize the consideration of a broader range of stakeholders that includes those affected by a project. Additionally, “the growth of public participation in government decision-making in the natural resource sector also stems from the increasing impact of environmental decisions on citizens’ lives, the growing awareness of the effects of environmental damage on human health and well-being, and the continuing development of human and political rights” (Lucas & Lilles, 2016, p189).

What remains less known is how broadening engagement processes influences how policy actors beliefs are realized and how they impact policy decisions. This dissertation seeks to explore these factors in more detail by bringing together analysis from different fields of research surrounding decision-making for technology and resource development.

Trust in democratic governance

In the last few decades, trust has become a major concern for many scholars in different disciplines. In political science, the decline in social capital (defined broadly as the bonds in society) and its link to the decline of trust is something that is cited often for advanced democracies such as Canada and the US. Political theorists such as Hobbes and Locke wrote about the importance of trust in society; and thinkers such as de Tocqueville and Mill placed trust at the center of democratic stability. However, the research on trust in democratic governance literature takes on a macro perspective via historical and institutional analyses. It is not clear how the implications of trust are understood on particular policy preferences at the sub-sectoral level in the context of uncertainty. This is a context where there is uncertainty due to a lack of knowledge, on behalf of experts and decision-makers alike. This section will first

highlight the key dynamics of trust and definitions in the literature, and then proceed to create the linkages with the risk literature to highlight the implications of trust in decision-making.

Fundamentally, trust is seen as the key component to facilitating cooperative and interdependent relationships in society. Hardin (2002) argues that there are generally three key categories of trust in the literature. They include: the belief in trustworthiness of a character, belief in a strong moral commitment and finally belief that they want to maintain good relations. Trust then is grounded in a dynamic relationship – the basis of which requires trusting and trusted parties:

“Trust—political or otherwise—is relational and domain specific. That is, A trusts B to do X. Trust always has an object or target (B), which could be a person, group, or institution, and a domain of action (X) where trust is given or withheld. The foundation of trust is that A judges B to be trustworthy, that he or she will act with integrity and competence and with A’s interests and is revised according to experience. Importantly, many trust researchers seem to agree on the notion of trust as a “psychological state of willingness to be vulnerable based on the trustor’s positive expectations of the trustee” (PytlikZillig and Kimbrough, 2016 p, 18).

According to Hardin (2002), these dynamics are based on personal knowledge someone has about another actor or group that insinuates that they are worthy of trust. He argues that these categories are not well prepared to apply to trust in institutions or government (Hardin, 2002; 2013). What Hardin does is introduce the notion of an interest-based element to trust. This is one where not only do people believe that someone will act in a trustworthy manner to demonstrate

care and competence, but they will also act on their interests as if they were their own⁴². According to Hardin (2002) then, in terms of trust in government, trust is of relevant to the extent that it is an ‘encapsulated interest’ and is reflective of vested interest in certain issues.

In a review of cross-disciplinary research (economics, psychology, sociology) Rousseau et al. (1998) define trust as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another” (p. 395). According to this perspective, the conditions for trust to occur involve an interdependent relationship between a trustor and trustee, as well as a risk context where there is a readiness for actors to be vulnerable. The basis for vulnerability then is a confident expectation that the trustee will act positively (a behavioral basis).

Theories of the policy process predict or postulate possible drivers of human action. Therefore in trying to understand who or what policy actors trust and how that influences their decision-making, it is important that the role of different types of trust is highlighted. Clearly, what emerges from the literature is the need to assess trust public authorities in the context of uncertainty.

Trust in risk management

In the context of hydraulic fracturing, the regulation of the practice is a central component of the policy process. This is due to the technological risk posed by fracking, and potentially negative consequences of the practice on the environment and human health. During the period under

⁴² Which arguably, is the basis of any representative relationship particularly in the context of institutions.

study, high skepticism of hydraulic fracturing referred to as a ‘nascent practice’ or ‘emerging technology’ led to high perceptions of risk amongst the public that are critical for policy and regulatory decision-making around shale development. This section will cover the ways in which risk is described in the literature and reviews the arguments for integrating public perspectives into risk decision-making to foster trust.

Risk research is a domain with strong analysis and implications based on risk communication and risk management studies as they relate to environmental policy and management. Risk is defined as “a measure of the probability and severity of adverse effects” (Aven, 2010, p.). The concept of risk is generally understood to comprise of events, consequences and probabilities, whereby ‘uncertainties are expressed through probabilities’ (Aven, 2010, p.). For Callon et. al (2011) there is value in distinguishing between risk and uncertainty, whereby risk refers to “a well-identified danger associated with a perfectly describable event or series of events” (p.121). This distinction focusing on the known aligns with their approach to draw boundaries and demonstrate interactions between the technical and the social. However, in the context of this research, the risks associated with fracking were not yet quantified or perfectly describable during the period under study. Therefore, the study is focused on the context of uncertainty in relation to the perceived risks where unknown probabilities and consequences had started to emerge.

The case of hydraulic fracturing during the period under study existed within the context of uncertainty. Simple risks are essentially assessable in terms of probability and effects as outlined above, however many risks are more complex. Risks that are ‘systemic’ are ones that are “embedded in the larger contexts of societal processes” (Renn et al, 2011, p.234) and are

therefore more complex with higher levels of uncertainty. For example, harmful chemicals leaking into the groundwater constitute the systemic risk of irreversible destruction to the freshwater supply in a fracking region. Systemic risks are multi-causal and there may be more ambiguity in assigning the relationship between causes and effects. This can create a situation of scientific uncertainty associated to limited scientific knowledge about the process, thus making it difficult to envision solutions to mitigate undesired outcomes.

As mentioned, the key dimension to this then – is how people perceive risk. Social psychological research is based on risk perception and how people relate them to particular technologies. Actors in society will tend to respond to risk based on their own risk constructs, producing different understandings of risk. In particular, activities are tolerable if they are considered worth pursuing for their benefit (Boudet et al. 2007). According to Renn et al (2011):

“[...] whether risks are acceptable, tolerable or not could be the subject of considerable debate and intense controversy. Ambiguity is used to refer to such social situations around risk issues. Ambiguity results from divergent and contested perspectives on the justification, severity or wider meanings associated with a perceived threat. As a consequence, views differ on the ways to assess and appraise the risks, and more in particular on the relevance, meaning and implications of available risk information and on which management actions should be considered” (p.235).

In light of this, an important consideration is what drives human behavior in relation/response to risk. Perceptions based on personal experience, cultural traditions, social communication and

logical reasoning drive behaviour. Research examining risk perception in individuals' 'cultural construction of risk' have found that risk can have substantial influence on how actors come to understand their policy preferences (Kahan et al., 2011; Gastil et al. 2011; Slovic 1987; Douglas & Wildavsky, 1982). The application of such analysis in the field of environmental management is therefore evident.

With low levels of knowledge about technology and its impacts, research argues that individuals may have difficulty assessing the levels of risks and benefits of a technology in addition to its associated policies and they may rely on their cultural worldviews to determine what is acceptable based on their values (Kahan, 2010). Therefore, in an environment of uncertainty, trust in related agencies and institutions plays a large role in decision-making (Earle and Cvetkovich, 1995; Siegrist et al., 2000). Furthermore, this environment exists in the context of a decline of deference; resulting from widespread political and social trends whereby the public is increasingly alienated from authoritative institutions and has high levels of distrust towards them (Laird, 1989; Nevitte, 2014; Edelman, 2021). Laird (1989) demonstrates that citizens are progressively less inclined to defer certain decisions to authoritative institutions and what are perceived as institutionalized elites. Hence, there is a focus in the literature on developing better risk communication strategies to deal with mistrust in public authorities. General levels of trust, then, have an impact on risk communication and management strategies:

“Public trust and confidence in decision makers, and decision and regulatory processes, lie at the heart of the changing relationship between science and society. Trust (or rather distrust) impacts on the extent to which people wish to influence and input to decisions: when trust is low, demands for more vigilant

and deliberative forms of participation are evident” (Petts and Brooks, 2006, p.1048).

According to Cleland and Gattinger (2017), that is true of energy decision-making in the modern day context. Increased demands for participation exist with a decline of trust in governments and authorities. Findings seem to suggest that trust in its numerous dimensions can be a crucial underlying factor in how people perceive the risks associated with hazardous facilities and are willing to accept and support governmental programs to oversee and minimize risks. Many studies highlight the significance of the role of trust in public institutions, and therefore advocate for trust building as necessary for risk governance.

In studies of risk, trust building is posited as an important component through discursive action of representatives of institutions, scientific experts and decision-makers. Not only is the deliberative turn now embedded in the policy and planning literature, but it is also evident in risk research as risk communication studies suggest that inclusive processes of decision-making are important in facilitating trust (Laurian, 2009; Chilvers, 2007). Decision-making that considers the role of expert input but also involves citizen perspectives is seen to transform preferences through discourse among a wide range of participants (Sinclair & Diduck, 2001; Diduck et al., 2012; Cattino & Reckien, 2021). The public can probe and question alternative methods of action through their knowledge and contribute to improved decision-making and outcomes. Alternatively, for Callon, Lascoumes & Barthe (2011) controversies already take place in hybrid forums. These forums are conceived as open spaces where hybrid groups of experts and lay people engage in discussing technical options (e.g. in the case of nuclear waste). The controversies therefore pose as a mode of exploration in what can be understood as collective

puzzlement and can lead to collective learning. The learning process allows “laypersons to enter into the scientific and technical content of projects in order to propose solutions, and it leads the promoters to redefine their projects and to explore new lines of research to integrate demands never considered” (Callon et al., 2011, p.33)

Participative models are also posited to create more trust amongst participants and decision-makers (Fast & Mabee, 2015). Research focuses on how to generate better public participation for more acceptable siting processes (Kier et al., 2014). Trust-based relationships are a key component of the interactions between citizens, public agencies and developers. In addition, the importance of trust in the specific agencies responsible for siting decisions is critical (Pijawka and Mushkatel, 1991). “In the field of risk research there is now general agreement that trust in risk management institutions may be an important factor in perception and acceptance of risks” (Poortinga and Pidgeon, 2003, p961). More broadly, the literature regarding risk perception identifies trust and public participation as fundamental components of public acceptance of government objectives (Laird 1989; Kasperson et al. 1992).

Authors such as Rabe (1992) have advocated for the achievement of collective decision-making through citizen participation that may enhance trust in public authorities. Providing the Canadian case as a successful case study, he advances full participation as perhaps the only way out of gridlock and the move towards public acceptance (Rabe, 1992). Very important for trust is the perception of key authoritative decision-makers as acting in the public interest. Thereby, Rabe argues for collaboration between different levels of government and with the public to act in the interest of the public and ensure cooperation and coordination for energy development. Callon, Lascoumes, and Barthe (2009), have argued that a rethink of what decision-making represents is

needed, whereby decisions are not seen as final but rather ‘measured’. Decisions can therefore be open-ended and taken based on inclusive processes including both experts and the public. This approach ensures that as new knowledge and claims emerge, there is the ability to incorporate them and move past the gridlock of actors for and against specific decisions. Involving different perspectives can lead to problematizing issues differently and including perspectives that were missing by focusing on the technical only. Demonstrating that the process of learning can lead to alternative solutions and therefore policy change.

This section has demonstrated the importance of risk in the context of an emerging technology and the various implications of the context of risk for energy engagement and decision-making. Renn and Levine (1991) argue that: “trust is a prerequisite for any social interaction and is, at the same time, a major mechanism to provide orientation in uncertain situations” (p184). While the literature again emphasizes the role of discourse and the importance of integrating different types of knowledge in decision-making it is clear that much of the research has proceeded on a project level (project siting and EIA process) basis under the premise of the regulatory agencies as the relevant public institutions.

In the context of dealing with policy and regulatory development that is upstream of siting processes and project oversight, there is a need to understand how trust influences engagement and the nature of learning. What this research is interested in understanding is how trust bears on policy-oriented learning in the context of public engagement processes and if this leads to policy change. Accordingly, this dissertation argues that it is productive to consider the dimensionality of trust as it relates to general trustworthiness and competence of institutions in a locally grounded approach where the experience of policy actors is better understood.

4.4 Pulling it all together

The notion that citizens engage broadly on policy is a new factor of current contexts of decision-making that is not adequately accounted for in the literature. In a case like New Brunswick where risk regulation for fracking was highly contested it is necessary to identify and utilize different fields for an adequate assessment of the nature of policy learning and its impact on policy change. What this chapter has presented is the threads of relevant literature and scholarly debates that relate to citizen engagement and decision-making writ large. It has demonstrated that the normative arguments for citizen engagement are based on democratic notions of civic engagement and are not without context in advanced democracies where citizen demands for more engagement are evident, and where policy processes include different avenues of citizen participation and engagement. The chapter has also demonstrated how arguments about engagement are linked to broader understandings of the need for learning in many different forms to build common understandings, facilitate trust and produce better policy outcomes in contexts of uncertainty. This research is interested in understanding how these factors impact the research on learning. To this end, the study reintegrates context into the assessment and provides more richness in the analysis of policy-oriented learning and therefore if and how this may affect change.

SECTION II: Case study analysis and research findings

Building on Section I of this dissertation, the next chapter describes the case context associated with shale gas development in NB, and present this study's research, analysis, and findings.

Chapter 5: New Brunswick energy development

Introduction

This chapter provides an overview of the fracking context in NB. First, it describes the context within which the nascent industry emerged in the province. While oil and gas production are not new to the province, the technological and therefore operational practices associated with fracking were relatively new in the 2007 – 2017 period. However, as the first section demonstrates, the economic impetus to launch shale development in NB appeared to provide strong rationale for growth. Second, this chapter reviews the extent of energy resources and development in NB, and third it highlights the institutional context in the province to underscore the environment within which decision-making takes place. Fourth, the chapter reviews the key policy and regulatory implications for the development of the shale gas industry, and finally, concludes with the societal context and considerations in NB.

5.1 Establishing the context: Energy policy

New Brunswick has a population of approximately 800,243 (Statistics Canada, 2022a). Recently, NB experienced its highest rate of growth in the population since 1976, with an increase of 15,000 people in over the course of 2021 alone (GNB, 2022). Culturally, the

province has a unique blend of Indigenous, Acadian and Anglophone cultures. In 2016, people with French as a first language make up around one third of the population, with the rest identifying English as their first language (Statistics Canada, 2016). Most of the francophone people identify with being Acadian, and as such, decedents of the settlers of the French colony of Acadia in 1704 in the Maritimes (Chouinard et al., 2002). Additionally, in 2016 had an Indigenous population of 29,380 with the majority of people living on reserve (58.7%) and the rest off reserve (41.2%) (Statistics Canada, 2017).

A large majority of the province's inhabitants live in rural communities (Statistics Canada, 2022b). These communities have their own identities that are influenced by deep historical roots in NB. The current population of Indigenous, Acadian and Anglophone peoples in the province and their identities are borne out of a complicated history in the region. In 1755-1764, the Acadian expulsion took place and forced migration of Acadians from their homes to different parts of North America and France (Lockerby, 2018). Acadians were the first European settlers in the area and co-existed with the Indigenous peoples in NB for many years. In their place, new Anglophone communities were introduced after the expulsion, and the communities were expanded under British rule. Meanwhile, the British colonialists signed Peace and Friendship treaties with Indigenous groups in the province (Macleod, 2015). Today, the mix of these three cultures makes New Brunswick's cultural landscape quite unique and their historical roots continue to shape the communities and their interactions today.

As mentioned previously, NB has one of the oldest known oil fields in the world, where in 1859 the first oil well was drilled (GNB, 2021a). In 2012 there were 30 gas wells in production in the Sussex area and approximately 16 oil wells in Elgin producing oil in the order of about 100

barrels a day (New Brunswick Natural Gas Group, 2012a). The practice of horizontal drilling is also not new to the province - there have been 11 horizontally drilled wells in NB since 1990 (Energy and Resources Development, 2018a)⁴³. All things considered, the oil and gas industry has been a small element of the province's economic activity. For the most part, NB still imports oil and gas.

The use of the modern twin technologies of hydraulic fracturing for shale gas in NB was only in the early stages of development in 2010. In comparison, other jurisdictions in North America, such as Pennsylvania, Oklahoma, Alberta or British Columbia, have much higher production scales and the industry is fully established. NB has a modest shale gas industry located in the south of the province with approximately 40 formerly fracked wells (CBC Map, 2011). Although the sector is small, key provincial actors (both private and public) have identified it as a major sector for economic growth and development in a province that needs the stimulus. The government of NB in 2014 estimated that "The value of the industry [...] under a moderate activity level of 50 wells per year, would be approximately \$600 million in direct investment annually. Over a 20-year period, the industry at this moderate level would result in \$13 billion of direct investment with an additional \$8 billion in indirect and induced investment" (GNB, 2014a, p.6). These estimates would produce around \$1 billion in royalties to the province (depending on price stability) over 20 years to contribute to economic growth.

In terms of growth, not only was shale development expected to create local growth in service industries, but it is also expected to create value via a large export capacity. Notably, Saint John

⁴³ (Energy Resource Development, 2018a, p.40): "It's important to note that besides two horizontal exploration wells drilled by Apache in Elgin into shale rock, the other wells are much smaller in scale than what is typically referred to when discussing a potential industry from shale gas".

is one of the few locations in Canada where a Liquefied Natural Gas (LNG) terminal exists. It represents a significant investment in provincial infrastructure that holds the potential for a large-scale export sector, which could transform the province's energy production landscape with the development of a larger scale shale gas industry. Currently, the terminal is exclusively used as an import terminal to supply domestic and US fuel markets via the Brunswick Pipeline. Not only do shale deposits in NB hold economic potential from an investment and trade perspective, but they are also unique from a geological standpoint and can potentially provide a competitive advantage in the North American context. In 2018 a provincial government document obtained through access to information noted:

“New Brunswick, in need of new economic growth, is exploring shale gas as a means of creating new wealth and jobs for the province. There are specific reasons for companies to be interested in New Brunswick shale, giving us a unique competitive advantage over some exploration frontiers: Potentially the thickest shale in North America; proximity to Maritimes and Northeast Pipeline, proven resources within the Maritime Basin; premium sweet gas, with trace CO₂ content” (Energy and Resource Development, 2018a, p.41).

Despite experience in this province with the oil and gas industry over a long time frame, the shale gas industry was in its infancy in New Brunswick in early 2010. The conditions at that time may have resulted in a boom in activity as took place in other jurisdictions. How this would affect different communities and regions was unknown, but both the potential risks and benefits were different amongst different areas of the province. Therefore, the government launched a

major exercise to review regulation and engage citizens in the province in anticipation of a major development. According to a report published by the Natural Gas Group in early 2012:

“Beneath three-quarters of the area currently under licence for natural gas exploration, *there is, as yet, no direct knowledge of the geology and shale gas potential.* The potential for a large-scale natural gas field is largely due to the size of the area and the known thickness of the hydrocarbon bearing formation in areas where it has been assessed. Currently, planned seismic programs will help to refine drilling locations that over the next few years will start to confirm what potential lies in the subsurface of New Brunswick. In anticipation of this potential, the Government of New Brunswick has initiated a major effort to review its environmental protection standards for oil and gas activity, and to engage with the citizens of New Brunswick on the implications of this potential development” (New Brunswick Natural Gas Group, 2012a, p.1).

Should shale gas development have taken place, the government’s anticipatory approach was an attempt to engage New Brunswickers early. This dissertation examines how then, did the policy change into an indefinite moratorium on development of the resource, especially since there was remarkable interest in advancing shale development in the province in the early 2010s, as this chapter will demonstrate.

5.2 Energy resources and development

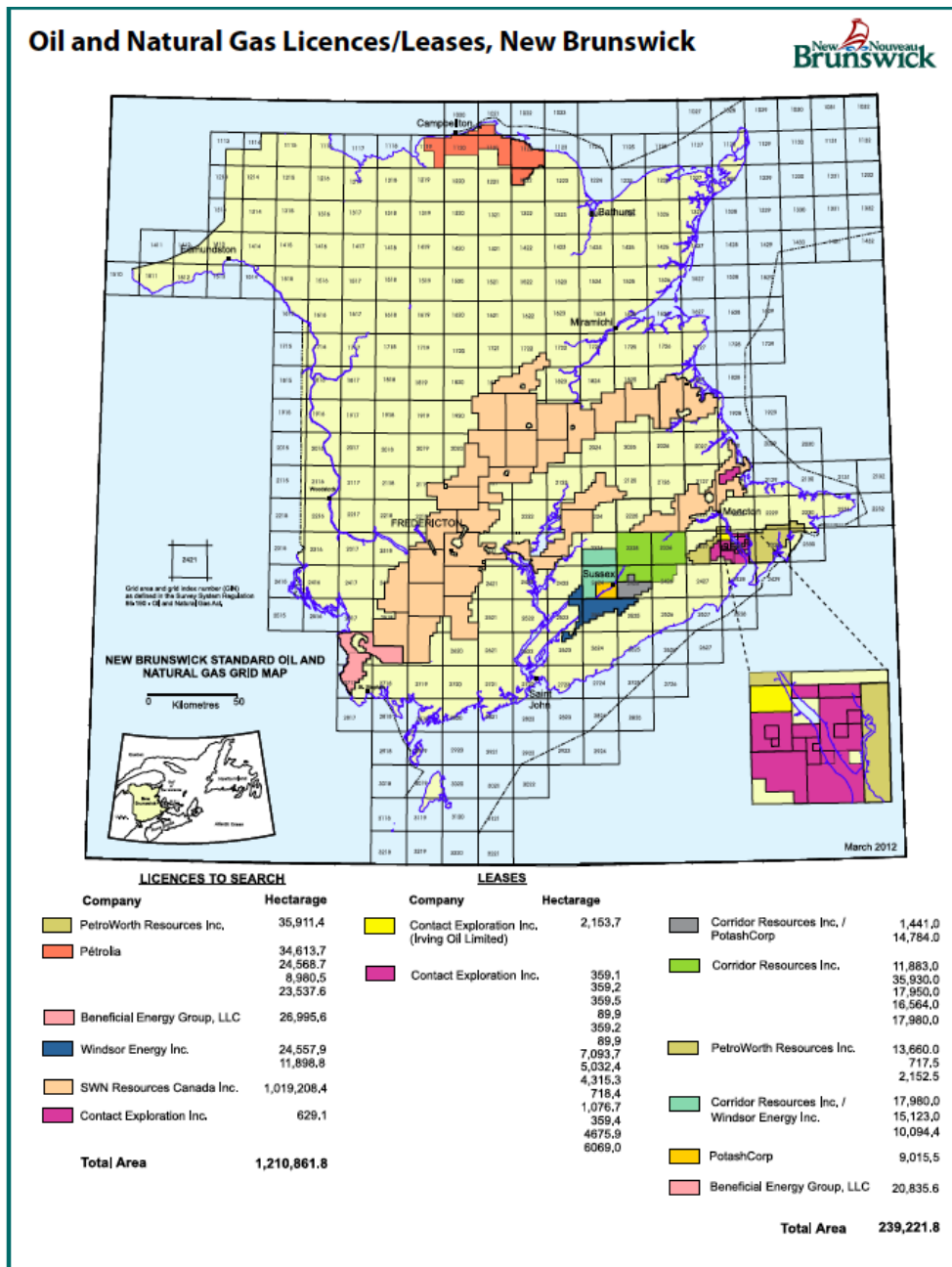
As part of the provincial government's efforts to expand the industry and participate in the growth of the North American shale gas industry, nine different companies were granted licenses to explore in different areas of NB that amounted to about 20% of the province's land area (see Figure 8). On April 7, 2011, the government claimed that "nine companies hold a total of 71 agreements to explore for oil and natural gas on more than 1.4 million hectares (3.4 million acres) of land. Exploration companies have invested more than \$374 million in the exploration and development of oil and natural gas in New Brunswick since 2000, and they plan to spend at least an additional \$200 million during the next two years" (GNB, 2011a). As demonstrated in Figure 8, the largest leases for exploration activities were granted to SWN Resources Canada, a wholly owned subsidiary of U.S.-based Southwestern Energy Company.

Exploration activities, considered to be low risk by governments and regulators, meant that companies could conduct their exploratory work with minimal oversight (GNB, 2018a). In the case of shale gas, exploration activities involve the use of large seismic trucks to detect and assess for shale deposits. However, that is not the only indication of viability: companies need to drill exploratory wells to test and ensure that there is economic viability for large-scale production as a next step. In the case of New Brunswick, seismic testing was stalled and it was not until mid-2014 that SWN was able to initiate the process for exploratory wells.

Public protests against shale gas development in the province developed early in 2013 and stalled the testing and exploration process. As we will see in this dissertation, a series of events took place in the province between 2010 and 2014 that ultimately lead to the establishment of a

moratorium on hydraulic fracturing, effectively inhibiting any exploration or development of the resource in New Brunswick. This moratorium was implemented by a newly elected Liberal government, that mandated a set of prerequisites that needed to be fulfilled before the moratorium could be lifted (Office of the Premier, 2014). A commission was appointed by the government to engage the public in the province throughout 2015 and discern the key issues underlying public concern. The commission issued its report in early 2016 (NBCHF, 2016) and, in May 2016, the government extended the moratorium indefinitely (CBC, 2018).

Figure 8: Map of oil and gas licences/leases in New Brunswick



(GNB, 2015)

5.3 Institutional context

With a renewed focus on the role of natural resources in the province, the government reorganized provincial departments in 2012. To this end, the Department of Natural Resources remained responsible for forestry and Crown lands, and energy and mining were combined to form a new department. The newly formed Department of Energy and Mines' mission was: "to create economic prosperity through the responsible development and management of New Brunswick's energy and mineral resources" (GNB, 2014b, p2). This included the promotion of the province's mineral and energy resources. However, of note, with the creation of new departments and their mandates to advance resources, there was no independent regulatory body that was established to oversee exploration, production and development of energy resources.

What this meant is that the responsibilities over the course of the different lifecycle stages of a project were overseen by a variety of different departments. It also meant that in the case of shale development, the department responsible for promoting shale gas was also responsible for regulating it. The establishment of an independent regulatory body is something that is seen as an important function of risk governance (LaBelle, 2012). Not only does an arms-length body provide a degree of insularity from political direction, but it also incorporates risk management and communication functions necessary for transparent and clear oversight of development (Figueroa, 2016). Ideally, it would also create a 'one-stop shop' for applications and approvals for proponents, as opposed to having to apply to several different departments for different parts of the process (e.g., the Department of Environment and Local Governance was responsible for EIAs, however, leasing and licencing for land defaulted to either the Department of Natural Resources or the Department of Energy and Mines, depending on the proposed application).

Not only were a variety of government departments involved in overseeing the development of the shale industry at the provincial level, the governance landscape was further complicated by Local Service Districts and Service Commissions that oversee services in unincorporated municipal jurisdictions. To be clear, the context in NB is not that different from many jurisdictions, where creating policy coherence is a challenge. However, the governance landscape in the province is important to note because it had implications for policy and regulatory development.

Policy and regulatory landscape

Numerous regulations and legislation exist to govern the activity of the oil and gas industry in the province. Since natural resource production is within the purview of the province, it does not deal with federal regulations except for specific projects that they fall under the purview of federal environmental assessment legislation⁴⁴, in cases where development would occur on Crown land and where Regional Impact Assessments are requested by the Minister of Environment and Climate Change at the federal level⁴⁵. In the case of the years under review for this case study (2007-2017), the *Canadian Environmental Assessment Act*, introduced in 2012, also meant that the authority for conducting environmental assessments was shifted to the provinces with what was deemed by some as a ‘significant allowance of delegation of authority’

⁴⁴ Based on a project list (the Physical Activities Regulation), whereby projects with activities identified under the project list or if the activity is designated by the Minister of Environment and Climate Change Canada - they require assessment.

⁴⁵ Sections 92 and 93 of the *Impact Assessment Act* allow the Minister of Environment and Climate Change to set up a committee or to authorize the Impact Assessment Agency of Canada to establish a regional assessment of the effects of existing or future physical activities carried out in a region. If a committee is established to conduct a regional assessment in a region that is not entirely made up of federal lands, the Minister may enter into an agreement with a jurisdiction to establish the committee and the manner in which the regional assessment is to be conducted (Government of Canada, 2021).

(DeLong and Fox, 2015). Until the imposition of a moratorium on hydraulic fracturing in 2014, the level of federal involvement was low in environmental assessments in the timeframe under examination for this research.

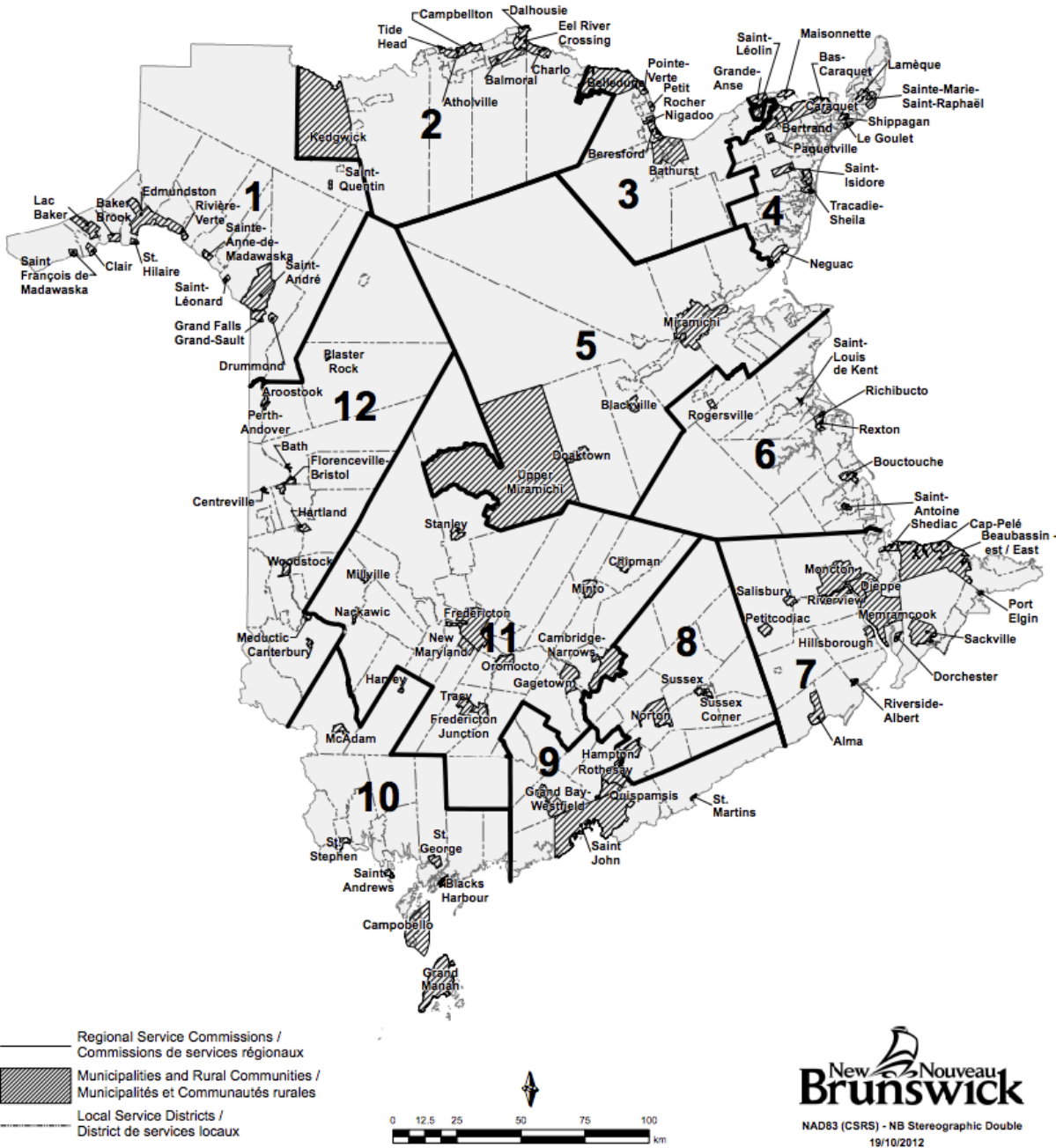
At the local level, municipal governments don't have many policy and regulatory instruments to draw on when it comes to energy development. This is further complicated in the case of New Brunswick where there are unincorporated regions. The local governance structure includes municipalities (incorporated cities, towns and villages) but also Local Service Districts (LSDs) that encompass unincorporated areas that were established in the 1960s due to the Byrne Commission's report and consequently equal opportunity legislation⁴⁶. The Byrne Commission on Finance and Municipal Taxation underway in the 1960s was established to provide the provincial government with recommendations for provincial and municipal reform. Ultimately, the recommendations (a majority of which were implemented) drove the abolishment of county government and the redistribution of responsibilities in particular for education, justice, social services to the province. "Municipalities would fund purely local services, such as policing, fire protection, and public works, through the real property tax" (Martin, 2007, p.82). The reforms resulted in local government with limited jurisdiction and revenue. Established under the Minister of Environment and Local Government's mandate through the *Municipalities Act*, LSDs provide a variety of services, including fire protection, street lighting and most importantly in the case of fracking, waste collection and disposal (financed from the province and partially through property taxes) (Brett and Tardif, 2008). Elected advisory committees run

⁴⁶ The Byrne Commission chaired by E.G. Byrne was mandated by the provincial government to study municipal structures and finances in NB. The commission's recommendations led to the establishment of the Equal Opportunity program "a sweeping reform of provincial-municipal relations. It abolished the elected county governments, centralized some important functions at the provincial level, and instituted equalization in municipal financing" (Young, 1987, p.88)

LSDs and operate under delegated authorities to provide services in communities; however, they have no financial (taxation) or legislative powers (GNB, 2021b).

The creation of LSDs also came with its own challenges, namely regional planning and collaboration across local jurisdictions (Finn, 2008; McKendy, 2017). In response to this, the local governance landscape was transformed with the introduction of Regional Service Commissions (RSC) in 2013 under the *Regional Service Delivery Act*. Administered by the Department of Environment and Local Governance, RSCs do not count as another level of government: they “act as service delivery agents to ensure the communities receive the services they pay for” (Environment and Local Government, 2022a). RSCs are governed by a Board of Directors comprised of people from the communities they represent who set the strategic direction for the commissions. The service provision and implementation aspects of the RSCs work are conducted through hired employees. In terms of financial powers RSCs are accountable to Municipal and Rural Community councils in incorporated areas and to the LSDs in other cases, and they receive their delegated authorities to act on behalf of their communities through the Minister for Local Government (Environment and Local Government, 2022a). The province has 237 LSDs, 101 municipalities (8 cities, 27 towns and 66 villages), and 12 RSCs (see Figure 9 below).

Figure 9: Governance map of New Brunswick



(Environment and Local Government, 2022b)

Ultimately, the relevance of the context for this research is related to the provision of services at a local level that hydraulic fracturing activities would impact if shale development did proceed.

RSCs are responsible for example to provide land use planning services impacting the kind of activities permitted, and in some cases have the responsibility to offering water supply and distribution to citizens within their boundaries. Many people in NB get their water from wells on their properties or rely on groundwater, specifically: “about 450,000 New Brunswickers get their drinking water supply from groundwater, making the province one of the most groundwater dependent jurisdictions in Canada. Of that number, about 40 per cent of people use groundwater to supply personal residential wells, while about 20 per cent of people, living in over 50 communities, depend on groundwater for municipal water supplies” (NBCHF, 2016b, p.9). In light of the potential risks with hydraulic fracturing, citizens engaged their RSCs to voice their concerns as will be demonstrated in the next chapter.

Aside from the general local governance landscape, the key acts and requirements for shale development at the provincial level in NB include:

- Oil and Natural Gas Act
- Crown Lands and Forests Act
- Clean Environment Act
- Clean Water Act
- Clean Air Act
- Community Planning Act
- Pipeline Act
- Occupational Health and Safety Act
- Workplace Health, Safety and Compensation Commission Act

(GNB, 2014b; Energy and Resources Development, 2018a)

In terms of energy production, the *Oil and Natural Gas Act* is the predominant regulatory frame governing shale gas development. In 2011, the Ministers of Natural Resources and the

Environment announced guiding principles of the environmental protection plan, which are outlined below in Figure 10. The Minister of Natural Resources also announced that the government was developing natural gas world-class regulations in alignment with the environmental protection plan to ensure the safety of the environment, with the aim of being prepared should shale gas development proceed (GNB, 2011e).

Figure 10: Twelve Principles for the Environmental Protection Plan

The environmental protection plan is based on the following 12 principles:

- monitoring to protect water quality;
- addressing the need for sustainable water use;
- protecting public health and safety;
- protecting communities and the environment;
- reducing financial risk and protecting landowner rights;
- addressing potential impacts of geophysical (seismic) activities;
- taking steps to prevent potential contaminants from escaping the well bore;
- verifying geological containment outside the well bore;
- managing wastes and taking steps to prevent potential contaminants from escaping the well pad;
- addressing air emissions;
- maintaining an effective regulatory framework; and
- sharing information.

(GNB, 2011d)

With the Act's broad application to the production of gas, shale gas as a subset of production was to be governed by a new set of rules that would apply to the practice of hydraulic fracturing. The provincial government therefore worked to develop a set of what they deemed stringent regulations to govern the activities of hydraulic fracturing as mentioned above, in line with environmental objectives. In 2013, they released a document entitled *Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick – Rules for Industry*, where the

province set out the operating requirements for companies within the shale industry⁴⁷. This set of regulations covered construction (for wells including thickness of the well casing), exploration (including the need for a geological assessment and water monitoring) and production (water use and frack fluid disclosure to the regulator) for the industry. The Government claimed the regulations were the most stringent in North America (CBC, 2013a) and were later published with a side-by-side comparison of the same measures per category as British Columbia and Alberta to demonstrate their safety and stringency (GNB, 2014a).

The Rules for Industry document also listed the key pieces of legislation in the province that governed each phase of the development cycle. The most prominent was the Clean Environment Act under which the phased EIAs take place, and it is used to set conditions on projects throughout the lifecycle from the beginning of exploration and leasing through to production. However, in 2013, an amendment to the EIA process by the province meant the establishment of a phased approach. The approach allows for some forms of development work to be undertaken early on during the review process, specifically allowing “certain types of exploration activities to be undertaken along with the EIA process” (GNB, 2018a). This also meant that within the phased approach, search licenses could be transitioned into a development application but would still require a detailed environmental impact assessment on a project basis. Importantly, in the case of seismic testing, a process seen as non-invasive it was treated as one of the forms of activity that could take place through the licensing of an exploration lease while the project proposals for development could follow (GNB, 2013e). The changes to the EIA process are implicated in actors’ perceptions of risk and the province’s role in protecting New Brunswickers,

⁴⁷ These are enforced by a team of inspectors that work in the Department of Energy and Mines, the Department of Environment and Local Government, the Department of Public Safety, WorkSafeNB and the Energy and Utilities Board

and is something that impacted engagement with Indigenous peoples as will be demonstrated in the following chapter.

When it came to the government's consultative practices in NB, the only formalized opportunity for broad public engagement is through the phased EIAs. This does not preclude the ad-hoc public engagement mechanisms that were established between 2007 and 2017 in NB that will be covered in more detail in the following chapters of this dissertation. The only other notable formalized public engagement mechanism is that established via the Duty to Consult Indigenous Peoples and in the particular case of NB, the Government of Canada has participated in a negotiating table, more formally known as a *Consultation Protocol* coordinated by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) with the Mi'gmaq and Wolastoqiyik Peoples in NB and the Government of New Brunswick. The negotiating table set out to negotiate an Umbrella Agreement with the purpose of establishing a Framework Agreement on "inter-governmental relationships and Aboriginal Treaty rights and the self-government of the Mi'gmaq and Wolastoqiyik in New Brunswick" (CIRNAC, 2021). It is not clear the extent to which a Framework Agreement has been successfully reached - it appears that the negotiation table is still underway (CIRNAC, 2021).

The Duty to Consult at the provincial level is also impacted by judicial rulings, for example, the Supreme Court of Canada established through *Haida Nation v. British Columbia (Minister of Forests)* that the Crown has a duty to consult Indigenous peoples when acting in a manner that could potentially negatively affect Aboriginal or treaty rights (Sterling and Landmann, 2011). This ruling expanded the circumstances under which the duty to consult is triggered: rather than have the onus on the impacted Indigenous community to prove the existence of their rights and

therefore potential infringement, the ruling determined that with the interpretation of intent for reconciliation – any credibly asserted rights would require consultation. This was further reinforced through the ruling in *Tsilhqot'in Nation v. British Columbia* that reaffirmed Aboriginal title. The Supreme Court's ruling confirmed that “Aboriginal title holders have an exclusive right to occupy the lands, decide how to use the lands, and to the economic benefits of those uses” (Dentons, 2014).

The key ruling in the case of Haida Nation in particular continues to affect the government's duty to consult. The ruling also influences engagement with Indigenous communities at various levels of government in the natural resources sector. To adhere to the requirement for the duty to consult outlined according to the decision in the case of *Haida* and in light of case law, governments at the federal, provincial and territorial levels have issued interim policies and all provinces and territories have established guidelines on the duty to consult (Brideau, 2019).

During the period under study in NB, it is proponents that were responsible for conducting public consultation with Indigenous communities and reporting back to the provincial government to ensure that they have fulfilled their requirements from a consultation and accommodation standpoint. Officially, the Crown delegates these requirements – a relationship that is outlined by the government as necessary because:

“Proponents are often in the best position to explain their proposals and address any Aboriginal concerns and interests. Early and meaningful engagement provides the opportunity for developing plans that avoid or minimize impacts to Aboriginal and Treaty rights and are responsive to the

broader interests and values of Aboriginal Peoples. For these reasons, the Crown may delegate certain procedural aspects of consultation to the Proponent” (GNB, 2019, p.2).

In addition, the provincial government in 2013 publicly declared their intention to engage First Nations in NB in the Oil and Gas Blueprint. Specifically, they outlined that engagement mechanisms will be established: “to ensure effective dialogue between Crown, First Nations and proponents at all stages to (a) discuss exploration and development plans directly with proponents and to clarify the requirements that proponents must follow; (b) collaborate on common issues; and (c) capitalize on opportunities” (GNB, 2013a, p.9). This means that the proponents engage representatives from Indigenous groups directly; something that this dissertation will explore in more detail in Chapter 6. However, what is important to note at this stage is that there are only two main formalized engagement practices at the provincial level.

5.4 Economic Context and Societal Considerations

The province of NB was facing large public deficits in the early years of the case study, specifically, between 2008 and 2015, the province experienced nine consecutive deficits (GNB, 2018b). Between 2008 and 2017, NB’s proportion of net debt to Gross Domestic Product (GDP) trended upward to 41.1 percent from 25 percent (GNB, 2018b). Coupled with an ageing population and the loss of youth leaving the province for employment elsewhere in Canada, there was a strong need for economic growth in different sectors of the economy (Ibbitson, 2015).

New Brunswick is often referred to as a “have not” province (Bateman, 2011), and while there are many reasons for this – one big implication from a political economy standpoint is its reliance on traditional industries. Post World War II, the province’s economic recovery was based on the mining and forestry industries, and not long thereafter manufacturing along with energy were added to result in four key pillars of the economy (Desserud, 2015). Based heavily on primary extractive and processing activities, these four pillars accounted for a significant amount of exports and proportion of NB’s GDP. According to Desserud: “A succession of governments in New Brunswick subsidized these four industries through outright grants, tax breaks, forgivable loans, low payroll taxes, and other measures, all in hope that the industries would flourish or at least remain in the province” (2015, p.112). The economy has not significantly diversified⁴⁸ and with the existing energy operations an opportunity like shale development carried significant potential benefits, particularly from the standpoint of royalty revenues.

New Brunswick’s economic and fiscal concerns are not unique to the province; eastern Canadian jurisdictions have restrained fiscal capacities to raise revenues. In fact, a large reason cited for the discrepancy with other provinces is the extent of natural resource endowments in these jurisdictions as well as a limited tax base (Roy-Cesar, 2008). Equalization payments by the federal government, in the form of a federal transfer payment program, is a mechanism designed to address the discrepancies across jurisdictions in Canada to ensure adequate government service provision for all Canadians (Government of Canada, 2011)⁴⁹. They are calculated based

⁴⁸ Notably, the Economic Development Action Plan released in 2012-2016 by Premier Alward’s government underlined economic diversification as a key goal and specified the need to build on “the strengths of traditional core industries” and support the growth of sectors that “can spin off our more traditional ones” (GNB, 2012,p18).

⁴⁹ There is a different calculation and application for Territorial governments, under Territorial Formula Financing.

on average fiscal capacity for all provinces, whereby sources of government revenue are allocated according to different taxes (e.g., personal income and consumption taxes). One notable source of revenue accounted for is revenue from natural resources, which with an amendment to the formula for equalization in 2007 allowed for jurisdictions eligible for transfer payments to be eligible for a payment that counted only 50% of the natural resource revenues, or in some cases excluded them⁵⁰ (Roy-Cesar, 2008). In short, under the old formula provinces would receive reduced equalization payments, but with the new formula provincial governments were incentivized to responsibly develop resources to gain royalty revenues and attract investment. This would not impact the transfer payments to the same extent when accounted for at only 50 per cent (Eisen and Milke, 2014).

The large potential for royalty revenues is an element that was not lost in the government's approach to shale development in the province. While the provincial government worked to understand the regulatory implications required to govern the operation of the emerging technology in the early days of interest in shale development in NB, it also announced in 2011 its intention to develop a formula for royalty payments and revenue sharing with citizens and communities (GNB, 2012a; Hill, FitzGerald Murphy, and Secord, 2016). Again, this was an element of its plan that the government pledged to engage citizens of the province on. A public discussion document released in 2012 outlined the plan for royalties should commercial production of natural gas from shale proceed, it. It included the pre-existing basic royalty component (10% of actual selling price or fair market value at time of production) that would go to the province. The new component, however, included an economic profit royalty component

⁵⁰ Alberta was the exception pre-2004.

that functioned as a resource rent⁵¹ royalty totaling 40 per cent of the profit from a resource investment (GNB, 2012a). The introduction of this element intertwined profitability with the royalties – the more profitable a business is under this scheme, the more revenues the government would receive. The government suggested that this could potentially generate \$2.2 billion in 20 years (GNB, 2012a), which would be larger than the \$1.5 billion in federal transfer payments over the same period (Hill, FitzGerald Murphy, and Secord, 2016).

In addition, the Government of New Brunswick specified that the royalty revenues would be shared with:

1. “Landowners of residential property who ‘host’ a well pad or pads with a producing well or wells⁵², in the order of 0.5 per cent of royalties earned from producing wells”; and,
2. “Municipalities and Local Service Districts within a 25-kilometer radius of the producing well pads, in the order of 2 per cent of royalties earned from producing wells” (GNB, 2012a, p.4).

Notably, royalties related to Indigenous economies were undergoing engagement with NB First Nations communities via separate mechanisms that were driven by the Aboriginal Affairs Secretariat⁵³. The implication for landowners, municipalities and local service districts is one

⁵¹ Defined as: “the profit from a resource investment after the recovery, of all costs, including an accepted investment allowance” (GNB, 2012a, p.4).

⁵² Canada’s ownership rights specify that surface rights are held by property owners, but that mineral rights are owned by the government (provincial on provincial land, federal on crown land) (CAPP, 2021)

⁵³ A royalty discussion process that there is very little clarity surrounding in public documents and for which the researcher was unable to gain insight through the interview process.

dimension of shale gas that supported arguments for the development of the resource in the province.

The landscape in New Brunswick is challenging in terms of the different levels of government, as demonstrated by this section. As is common in the federal governance of Canada's Atlantic provinces, the Executive Council Office (Premier's office) holds a lot of power at the provincial level. However, this was not always the case and the local governance landscape in New Brunswick saw a major transformation in the post World War II period that reorganized the municipal and provincial functions as previously discussed (Young, 1987). The Equal Opportunity program is a major program introduced in 1967 that "abolished the elected county governments and centralized major municipal functions at the provincial level" in the province (Young, 1987). Meant to introduce economic efficiency and administrative uniformity at the local level, the program centralized power at the provincial level.

The introduction of the Equal Opportunity Act and the transformation of the local governance landscape in NB in the 1960s is not disconnected from the historical context either. Traditional patron-client politics and the decentralization of power at the local level post World War II, meant that there were deep regional inequalities in NB (Martin, 2007). Martin (2007) argues that this has led to "a worsening "democratic deficit" in rural New Brunswick, which since 1967 has not had any form of elected, accountable local government. Since that year, the New Brunswick government in Fredericton has made the decisions on the provision of "municipal services in rural areas" (Martin, 2007, p.76).

The effort to centralize at the provincial level also involved the introduction of a property tax, where the tax base did not exist before. The local governance is difficult to navigate from an economic distribution standpoint – property tax amongst incorporated versus unincorporated areas differs significantly (Young, 1987). Not only would that create questions of equity in terms of revenues at the local level from companies’ shale operations, but it would also create tensions in areas where there are trans boundary issues based on different capacities.

In the case of shale development, Kent County is the community where the majority of proposed development in 2011 would have potentially taken place. For Kent County, 66 per cent of residents live in unincorporated municipalities with no elected municipal representatives. Without any legislative or taxation authorities in LSDs and RSCs, local governance structures are limited in the ways that they can govern the resource’s development. Across Canada, municipalities often oversee land-use issues including zoning and planning requirements for operations in their jurisdictions. They are in a position to ensure that some local concerns are effectively responded to, however. However, in NB their limited ability to do so means that communities would turn to their MLAs to engage the provincial government. In cases where they live in areas outside of incorporated municipalities, they have very limited channels of influence without elected officials.

Another unique challenge in the context of NB is the role of the media that is acknowledged by many in the province as a biased enterprise. Between 1946-1966, all English language dailies in the province were acquired by the Irving family (Walker, 2010). In an assessment of the media’s role in suppressing debate in the province, Walker (2010) points to the Irving family’s role in

monopolizing the sector in the province, and draws on the Kent Commission's⁵⁴ assessment of the role of the media in stifling debate. Quoting the Commission, Walker (2010) shares this excerpt to amplify this point: "It is not unreasonable to suggest that the...(poor) reputation of New Brunswick politics, with its deep seated patronage, its preference for personality over substance, its inability to produce...difference in philosophy between the two major parties in the province, can be attributed to a large extent to the weak state of the press here" (p.70). Under the ownership of the Irving family in NB, there is a perception that "the media monopoly enjoyed by the Irving-owned Brunswick News Inc. – which publishes the province's three daily newspapers and owns almost two dozen weeklies – acts to stifle public protest" (Desserud, 2011, p103). In the case of this study, the media dynamic is important to understand as people are engaged in policy and what New Brunswickers perceive as trustworthy sources of information to support their decision-making.

The issues highlighted above demonstrate the challenging landscape in New Brunswick and some of the key historical and governance considerations in the case of shale development. With the promise of economic development in magnitudes that would outnumber the equalization payments received in NB, the potential for shale development is one that the provincial government clearly set out to understand and engage early on. However, as demonstrated in this chapter, the province's landscape is unique which means that there are many issues to be accounted for from an equity standpoint. The changing local governance landscape and changes to regulations governing resource development contributed to perceptions of risk amongst the anti-shale coalition, throughout the period under examination in this study between 2007 and

⁵⁴ The Kent Commission was a Canadian Royal Commission on Newspapers established in 1980 to assess the issue of concentrated media ownership in the country.

2017. During this time there were several phases and mechanisms of engagement undertaken by the provincial government that took place over the course of the case study period that ended with the implementation of a moratorium on hydraulic fracturing, which will be highlighted in the following chapter. Chapter 6 is focused on explicating the coalitional dynamics that emerged in NB over the ten-year period on shale development, and examining the role of uncertainty, trust and public engagement on policy learning and change.

Chapter 6: Shale gas in New Brunswick: Policy learning

The chapter will provide an overview of the extent of public engagement mechanisms in NB over the course of 2007 to 2017. There are three major phases of public engagement including engagement on (a) a 10-year energy strategy (2007-2011); (2) rules and regulations for shale gas development (2012-2014); and (3) the future of energy in the province (2014-2017) undertaken by a commission on hydraulic fracturing. As overarching public initiatives, each phase consisted of relatively consistent mechanisms of engagement via stakeholder roundtables/forums, town halls, published policy/regulatory documents with requests for written feedback, requests for submissions from the public and stakeholder groups, presentations to communities and a low level of experimentation with social media. Each of the three phases included some combination of these mechanisms, with sustained effort on the part of the provincial government to engage citizens. There is limited literature about the mechanisms themselves; this thesis aims to fill that gap and assess their influence on policy learning and change. The phases of engagement included numerous activities that are detailed below for a clear timeline of developments.

Timeline of engagement

1. Two-person panel in 2010 to highlight key areas of concern for a provincial energy strategy through public engagement and recommend the establishment of an energy commission for the province;
2. NB Energy Commission to engage New Brunswickers on the province's long-term energy plan over the course of 2010/11;
3. Stakeholder Forum in 2011 hosted by the Natural Gas Steering Committee (NGSC);

4. A public discussion period based on the Natural Gas Group's (NGG) 2011 engagement to develop a policy and regulatory framework for oil and gas development;
5. An engagement tour led by Dr. Louis LaPierre, a professor from the University of Moncton, to seek further input on the shale gas regulatory recommendations across nine different locations in the province in mid-2012;
6. Meetings with the Assembly of First Nations Chiefs of New Brunswick held by both industry and the NGG in 2012;
7. Virtual town halls held by the Department of Energy and Mines where questions were posed to the Minister and experts in 2012;
8. New Brunswick Energy Institute (NBEI) Roundtable evidence-based series in 2013;
9. Over 70 presentations by the NGG to various groups such as municipal associations, chambers of commerce and other government departments etc., with more than 2,200 people that attended between 2011 and 2012.
10. The New Brunswick Commission on Hydraulic Fracturing (NBCHF) in 2014, led by John McLaughlin, Cheryl Robertson and Marc Léger to study issue of fracking and determine whether five conditions set out by the government could be met.

6.1 Period 2007 – 2011: Upstream energy policy engagement

To begin, this section will trace the underpinnings of shale gas development in the province and provide an overview of the parameters of the energy subsystem throughout the first period (2007-2011). Shale gas development made it onto the policy agenda in light of a struggling economy and burgeoning debt where two things concurrently occurred: (i) the province initiated negotiations to sell assets of its major power provider to recover costs and address rising pay

rates (ii) shale gas production boomed in the United States, due to the increased practice of hydraulic fracturing to access shale bedrocks. Initial framings of the debate on shale took place in the context of the controversial proposal to sell NB Power to Hydro-Québec. The controversy itself, while not necessarily core to the focus of this research is important in highlighting the focus on energy policy and the need for broad based public support for certain energy initiatives in NB.

This section will first highlight the developments surrounding the sale of NB Power. It will then outline the key initial public engagement exercises (Phase 1: 2010-2011) that aimed to establish an energy strategy/long-term policy for the sector, before returning to how shale development fit into the broader energy plan for the province. Specifically, this section of the chapter covers engagements 1, 2, 3 and 4 listed above. The analysis demonstrates that the government set out to engage New Brunswickers on a broad energy strategy, however, a focus on shale development specifically emerged. Arguably, this focus can be attributed to the government's need to promote natural gas in the region, in particular, for home use to help transition off coal and oil, and to promote more affordable energy prices. The following sections will cover the subsequent engagement exercises (Phase 2: 2012-2014 and Phase 3: 2014-2017).

6.1.1 Public engagement

In 2010, with estimates of hefty shale deposits in New Brunswick, the potential for large-scale shale gas development in the province drew attention from industry. Government, interested in the role of shale gas development in facilitating economic development in the province, enabled the exploration phase for shale deposits. While these were active steps on energy taken by the

Liberal government in power during 2006 to 2010, the Progressive Conservative government elected to power in 2010 inherited and promoted the role of energy in the province's economic growth.

Notably, in the last 14 years ending in 2017 the political landscape in NB is such that the two dominant political parties – Progressive Conservative (PC) and Liberal (L) – have changed over hands numerous times. In 2020, the Honourable Blain Higgs (PC) was re-elected as Premier, ending a streak of four successive single-term governments in the province. Over the course of this period under study in this dissertation NB has had its fair share of energy controversy. Beginning with the proposed sale of NB Power to Hydro-Québec (2009/2010), and then the controversy surrounding shale gas development (2011-2017).

In the late 2010s, the government in NB was confronted with the need for different energy solutions to deal with the challenges facing their energy sector. A key element identified at the root of NB's economic troubles was NB Power's burgeoning debt. The power utility's assets were in need of refurbishment, the most considerable of which was the Point Lepreau nuclear plant that faced delays and increased costs since 2008 (Desserud, 2011). NB Power's high rates for power for its customers also served as a key factor requiring attention. As stated by a Commissioner in the Office of the Access to Information and Privacy: "One of the key issues in the energy sector since 2009 has been natural gas distribution rates, which had been increasing significantly. This resulted in mounting public pressure for the Government to take action to address this issue" (Office of the Access to Information and Privacy Commissioner New Brunswick, 2013, p.3). In response to this, Premier Graham proposed the sale of NB Power to Québec in 2009 to relieve the province of the large debt associated with the crown corporation.

However, the sale of the provincial utility's assets to Québec for \$4.75 billion faced major public backlash and political resistance in NB. The public backlash that followed was partially based on historical legacy with Québec; but many argued that it threatened energy sovereignty in NB and meant the loss of control of their province's domestic energy system (Bundale, 2009).

The sale of NB Power Assets to Hydro-Québec is not a new idea and was originally visited by the provincial government in 1999 under the leadership of Premier Bernard Lord (PC). The government at the time had hired a commission to look into the viability of selling the hydro assets (transmission and distribution systems) (CBC, 2009). The idea was later revisited in 2009 under the leadership of Premier Graham (L). Premier Graham participated in closed-door discussions with Québec Premier Jean Charest regarding the deal, discussions that invited significant speculation over the course of NB Power's future (CBC, 2009; Arif, 2009). Contingent on legislative approval in New Brunswick, the deal specified that Hydro Québec would take on ownership for major generating stations, transmission and distribution assets of NB Power (Bissett, 2010a). Faced with strong criticism internally within cabinet and from the public where significant opposition developed, Graham revisited the deal and altered it to a \$3.2 billion proposal to retain more control over transmission and distribution systems (Bissett, 2010b). The government aimed to still sell the Point Lepreau nuclear generating station to Hydro Québec - a controversial and costly refurbishment project that was faced with many delays and increasing cost burden to the province. However, in March 2010 the deal was cancelled ahead of the provincial elections in NB in the fall due to the increasing cost associated to it and the opposition it faced.

During the campaign period, the opposition committed to establish an Energy Commission for the province to provide a path for NB's energy future. With the last official White Paper on energy produced in the early 2000s, the opposition promised a more comprehensive overview of energy in the province where the articulation of a long-term plan for NB Power would be done in the broader context of energy (CBC, 2010). They also promised to engage through public consultations with the citizens of NB on a long-term energy strategy. Underpinned by a two-pronged strategy, the engagement was to involve (a) the appointment of a panel composed of Darrell Stephenson and Pierre-Marcel Desjardins, a Saint John lawyer and a Moncton economist, to hold consultations⁵⁵ to recommend how 'a future PC government could consult with New Brunswickers on what to do with NB Power' (CBC, 2010); and, (b) an NB Energy Commission established based on the panel's recommendations to prepare an Energy Plan that took place over the course of June to August 2010 before the fall election (Stephenson and Desjardins, 2010).

Based on public consultations⁵⁶, the panel developed a discussion paper that included recommendations for the establishment of the Energy Commission (Stephenson and Desjardins, 2010). The discussion paper also identified key challenges in the province's energy sector and outlined potential options for consideration. The consultations involved an Energy Stakeholder Retreat in Moncton in June 2010 and public consultation meetings in Bathurst, Saint John, Fredericton, Moncton and Edmundston in July and August 2010. The panel provided key recommendations on (a) the Energy Commission and (b) the key energy considerations for the

⁵⁵ While the PCs were still the opposition in parliament

⁵⁶ Very minimal publically available information on this process, the report notes "schedules" outlining the consultation process and materials provided, however, these are unavailable online and appear to have been removed from the PDF report. Media coverage is limited to the announcement of the panel and calls for citizens to participate.

Commission to consider. In regards to the former, recommendations were fairly straight forward which included a six month time frame to table an energy planning document, the appointment of a Chair and two members to report to the Executive Council Office, extensive public engagement as the commissions' first task, and the need to report to government effectively to ensure the establishment of a ten year energy strategy for the province. Regarding their recommendations on key energy considerations, the panel took a narrow view predominantly focused on the role of electricity distribution, generation and transmission and energy sources that can be fed into the grid (Stephenson and Desjardins, 2010).

The panel's focus on power is not surprising in light of the significant backlash regarding NB Power. Their recommendations included elements to be addressed in an energy plan such as the need for integrated resource planning for NB Power, the continuation of the costly Point Lepreau refurbishment, benchmarking NB Power and developing Key Performance Indicators (KPIs) to assess performance⁵⁷, and the need to address the utility's structure⁵⁸ to ensure its ability to pursue domestic and export opportunities. They also made recommendations surrounding the governance and cost management of NB Power and promoted the reform of the Energy and Utilities Board (EUB) to expand regulatory oversight (including rate setting and cost efficiency in operations) (Stephenson and Desjardins, 2010).

⁵⁷ Notably including KPIs to measure performance on: investment efficiency, stakeholder communication and environmental performance.

⁵⁸ NB Power Group Companies had separated the governance of distribution, transmission and generation under Disco, Transco, and Genco, respectively, as different companies. This was based on the recommendations of the Marshall Thompson report to support private investment in the companies, particularly as it related to construction of new assets or dealing with stranded assets.

Finally, while the report alluded to different energy sources (mainly renewable), the panel dedicated a whole section to natural gas specifically. Building on recognition that natural gas is a cleaner and more affordable fuel for heating needs⁵⁹, the panel noted that a number of corporations interested in exploring gas development in the province and argued that should the resource exist for extraction, that it should be used domestically and for international export opportunities (Stephenson and Desjardins, 2010). The report specifically makes three recommendations in this regard: it recommends streamlining and modernizing the regulations for oil and natural gas, developing a competitive royalty revenue structure and ensuring strengthened regulatory capacity in departments⁶⁰ (Stephenson and Desjardins, 2010). These elements as the following section will demonstrate underpinned the approach utilized by the government in shale gas development.

In October of 2010, the Progressive Conservatives were elected and in keeping with their platform commitment, they appointed two commissioners to lead NBs' energy strategy to lead the NB Energy Commission. Jeannot Volpé and Bill Thompson, a former Minister of Energy and Deputy Minister of Energy, over the period of six months were mandated to:

- Publically engage with New Brunswick citizens and adjacent provinces and states;
- Provide counsel on a coherent and quantifiable energy policy;
- Assess the options for potential long-term energy purchase arrangements;
- Assess energy production, consumption and exports;

⁵⁹ A key consideration to support power rates in a province where generation relies predominantly on nuclear and coal.

⁶⁰ You will recall that NB does not have an independent energy regulator, and the Departments of Natural Resources and Environment are predominantly responsible for oversight.

- Advance measurable targets of economic activity, environmental performance, cost, reliability and financial performance; and,
- Advise the government on a long-term debt-management strategy for NB Power. (GNB, 2010)

The NB Energy Commission engaged more than 1,100 people through a variety of different mechanisms including:

1. Public dialogue sessions held in the evenings (6:30 pm to 8 pm) in the first three weeks of February 2011 in a World Café style format⁶¹ in nine different locations⁶², accommodating up to 200 participants per session. To begin each session, an overview of the Commission's roles and objectives was provided to participants, as well as informational materials about the energy sector's profile in NB and background materials to support discussion. The participants were asked to share their views and discuss questions regarding three key areas: (a) Energy Priorities, (b) Jobs and the Environment, (c) Other Energy Issues. The Commission also asked participants to fill out a voting ballot at the end of each session to gauge individual perspectives as well as group views that emerged. As part of the same tour:

⁶¹ In World Café style, participants are asked to join different roundtables to discuss different questions. A note taker is assigned at each table and does not move, however, participants are asked to rotate to other tables to discuss different questions. The note takers report back what they heard at the end of the session in a plenary with all participants.

⁶² Locations included: Edmundston, Campbellton, Bathurst, Tracadie, Miramichi, Moncton, Woodstock, Fredericton and Saint John.

- i. The commission hosted sessions in the afternoons (2 to 4 pm) to open the process to anyone who wanted to present to the co-chairs in a more traditional method. The commission received 73 presentations in the first three weeks of February 2011.
 - ii. Open houses were also held with officials from government departments to support the provision of information to the public and answer any questions. Information materials were made available. This aspect was the most informal option for engagement took place between 4 and 6 pm.
2. Five online surveys throughout February and March of 2011 regarding five topics: general energy priorities, electricity outlook, petroleum and other fuels, economic development, and price setting.
3. Meetings with stakeholders and other interested groups, through a targeted outreach process on behalf of the commission as well as submissions from parties that identified themselves as interested. This took place between November 2010 and April 2011, with groups undertaken as often as needed (in some cases for one and a half to two hours) totalling 60 stakeholder groups and 550 individuals. The format involved the co-chairs in listening mode during the presentations with a period of engagement between all participants following the presentations (Volpé and Thompson, 2011).

Engagement was also conducted by establishing a website, as well as accounts on Facebook and Twitter to distribute information and raise awareness about the commission's work. The

commission posted its public feedback document and requested input on its proposed energy plan (Volpé and Thompson, 2011).

Even though it had clearly mandated objectives from the province, the NB Energy Commission decided to rely on its public engagement process to determine the *fundamental objectives* in the development of the 10-year energy plan. These objectives included the need to:

- Advance a strategy for low and stably priced energy;
- Ensure the safety and security of energy supplies;
- Establish high standards of reliability in the production and distribution of electricity;
- Generate, transmit and deliver energy in an environmentally responsible way; and
- Bolster and broaden the role of the independent utility and energy regulator. (Volpé and Thompson, 2011)

With the aim of developing a balance amongst key imperatives of ‘the environment, the economy, efficient regulation, and energy affordability’ (GNB, 2011a), the Commission released its report on May 25, 2011. The commissioners put forward several recommendations on a sub sector basis (energy efficiency, renewable energy, natural gas, petroleum products). They also addressed sector wide issues such as regulation, education and awareness, as well as research and development. In broad strokes, their energy plan committed to reductions in energy consumption to support demand and increasing efficiency for all forms of energy (Volpé and Thompson, 2011). They asserted the government’s need to maximize use of renewable energy to address carbon emissions, enable the capacity of the grid and to provide reliable power. Finally, and most importantly to this study, the commission identified natural gas as a transition fuel to

support reductions in the power grid's carbon intensity and the integration of renewable capacity. Specifically, recommendations in reference to natural gas stated the need to:

- “Transition the sources of natural gas for electricity to a renewable fuel blend that is affordable and manageable, with natural gas serving as the primary fossil fuel for generation and balancing.”
- “Create greater distribution opportunities to capture the economic and environmental benefits of natural gas.”
- “Pursue economic opportunities associated with the development of natural gas from shale when appropriate rules for the sustainable and responsible development of the resource can be implemented.” (Volpé and Thompson, 2011, p.13)

Furthermore, the report specifies that policy development is required to:

- Support the resource's development;
- Promote the establishment of a local market for the resource's use;
- Authorize development to ensue on a timely basis and in a way that adhere to appropriate industry practices; and,
- Ensure that development proceeds in a timely manner, and that its processes are in line with environmental standards that promote the protection of the environment.

The report provided many considerations for the development of natural gas. On a policy basis, the report noted that the commission's upstream engagement identified sustainable and

responsible development as the grounding and legitimating precept for natural gas development. The commission's work made limited effort to link the energy strategy to the province's Climate Change Action Plan, and subsequent engagement phases similarly made limited references/linkages to the climate plan. Therefore, energy transition in the context of climate change was noted as notionally important, however, the focus on resource production (shale gas specifically) became more about its responsible development as a driver of economic growth (GNB, 2011a).

The NB Energy Commission's work provided the province an energy plan for the long-term. In October 2011, the government, building on the report and engagement work of the commission, developed a key policy document titled *The New Brunswick Energy Blueprint*. The blueprint integrated an Energy Action Plan section that 'takes the 67 recommendations of the Energy Commission and integrates them into a comprehensive list of 20 government actions' (GNB, 2011c, p.1). To provide a frame for why the government aimed to pursue twenty actions, the report highlighted five key principles and matched the action items under each principle. The principles were essentially the objectives that the government had identified for the Commission to address in the first place, including (listed in the same order that they are presented in the report): low and stable energy prices, energy security, reliability of the electrical system, environmental responsibility, and effective regulation (GNB, 2011c).

Consistent with the focus on NB Power at the time, the first action item of twenty is the reintegration of NB Power, under the principle of low and stable energy prices. There are several associated actions to address this including NB Power's debt management, regulatory oversight and the development of an integrated resource plan. Other actions under the principle of low and

stable energy prices include the promotion of regional electricity partnerships, support of renewable energy development, energy efficiency standards, and most importantly for this research, natural gas distribution rates (GNB, 2011c). Notably, the only other place where natural gas is promoted as an action item is under the principle of effective regulation. Where the government states it will “review the natural gas rate structure and distribution network with the objective of achieving a cost-based rate structure and improve access to natural gas across the province” (GNB 2011c, p. 26)⁶³. Two relevant and concurrent developments took place in this regard in NB: (1) the amendment of the natural gas distribution act, and (2) the development of a new regulatory approach for oil and gas in the province. This section will cover the first development, and the following section will address the latter.

In December 2011, the province amended the *Gas Distribution Act, 1999* in direct response to the action highlighted in the Energy Blueprint to give the EUB regulatory authority to ‘apply the cost of service method’ under the rates and tariffs regulation established by the Lieutenant Governor in Council (MacDougall, 2014). To control the rates and tariffs for New Brunswickers, the government established a way to ensure that the cost of service model would support the development of natural gas for distribution affordably. The provincial system mainly relied on natural gas from the Maritimes and the Northeast Pipeline regulated by the EUB, which carried gas from the Sable Offshore Energy Project in Nova Scotia. With the prospect of Sable production rates declining significantly in the near term, and the potential for alternative local production of natural gas, the drive for shale development grew in New Brunswick.

⁶³ A cost-based structure would enable the EUB to regulate utility rates more effectively.

6.2.1 Parallel engagement: Natural gas development

As noted earlier, the Liberal government under Premier Graham in early 2010 had leased significant portions of land in the province for exploration of shale deposits. One particular company, Southwestern Resources Canada (SWN Canada), obtained exploration licenses for approximately 1.1 million hectares of land (NRCan, 2021c). Eight other companies also held agreements to explore for oil and natural gas in neighboring regions totaling 1.15 million hectares of land (NRCan, 2021c) in some of the most densely populated areas of the province (by NB standards). While the work of the NB Energy Commission was still underway, the government had pre-emptively taken steps to develop an understanding of the role of shale gas development in the province and address the issue of regulation. This is evident by the establishment of the NGSC in January 2011, which included the deputy ministers and ministers of energy, environment and natural resources to manage the responsible development of natural gas. These six members were mandated to develop an Action Plan ‘to ensure that any expansion of the natural gas industry in the Province will take place in a careful and responsible manner’ (New Brunswick Natural Gas Group, 2012b, p2). According to the Department of Energy’s annual report (2011-2012), “the committee’s mandate was to look at the development of stronger requirements for natural gas development to better protect and inform New Brunswickers” (GNB, 2012a, p.13).

To support the NGSC’s objective, the committee appointed the NGG of about 10-12 staff members that comprised experts from different departments in the provincial government. They were mandated to report back to the Ministers in the NGSC with their work specifically focused on driving a natural gas development action plan (Energy and Resource Development, 2018b).

In an effort to engage New Brunswickers on natural gas development, the committee set up a series of engagement mechanisms in 2011. The chair of the committee, Minister Northrup, asserted, “our government understands that natural gas development could have great economic potential yet raises legitimate concerns and poses challenges” (GNB, 2011b) and their work would be part of a broader commitment to engage citizens. The action plan under development was to be built on a framework of seven key components outlined by the province: an integrated approach to project management, a citizen awareness and engagement plan, an environmental protection plan, an economic benefits plan, a resource development plan, a community development approach and, a regulatory framework (GNB, 2011a).

Interestingly, there is no information in the public domain to highlight how or whether the NB Energy Commission and the NGSC’s public consultation processes interacted. With one meant to address the upstream implications of energy planning writ large, and the other aimed at the potential development of a new unconventional resource – it appears that the work was conducted on separate tracks. This is also evident in the timelines of each initiative; the NB Energy Commission largely engaged the public in the first half of 2011 and published its report in May of that same year. The NGSC and NGG’s public engagement activities did not ramp up significantly until June 2011, even though the groups were established earlier in January. Some evidence of the government’s thinking about linkages between the two processes come from the Minister of Energy, Craig Leonard who argued that:

“While the [provincial Energy] Commission has laid out recommendations that deal with existing issues, there are new and exciting opportunities appearing in New Brunswick right now. Obviously, one major opportunity that carries great

potential for our province is natural gas extracted from shale formations. Government recognizes that New Brunswickers want to understand the finer points of the fracking process and so we have established a Steering Committee for Shale Gas that will answer your questions clearly and honestly, work to determine best practices for the industry and to ensure exploration and extraction occurs in a manner that is environmentally sound” (Leonard, 2011).

The NGSC and NGG conducted extensive engagement. Key activities in 2011 included:

- ‘fact-finding missions’ to other provinces within Canada and states in the US;
- a review of regulations under progress in other jurisdictions in North America;
- reports, scientific studies, monitoring results and model standards presented by academia, industry and non-governmental organizations;
- consultations with experts in the government at the provincial level;
- technical workshop to consider issues and share perspectives in June 2011 with 60 experts that participated on behalf of twelve government departments and agencies;
- the establishment of the New Brunswick Natural Gas Forum held on June 23, 2011; and,
- NGSC and NGG participation in 9 public meetings up to July, 2011 (GNB, 2011d; Energy and Resources Development, 2018b)

The first phase of the NGSC’s work involved information gathering for the first 6 months. The NGG was tasked with reviewing (i) regulations in other jurisdictions where shale development

had taken place safely, and (ii) the literature on shale development (GNB, 2011d)⁶⁴. The NGG also consulted experts in the provincial government throughout its review process. Additionally, through the NGSC, fact-finding missions were established to shale gas producing jurisdictions to meet with regulators, environmentalists, government officials, and landowners. The first mission to Arkansas was selected because SWN Resources operated at a large scale in the state, and the second mission targeted Canadian provinces in the West (British Columbia and Alberta) where hydraulic fracturing activities had taken place for some time already (RNNR, 2011).

The fact-finding missions involved experience based learning as the NGSC and accompanying members visited fracking operations and saw them live. The focus was to understand the industry and regulatory best practices for shale development in different jurisdictions. It is not clear to what extent these trips involved other evidence-based exchanges; it appears that most evidence gathering was taking place via the NGG that was consulting internally and externally with other Canadian governments. In November 2011, the government announced its intention to review oil and gas regulations and introduce a new review process through phased environmental impact assessments described in the previous chapter (NUPGE, 2011). In addition, the NGG held a technical workshop in June 2011 bringing together 60 experts from 12 government departments and agencies to target the development of an environmental protection plan. The experts were asked to provide input and identify issues as well as ‘potential regulatory alternatives’ (Energy and Resource Development, 2018b). The committee’s methodology was restricted to technical reviews of scientific research, best management practices and the evolution of different regulatory regimes in jurisdictions across North America. The aim of the

⁶⁴ Including: “reports, critiques, scientific studies, monitoring results and model standards presented by academia, industry and non-governmental organizations” (GNB, 2011d).

research was to produce recommendations for regulation guided by responsible development (GNB, 2011d).

The NGSC and NGG ramped up their public provincial engagement in June 2011, with the first major mechanism in June 2011 where they hosted a forum on natural gas. Focused on the need to engage citizens on the challenges with shale development and ensuring that industry activities could proceed safely, the NGSC invited forty representatives from a cross-section of stakeholders (industry, academia, environmental organizations, Indigenous representatives, municipal government representatives, and other political officials) to provide their views on the path forward for natural gas development in the province.

On the same day as the forum (June 23, 2011), the government announced the need for stronger requirements to oversee natural gas development in NB. The announcement came via the NGSC and highlighted three components within the regulatory realm including: standards for baseline testing on all potable water wells (as noted in Chapter 5 a significant amount of people in NB get their water from wells on their properties); full disclosure of all proposed and actual, contents/fluids/chemicals utilized in the fracking process; and the establishment of a security bond to protect property owners (GNB, 2011e). The NGSC claimed these were the absolute minimum necessary components as they worked to develop a full-fledged regulatory regime for shale gas.

The NGSC announced its intention to continue to engage to help inform its decision-making, emphasizing the need for development in a ‘careful and responsible manner’ all while ensuring the ‘safety and security of New Brunswickers and groundwater supplies’ (GNB, 2011e). In

addition, the Minister of Natural Resources, Bruce Northrup, held a live webcast in October 2011 that was open to all New Brunswickers who had any questions about natural gas exploration and development. Questions were submitted by email and the Minister (supported by a hydrogeologist and geologist) responded live as part of ‘ongoing efforts to engage New Brunswickers more directly on issues related to the shale gas industry’ (GNB, 2011f). It wasn’t until May 2012 that the proposed regulations for natural gas development were released (New Brunswick Natural Gas Group, 2012b).

By engagement standards outlined under the IAP2 spectrum presented earlier in this dissertation, the Energy Commission’s work can be considered as engaging the public at the ‘involvement’ level, whereby the government worked directly with the public to ensure their concerns and aspirations are understood. In terms of impact on decision-making, the ‘involve’ category is one step behind full co-development, and therefore the government appears to have placed emphasis on the need for engagement on the broader energy policy. By hosting a variety of different mechanisms to seek input, including the surveys, world cafes, town halls, and targeted stakeholder outreach, the Commission asked and engaged on participants concerns and aspirations for a consistent period of time to inform its report. The report arguably informed decision-making, at least in the development of the broader policy framework for the sectors’ development (as outlined by the government’s Energy Blueprint)⁶⁵. The subsequent phase of engagement on natural gas development by the NGSC and NGG can be considered engaging the public at a combination of the ‘consult’ and ‘inform’ level. Specifically, the groups both

⁶⁵ The extent to which the full range of recommendations have been implemented is beyond the scope of this research, (the focus is on natural gas development for which further engagement occurred as outlined in this chapter).

provided the public with information to assist them in understanding the issues at stake, and consulted them on analysis and alternatives developed by the government.

Before moving on to the next phase of engagement, this section will analyze the early emergence of the public debate on hydraulic fracturing and the emergence of coalitional actors in NB advocating for and against shale development in the province. The section above traced the key underpinning public engagement mechanisms undertaken by the province⁶⁶ and the following section will draw on the media analysis to demonstrate the emergent coalitions and beliefs. The pro-development coalition involved industry representatives, experts, elected government officials, citizens and journalists. The pro-development coalition contended at the policy core level for the economic benefits associated with shale development in the province. Their more distinct policy positions included claims for economic development in the context of ensuring a natural gas supply for the region, promoting good paying jobs, as well as the potential for investment attraction.

⁶⁶ Importantly, as per usual practice, industry also engaged the public on shale development and hydraulic fracturing to share information and raise awareness. There is very limited publicly available information on these engagement exercises and this dissertation's focus is on government consultation exercises so the study does not analyze the scope/role/implications of those exercises.

Figure 11: Pro-development coalition claims distribution: analysis of media coverage in NB dailies 2007-2017

(n = 133)

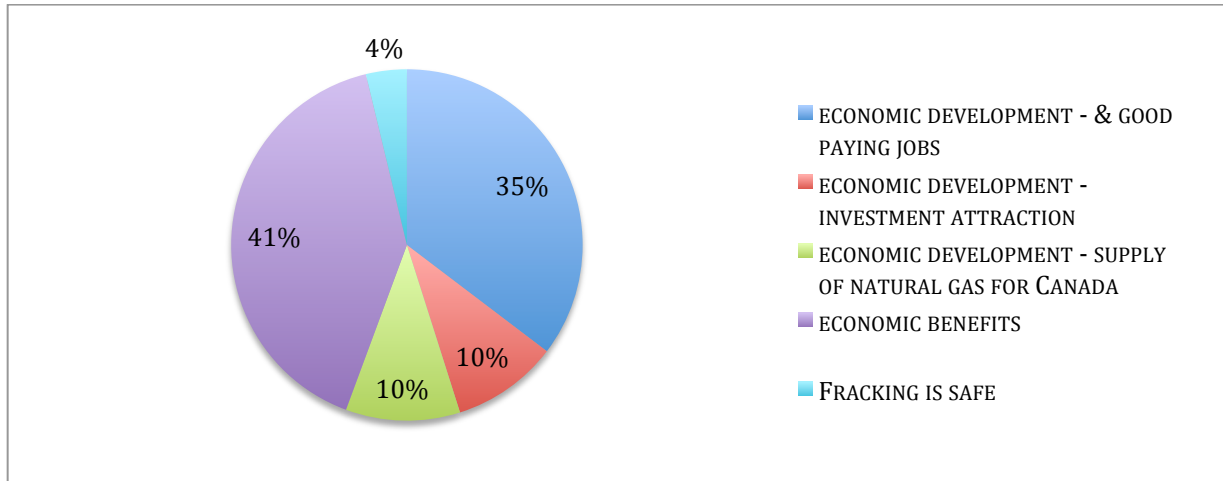
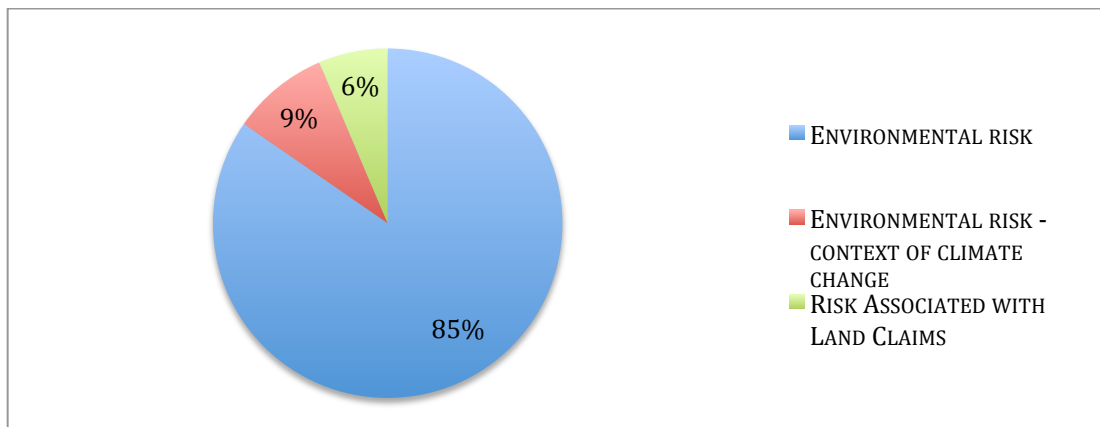


Figure 12: Anti-shale gas coalition claims distribution: analysis of media coverage in NB dailies 2007-2017

(n=78)



The anti-shale gas coalition was composed of elected officials (including municipal representatives and members of the opposition (MLAs)), government agencies, environmental organizations, experts, Indigenous representatives, labor organizations, non-governmental organizations (NGOs), journalists and citizens. They argued at the policy core level against shale

gas development principally due to the environmental risks associated with the practice of hydraulic fracturing. More nuanced policy positions included concerns over the environmental risk of shale development in the context of climate change (i.e., GHGs) and Indigenous representatives asserting their land claim rights against the risks of fracking on their lands.

The underlying direction of the public engagement exercises on natural gas in 2011 and 2012 was to ensure that the province could be ready to proceed with shale gas development should the potential for shale deposits be realized in physical terms but also in terms of economic viability. In terms of their policy core arguments on general policy solutions and instruments, the pro-development coalition (as early as 2011) contended that by developing the most stringent set of rules and regulations to govern shale development in North America hydraulic fracturing activities could proceed safely in the province. However, the anti-shale gas coalition argued that the environmental risks of fracking were too high and in the initial phases between 2011 and 2012, advocated for a ban on fracking. This is demonstrated in the graphs below⁶⁷.

⁶⁷ Note that the media analysis did not yield results for the period 2007-2010 on shale development/hydraulic fracturing. It does not appear in the public debate at the time.

Figure 13: Pro-development coalition distribution of claims by year (2011-2017): analysis of media coverage in NB dailies 2007-2017

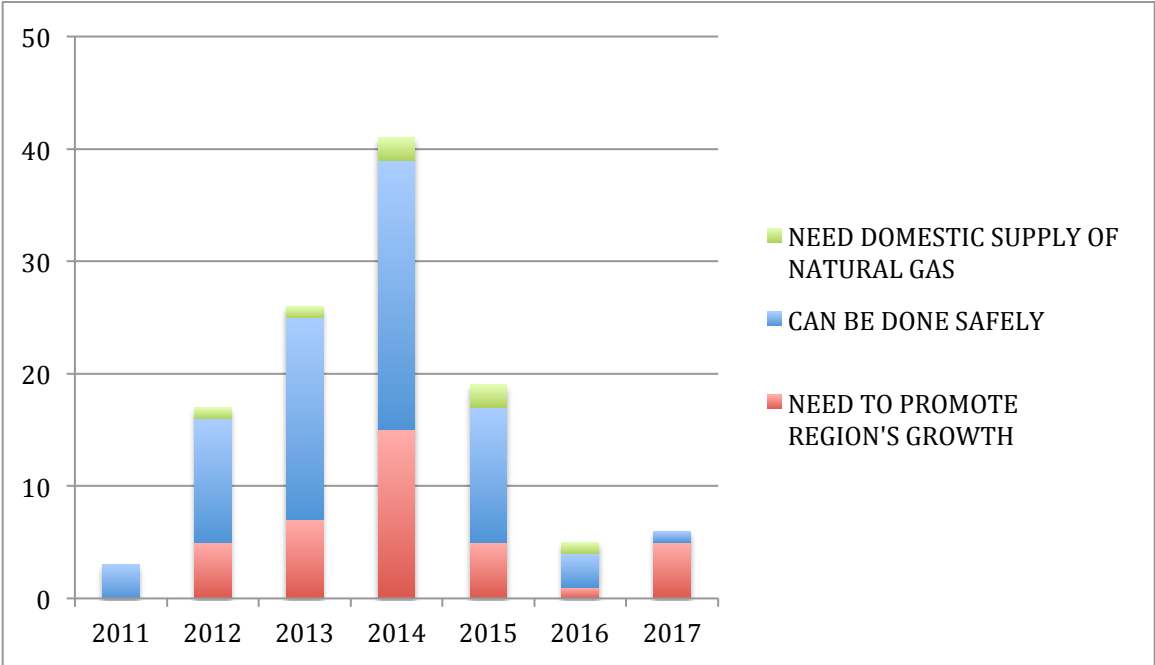
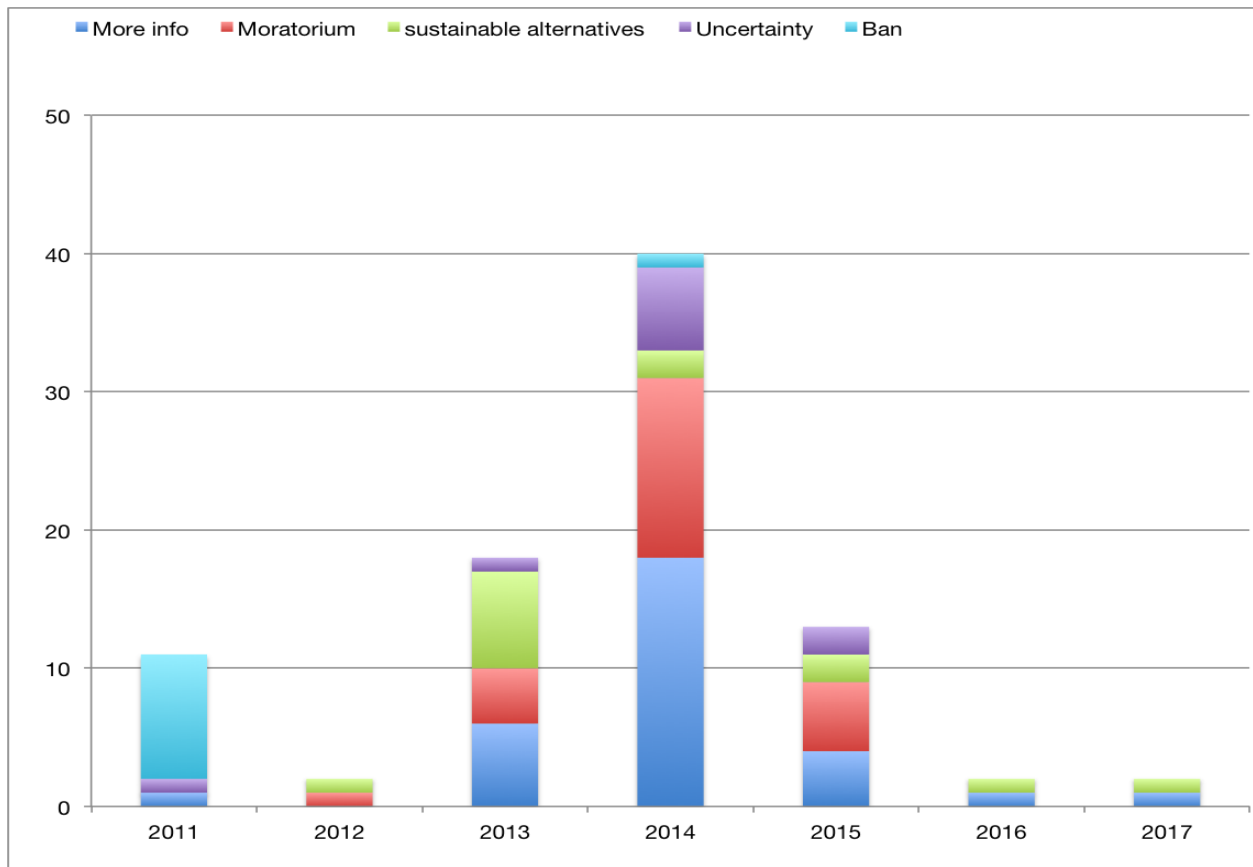


Figure 14: Anti-shale gas coalition distribution of claims over time (2011-2017): analysis of media coverage in NB dailies 2007-2017



The emergence of the anti-shale gas coalition in the province surfaced in 2010, however, it was not until 2011 that more coordinated action became evident on the group’s behalf (Dudziak and D’Arcy, 2017). The coalition was organized as a subgroup of the broader New Brunswick Environmental Network (NBEN) and the New Brunswick Anti-Shale Gas Alliance (NBASGA) under the umbrella of the ‘Shale Gas Caucus’. These groups coordinated in their public advocacy activities to oppose shale gas development in the province, with activities ranging from public rallies, to organizing town halls in order to raise awareness of shale activities, to initiating petitions and other forms of civil action. In 2010, one local non-profit organization in NB, the Conservation Council of New Brunswick (CCNB), is credited with initiating the

ongoing educational and awareness campaign against shale gas across communities in the province (Dudziak and D'Arcy, 2017). This is reaffirmed in the interviews undertaken in this research where several interview participants referred to the critical role that the CCNB played, including via an interview with a key CCNB organizer. As a registered non-profit engaged in environmental issues in the province for some time, the CCNB initially focused on the provinces' water management initiatives and became attuned to the impact of fracking activities on water.

The CCNB actively toured rural and urban communities in the province to raise awareness and promote education on fracking activities. Reflecting on the coalition's emergence, Stephanie Merrill of the CCNB stated at an appearance in parliament for the Standing Committee on Natural Resources:

“The [anti-shale] coalition formed out of concern in a number of communities. What we were seeing were very similar things happening in the communities where exploration was coming forth. We saw that municipalities were not sure what to do [...] we had rural communities in New Brunswick that did not have local governance--the province represents these rural communities--so they had no formal mechanism for addressing their concerns [...] so basically, it was a grassroots movement of different individuals and community groups [...] [they] came together and decided to just start talking to each other so that they could learn from each other what was happening in their communities. So when industry moves to the next place, they will be well informed about what to expect.” (RNNR, 2010).

It was the NBEN that really ‘played a supporting role in bringing environmental groups together’ via direct engagement (calls and in person meetings) to discuss the key environmental concerns and strategies of the coalition (Dudziak and D’Arcy, 2017, p.240). The different groups under the coalition coordinated extensively to oppose shale gas activity in the province, and while the majority represented rural communities, there were also representatives in the urban centers that grew vocal. The coalition was successful in engaging with different social institutions and gained the support of unions, church organizations and professional organizations (e.g., nurses association) (NBEN, 2017; Dudziak and D’Arcy, 2017). Initially, in 2011 the calls for a ban on hydraulic fracturing emerged, and over the course of 2012 the anti-shale gas coalition’s call for a moratorium solidified. The coalition organized a large rally at the legislature in November 2012, and organized a petition signed by 20,000 New Brunswickers for a moratorium on shale gas that was presented at the rally. They also distributed information to the public and engaged marginalized communities to participate in the government’s public engagement opportunities (Dudziak and D’Arcy, 2017). In addition, the coalition engaged with advocates opposed to shale gas in Canada and the US, and organized speaking opportunities and shared their public presentations with coalition members and the broader public starting in 2012.

The pro-development coalition was focused on advancing the updates to the oil and gas framework to increase the stringency of the regulatory framework governing shale development. Public engagement via the government’s methods noted above was also accompanied by industry engaging the public in different communities across the province. Industry associations (such as the Canadian Association of Petroleum Producers) organized public meetings and distributed informational material on hydraulic fracturing and shale gas development, and the

proponents with licenses for exploration (such as SWN Resources) undertook outreach activities in the province (Interview 6, New Brunswick, 2018; Interview 13, New Brunswick, 2018; Interview 14, Telephone, 2018)⁶⁸. Other organizations such as the Atlantica Centre for Energy also distributed informational materials to promote the energy opportunity associated with shale, advocating for the need to diversify the province's natural gas supply (Atlantica Centre for Energy, 2015). The initial drive for shale gas development is very closely linked to the economic benefits for the province associated with the resource. In particular, due to the potential scale of development, the provincial government began to create linkages with the calls for a secure and safe supply of natural gas for Canada. This is evident by the Minister of Natural Resources' appearance at the Parliamentary Standing Committee on Natural Resources on February 1, 2011⁶⁹, where Minister Northrup presented the provincial government's view on energy security for Canada related to shale gas development in Canada. The Honorable Minister Northrup posited that:

“The exploration phase alone is creating employment and pumping significant dollars into the New Brunswick economy through the purchase of goods and services. But it's the next stage that has the potential to substantially change our province's future. If shale gas is discovered in commercial quantities, then we're looking at a game changer for our great province. A large-scale natural gas industry would generate millions of dollars in royalties, create many new direct and indirect jobs, and expand our tax base to help fund services we all count on,

⁶⁸ Evidence of these engagements in the public domain is limited.

⁶⁹ The committee met to engage on a study conducted on energy security in Canada, that they undertook starting in late 2010. Explicitly the committee was interested in the role of the federal government in unconventional oil and gas development. Also interested in the regional economic impacts of unconventional development, and potential export opportunities – two items the NB Minister of Natural Resources spoke to (RNNR, 2011).

such as health, education, and senior care. [...] What our government is determined to do is to realize the benefits of this resource without suffering any negative consequences—and I just want to repeat that: without suffering any negative consequences.” (RNNR, 2011).

6.1.2 Policy beliefs

With this overview of coalitional activity this section will provide an overview of the key arguments for or against shale development on a coalitional basis. Furthermore, as noted in the methodology chapter, this study seeks to assess the role of three other key factors - trust, uncertainty, and public engagement – to understand the role of policy-oriented learning in policy change.

As described in Chapters 2 and 3, deep core beliefs involve ontological assumptions about human nature. At the policy core level, normative beliefs are those that span the subsystem and are related to ‘basic values’ and ‘welfare priorities’ (Sabatier and Jenkins-Smith, 1993), such as the respective importance of environmental quality as opposed to economic growth in New Brunswick. Also at the policy core level, empirical beliefs relate to the general gravity and causes of the problem, such as the seriousness of groundwater contamination or the possible sources of contaminants. Both empirical and normative beliefs are related to the policy core beliefs, i.e., the beliefs that determine the fundamental material interests that policy actors pursue. As noted above and demonstrated by the media analysis, the main divide between coalitions is the allocation of arguments of economic development versus environmental protection.

On a deep core level, coalitions have different values that are also reflected at the policy core level. The pro-fracking coalition's beliefs are rooted in anthropocentric values⁷⁰ and are focused on the utility of developing the province's natural resources and generating economic benefit. They argued for the importance from an economic development perspective the potential opportunities shale development would provide for the province - opportunities that could be achieved safely through a stringently regulated extraction process. As one interviewee from industry noted, "I look at it from the perspective of what can we bring to the local communities and usually you go to any town in Alberta that has an active oil and gas industry not far from it and the evidence is overwhelming how beneficial it is to the community. You're seeing hotels, restaurants, car dealers, car repairs, welders – it is an industry that provides a significant amount of economic benefit" (Interview 14, Telephone, 2018).

The anti-coalition's deep core beliefs coalesced around ecocentric values rooted in protection of the environment and human health in the face of anthropocentric values. These values included protecting the water, land, air and scenic resources, as well as future resources for generations to come. For the anti-shale gas coalition, these values required protection to ensure a healthy environment. Fracking posed a threat to the environment and environmental conservation is an inherent need. As one anti-shale gas advocate noted, "Yeah, we want economic development and we want jobs, but take something like gross domestic product, it measures goods and output and consumption of all of those but [...] quality of water is not valued, quality of air is not valued,

⁷⁰ Gagnon Thompson and Barton (1994) argue that support for environmental issues is based on two main values: anthropocentric and ecocentric. Anthropocentric values emphasize the need to protect the environment for its utility in supporting and enhancing human ways of life. Ecocentric values emphasize conservation notwithstanding its economic implications, and value nature for its intrinsic value (as opposed to for its utility in supporting human ways of life).

quality of land to life itself is not valued. So it measures everything that is wrong and says the more we do of this the better it is. Well no - we should be able to say how can we expand our reserves of clean water and invest in the green economy?" (Interview 11, New Brunswick, 2018).

The associated policy core beliefs that emerge from the analysis also differ. On the one hand, the pro-development coalition asserted that hydraulic fracturing could be done safely and was necessary to promote the Atlantic regions' growth and self-reliance. On the other hand, the anti-shale coalition argued that due to the risks associated with the practice of hydraulic fracturing, notably impacts on human health and the environment, the practice should be banned. There were also claims emerging regarding the uncertainty associated with the practice and the need for sustainable alternatives of energy development.

Based on the interviews and from analysis of public documents, this research finds that the most prominent claims in the early period (2007-2011) were regarding information – and tied up in that are claims around uncertainty. Interview participants from both coalitions noted that there was very little information available about hydraulic fracturing in the early stages of learning (2007 – 2011). To fill this gap, the members of the pro-development coalition were active in trying to aggregate and distribute reliable information to citizens (Interview 2, New Brunswick, 2018; Interview 6, New Brunswick, 2018; Interview 14, Telephone, 2018; Interview 15, Ontario, 2019). As one industry representative put it: "The interest in hydraulic fracturing was just getting underway so it's something new to people, new to the government and the industry, and there wasn't a lot of information available in particular to the public" (Interview 5, New Brunswick, 2018). Additionally, the anti-shale gas coalition members were trying to find information on

their own, and noted the difficulties in finding reliable information to comprehend the impacts of fracking (Interview 3, New Brunswick, 2018; Interview 7, New Brunswick, 2018; Interview 11, New Brunswick, 2019; Interview 12, New Brunswick, 2018)⁷¹.

During the initial phases of the shale development engagement and debate in NB, both coalitions adopted the strategy of seeking out and engaging with individuals or groups that had experience with fracking activities. The pro-coalition, as noted above, arranged a fact-finding mission to jurisdictions in the US and Canada where fracking operations had taken place on a large scale. The three ministers of the NGSC travelled to Arkansas accompanied by a representative of the CCNB. Reflecting on the first mission, Minister Northrup stated:

“During our visit we met with landowners, environmentalists, regulators, and politicians, including the Governor of Arkansas. It was a very eye-opening experience. What we saw is how the shale gas industry has ignited the economy of Arkansas. As Governor Beebe told us, the shale gas industry has transformed Arkansas from a have-not state to a have state. Thousands of new jobs have been created directly by the shale gas industry, or indirectly as companies have moved to Arkansas to take advantage of the secure and relatively inexpensive energy source” (RNNR, 2011).

⁷¹ Interviews are referenced by numbers (e.g. Interview 1, Interview 2, etc.) to maintain the confidentiality of interview participants. Citations also include the location of the interview and the year that it took place.

The citation above is reflective of the policy core for the pro-development coalition as they learned about fracking. This approach reinforced the narrative of transforming NB from a 'have-not' to a 'have' jurisdiction and underlining the jobs and reliability/security of supply.

The anti-shale coalition, also interested in learning about shale development, reached out to communities to hear their first-hand experiences with the gas industry. 'A key environmental advocate noted the value of first-hand experience: "Learning from people who had first hand experience [...] became very valuable. The reality is that people want to hear from people [...] I trust that you can tell your story about how that company treated you, or how the government wasn't there for you, more than the science will tell me" (Interview 1, New Brunswick, 2018). This meant interacting with community representatives in Canada, and in the province of NB where smaller scale operations had taken place. Experiences were drawn on from the residents in the Penobscis area in Kings County, NB, who lost their well water due to contamination starting in 2004, where Potash Corporation operated a large mining project. The residents cited loss of water in direct relation to the seismic and drilling activity that Potash Corporation and Corridor Resources (a shale gas proponent) undertook in the area, and faulted the companies when several people in the community had potholes appear on their properties (CBC 2011a; CBC, 2012a). Approximately 60 wells lost water in the area, and the community had to rely on water supplies from the provincial government that were rationed per head in each household.

Several interview participants cited these concerns with water loss and a lack of appropriate remediation⁷² as potentially negative experiences to be had with the resources industry. An environmental advocate noted: “The courts were allowing them to do that so [...] the whole legal system was geared to protect the industry and not the people, and so what happens if we allow that to happen here” (Interview, 8, New Brunswick, 2018). While the causes of water loss are disputed, this experience is one that demonstrates resource development risk in a province where many households depend on well water for their daily consumption. The province estimates that there are upwards of 100,000 private water wells in NB (GNB, 2020a). A First Nations representative noted: “NB has a lot of groundwater. We have a lot of people who are living in rural areas, and so the concern [was] that that this would somehow impact the groundwater” (Interview 4, Telephone, 2018). This concern was repeated in many other interviewees from the anti-shale coalition (Interview 3, New Brunswick, 2018; Interview 8, New Brunswick, 2018; Interview 9, New Brunswick, 2018; Interview 10, New Brunswick, 2018; Interview 11, New Brunswick, 2018).

The claims around uncertainty in this period were tied to the lack of information. The anti-shale coalition questioned how the government could regulate a practice that seemed to have so much uncertainty associated with it. In the early days, advocates against development continued to rely on experience.

The most prevalent concern that came up from the interviews is around protecting water. As one industry advocate put it, “If you look at what people hold dear most in the Maritimes, water is

⁷² The community actively sought financial compensation from Potash Corporation and took their case before the Mining Commissioner rather than advance a legal case through the courts. The process took several years and was ultimately unsuccessful.

one of the issues and we all want to make sure that we have safe and clean water” (Interview, 6, New Brunswick, 2018). Several participants from both coalitions noted that water protection was their top concern (Interviews 1, New Brunswick, 2018; Interview 3, New Brunswick, 2018; Interview 4, Telephone, 2018; Interview 9, New Brunswick, 2018; Interview 10, New Brunswick, 2018; Interview, 11, New Brunswick, 2018). The pro-development coalition advanced that this could be regulated and environmental stewardship could ensure the safety of water in the province, and that they were exploring how this could be done. The Environment Minister Blaney noted regarding the work undertaken by the NGSC: “While our committee is still completing its due-diligence and research, we have already determined there are certain decisions that are absolutely necessary and can be made at this time. Our goal is to have a model regulatory framework, with the necessary monitoring and enforcement mechanisms to protect the environment and residents of New Brunswick” (GNB, 2011e).

The anti-shale coalition questioned the government’s ability to develop regulations for an emerging technology where there wasn’t enough information (uncertainty) and where the risks of damage seemed too high. As one municipal official put it, “So they [anti-shale members] are saying look – the [economic] impact is not sufficient enough for this activity to happen because there is a high risk on the livelihood of the population” (Interview 9, New Brunswick, 2018).

The anti-shale gas coalition expanded their scope of outreach by reaching out to advocates in the US to understand experience with industry. As one environmental advocate stated, “In the beginning it [outreach] was about bringing experience of the United States from a civil society perspective and expertise to those who would be involved in policy development and regulation [in NB]” (Interview 3, New Brunswick, 2018). The anti-shale coalition had organized trips for

the Mayor of Dish, Texas to come speak to community members in NB about the American town's experience with the shale industry and the impacts of fracking (CBC, 2011e). They also organized speaking engagements for an important figure from Cornell University, Dr. Anthony Ingraffea, hailed as the founder of the technology behind the new twin techniques of fracking, to speak to the dangers of fracking. Dr. Ingraffea was outspoken about the risks that fracking posed and with his role in the research and development underpinning it. In 2011, he also appeared as an expert witness in front of the Standing Committee on Natural Resources, in the House of Commons of Canada where he spoke to the risk, particularly highlighting the scale of operations (RNNR, 2011). Dr. Ingraffea raised the concern with wastewater and well density associated in such large-scale operations and emphasized that:

“The most important aspect of developing unconventional gas from a resource like shale is the scale of an operation. By that I mean two things. It takes between 50 and 100 times more fluids to develop a shale gas well than to develop a conventional gas well. That implies that a concomitant amount of waste products is produced in the stream. I emphasize 50 to 100 times the amount of fluid necessary over a conventional gas well. That's one aspect of what I refer to as scale. The second aspect is this. The nature of the geology of shale is such that to produce the vast quantities of gas that are being forecast by the industry will require a very high well density compared to conventional gas development. By that I mean on the order of three wells per square kilometre. Those two issues of scale need to be absorbed and digested: the large amounts of fluid necessary, which implies much transportation and much waste disposal; and many more wells per square kilometre than previously experienced” (RNNR, 2011).

Therefore, in the initial phases of the shale gas debate in the province, the main focus was on sourcing information. The pro-development coalition in particular was focused on ramping up regulation and engagement on shale development in the province. One industry representative noted that “There were meetings all over New Brunswick and Nova Scotia that we had held with the public and within groups and organizations wanting more information and so you do the best that you can, you try to put it out there in as many formats as you absolutely can and hope that it gets to people” (Interview 6, New Brunswick, 2018). This is also supported by the work undertaken by the province as noted in the section above, whereby the NGG ramped up their engagement activities with key stakeholders.

Upstream energy policy engagement undertaken by the Commission arguably set the stage for expanding shale gas development. However, the extent of engagement on shale gas expansion in the province is disputed. One environmental advocate argued, “Well, initially there was no debate. It was sort of the whole initiative on the government’s side was launched by stealth, under the radar, no one was really aware of what was going on” (Interview 3, New Brunswick, 2018). Members of the anti-shale gas coalition during the interviews shared their views that they did not feel like they were meaningfully engaged on the proposed expansion of the shale gas industry and they had to rely on spreading awareness and working together at the grassroots level. As another environmental advocate noted, “The reason we started locally was because the way the government unveiled this was they sent some companies into communities and said, ‘You go do your consultation with the public’. Well that was our introduction to the fact that they were going to frack our areas” (Interview 8, New Brunswick, 2018). Therefore, with regards to claims about public engagement, the anti-shale coalition felt that they were not

involved in the early stages. While the commission noted the role of natural gas as a transition fuel, the subsequent focus on promoting shale gas became very technical in nature, as we will see in the following section of this chapter.

To conclude, the first phase of engagement on energy in NB was initiated amidst the public backlash against the sale of NB Power. The NB Energy Commission, mandated to develop a 10-year plan, launched an extensive public consultation exercise that created the avenue to pursue natural gas development as a transition fuel, as an affordable energy source for New Brunswickers. However, the upstream engagement on the policy context was subsequently overshadowed as the uncertainty surrounding shale gas development and fracking emerged. As the most promising avenue for the pursuit of natural gas expansion within the province, shale deposits posed both significant opportunity and risk. The pro-development coalition argued that the economic benefits of fracking would result in local jobs, economic growth and promote self-reliance in the Atlantic Provinces. The coalition advanced that this could be done through high regulatory standards for safe fracking operations. An anti-shale coalition emerged and argued that the risks associated with the practice were too high. They argued that more information was needed before any decision could be made for fracking to proceed. The period is characterized by both coalitions seeking more information and learning from experience. It is also characterized by the presence of uncertainty surrounding the emergence of a technology and practice for resource development, in a province that needed economic growth.

Subsystem Considerations

The first phase of upstream engagement was targeted at a broad policy mandate for energy and a renewal of the province's broad policy goals. As noted above, engaging with New Brunswickers on the course of the future of energy in the province, the commission undertook what is arguably a transparent approach to engagement. This took place, however, as different subsystem dynamics were already unfolding - predominantly in water and environmental protection. In 2011, different policies or measures were changed that would have direct implications for the regulation and oversight of fracking.

The first change is one that took place in March 2011 when the Department of Environment introduced a new wetlands map and policy that saw 16 of the provinces' wetlands removed and not mapped for protection. The regulations remained the same for protecting regulated wetlands, but the policy for regulated wetlands now applied to a smaller portion of wetlands. With a larger range of wetlands now available for different uses through regulation and oversight, the Watercourse and Wetland Alteration permit could be applied for on the areas that were unmapped⁷³ (GNB, 2020b). The permit allows for wetland and watercourse alteration that includes a range of activities such as drilling and excavation.

Furthermore, there was a Water Classification Program that the province had been working on to ensure that the appropriate measures were instituted to protect watersheds in the province by enacting legislation and adopting a regulatory framework under the Clean Water Act. This

⁷³ This waiver of permitting process is actually in violation of the Clean Water Act's Watercourse and Wetland Alteration Regulation. The definition of a regulated wetland in the Act is determined by wetland vegetation, soils, water table and size, not by whether or not it appears on a map, and there was a lack of provisions for functional assessment and compensation for destroyed wetlands.

initiative that encompassed 19 watershed groups around New Brunswick and aimed to establish goals for water quality and management of water resources on a watershed basis. The initiative was suspended in 2011 by the government, citing concerns with the program (Office of the Ombudsman, 2014).

The Water Classification Regulation would establish “the water quality classes, and the associated water quality standards, and outline the administrative processes and requirements related to the classification of water” (GNB, 2012b). In essence, the administrative features to be adopted, including work with community-based groups to classify waters in the province, ceased to continue and were not enforced⁷⁴. In fact, in a review conducted by the NB Office of the Ombudsman, the Ombudsman in their report states: “Over 12 years have passed, and the Clean Water Act has been amended, yet Regulation 2002-13 exists primarily as a mirage, misleading observers to their detriment. The history of this file leads us to conclude that the Legislative Assembly must take a more direct interest if it wishes the province of New Brunswick to have an effective Water Classification Program rather than an illusory one” (Office of the Ombudsman, 2014, p.8). The majority of the population rely on for drinking water from aquifers and participants were concerned that the province lacked baseline testing to provide information regarding the quality of the water sources. Additionally, the management of the Water Classification Regulation eroded trust in public authorities (NBCHF, 2016b).

Another consideration for fracking in the province is the change in EIA processes discussed earlier in this dissertation whereby the Government of New Brunswick formally announced the use of a “phased” approach. The phased approach is one that is meant to ensure that all potential

⁷⁴ Aquifers are included in the considerations for water protection.

environmental impacts of a proposed project are identified early on in the process. In addition, “this phased approach [...] allows certain types of exploration activities to be undertaken along with the EIA process” (GNB, 2018a). Notionally, the phased EIA is meant to sequence the process whereby companies proposing projects must fulfill certain criteria before they are able to proceed to the next phase of development. The phases build on each other and include formal requirements for public involvement and stakeholder engagement at different phases.

Crucially for this study, as noted in Chapter 5 - the introduction or formalization of the phased EIA process meant that exploration for shale gas deposits could proceed together with the EIA process. Only in the case where drilling is proposed would the project proponent need to register the project for an EIA. What seems to be the problem to most people in the anti-fracking coalition was that exploration could proceed and that permitting for drilling could now be individualized to specific proposed wells (NBEN, 2022). This would possibly allow for exponential development in a single area with no cumulative assessment for the aggregate impact.

There is no clear requirement for public engagement in the exploratory phase. In the case of SWN, large swathes of land were leased out for exploration work in areas where a concentration of the New Brunswick population resides. The land mass covered three of the largest cities. In the context of an emerging technology where the impacts on the environment and specifically water were unknown, the amendments to water protection and regulatory processes had significant implications for perceptions of risk. The analysis of the empirical context in NB demonstrates the labyrinth of activities taking place between 2007 and 2011. These are important

in understanding the actors and activities involved in the development and formation of policy and regulatory objectives, along with coalition dynamics in the energy policy subsystem.

6.2 Period 2011 – 2013: Regulatory engagement & public controversy

Public opposition to fracking in the province started to emerge in 2011 amidst the government's efforts to establish public engagement efforts. In the case of New Brunswick, there is no clear or established process for the regulation of large-scale shale development. An unconventional gas sector utilizing emerging technology created the need to update the existing rules and requirements. Specifically with regards to regulation, there was technically focused engagement that took place in 2011 and into 2012. Overall, between 2011 and 2013 there was a rise in public engagement efforts that ranged from the downstream back to the upstream with much controversy and key events in between. These were the formative years of the debate on hydraulic fracturing in the province and ultimately lead to the most extensive engagement in 2014 with the establishment of a major commission.

Overview

There are six major public engagement initiatives related to fracking in New Brunswick starting in the 2011-2013 period:

1. Public discussion period based on the NGG's earlier engagement to develop a policy and regulatory framework for oil and gas development in 2012;

2. An engagement tour led by an academic to seek further input on the shale gas regulatory recommendations in 9 different locations across the province in mid-2012;
3. Meetings with the Assembly of First Nations Chiefs of New Brunswick (AFNCNB) held by both industry and the Natural Gas Group in 2012;
4. Virtual town halls held by the Department of Energy and Mines where questions were posed to the Minister and experts;
5. New Brunswick Energy Institute Roundtable evidence-based series in 2013;
6. Over 70 presentations by the NGG to various groups such as municipal associations, chambers of commerce and other government departments with more than 2,200 people attending in 2013. (Energy and Resource Development, 2018c)

The following section will provide detailed description of these engagement mechanisms⁷⁵. Notably given this dissertation's focus on government engagement processes, this list of engagement activities does not include the industry's engagement efforts including outreach undertaken by proponents of proposed development and of active gas operations to engage landowners and inform them of developments.

It is worth emphasizing that to this day, only companies have the information on the extent of shale gas deposits (in the case of the largest proponent – SWN Resources Canada – this encompasses 1.1 million hectares of exploratory work) in the Elgin and Kent areas in New Brunswick. It is proprietary information and the degree to which extensive shale gas deposits are available and are technically recoverable for commercial scale are not fully known.

⁷⁵ These details are provided where the information exists to support it – for example the researcher learned about engagement mechanism numbers 4 & 6 via an access to information request but does not have access to additional information to scope out the parameters of the engagement and content of these exercises.

Notwithstanding this, the NB government was active in its efforts to engage in anticipation of the economic benefits and potential for the shale gas industry in New Brunswick. As noted earlier in Chapter 5, in 2012 there was no direct knowledge of the shale gas potential in NB and that in anticipation of this potential, the government initiated a review of environmental protection standards and public engagement on the consequences of potential development.

Should shale gas development have proceeded on a large-scale, the implication for industry regulation and oversight were under consideration in 2012 and engagement was undertaken in anticipation. As detailed below, this did not occur without controversy, and public opposition escalated in 2013 with New Brunswick making national news. This section will highlight the key initiatives and associated events.

6.2.1 Public engagement

Based on the NGSC's work to develop an Action Plan, it recommended principles for responsible environmental management of oil and natural gas activities in New Brunswick. The NGG, an inter-departmental working group mandated with carrying out work to fulfill the key principles began their work in 2011 with the bulk of engagement taking place in 2012.

In early 2011, the NGG initiated a fact-finding mission to Arkansas, held a Technical Forum and advanced work in seven key areas:

- (1) Environmental Protection Plan
- (2) Compliance Monitoring and Enforcement Plan
- (3) Economic Benefits Plan (including royalty and shared benefits)

- (4) Community Development Approach
- (5) Resource Development Plan
- (6) Regulatory Framework
- (7) Communications and Engagement Plan (Energy Resources and Development, 2018a)

In 2011, a document encapsulating many elements of the plans noted above was released publicly. Titled the *Energy Blueprint*, the document was positioned to give overarching policy direction and an action plan over the course of three years for the provincial energy sector. The Department of Energy and Mines established engagement as a core objective including engaging with stakeholders for input to produce another blueprint with more detailed implications for oil and gas specifically. With general direction in place, work was being done inter-departmentally across the public sector to ensure the appropriate response to gas development in the province (Energy and Resources Development, 2018d).

Under the Environmental Protection Plan, the NGG released 116 recommendations for the responsible development of the industry. The recommendations were developed through the technical forum and further engagement with public agencies and departments (New Brunswick Natural Gas Group, 2012b). A document containing the recommendations titled *Responsible Environmental Management of Oil and Gas Activities in New Brunswick: Recommendations for Public Discussion* was released in May 2012 for public comment (New Brunswick Natural Gas Group, 2012b). The government noted that “The recommendations include proposals to complement the province's existing regulatory framework” (GNB, 2012e). It affirmed that the document contained the strictest rules for industry in North America and reaffirmed its intent that gas development would only precede in a responsible manner.

The preparation of this document consisted of scientific studies as well as regulations and best management practices from other jurisdictions. The latter component featured heavily in the list of references and spoke to the limited scientific research at the time on shale gas development (New Brunswick Natural Gas Group, 2012b). The document included 104 short-term recommendations that could be introduced within a 1-2 year span, and 12 long-term recommendations that could be considered over 3 or more years if oil and gas activity was to expand. The regulations were published as recommendations for public discussion and encompassed the full regulatory spectrum from well cementing to geological assessment and chemical management requirements. While the stakeholders at the forum had the opportunity to provide input, the technical nature of the recommendations are based on regulatory management in terms of reviewing and strengthening environmental and technical standards where appropriate or necessary. The linkage to the broader policy framework outlined in the Energy Blueprint was limited: the discussion document made reference to the Action Plan Framework at the outset.

While published under requirements for natural gas, the recommendations had a strong emphasis on unconventional resource development. The discussion document claims:

“New Brunswick therefore stands on the threshold of what might eventually become an expanded oil and gas industry, based on technologies such as horizontal drilling and hydraulic fracturing. It is now appropriate to review and where appropriate, strengthen existing environmental and technical standards to ensure continued

responsible environmental management of this industry, both now and in the future”
(New Brunswick Natural Gas Group, 2012b, p.8).

The focus on fracking is evident with the short-term recommendations regarding practical regulations around fracturing fluids and technologies, water sources, chemical management, waste management and baseline testing. Notably, the longer-term measures sought to ensure appropriate conflict resolution mechanisms outside of the courts should disputes on lands occur, and the establishment of regulatory know-how for the industry in NB. Public comments on the discussion document were accepted for a period of 2 months in 2012 via fax, mail or online and the NGG announced the intent to release a new schedule of public events starting June 2012. Additionally, to assess the information around the health impacts of fracking, the CMOH through its mandate on health protection was mandated to conduct research and prepare a report in anticipation of the booming industry in New Brunswick (CBC, 2012b).

At the same time, the NGG also released a discussion document regarding the potential sharing of royalty revenues from natural gas activities, should they occur. This was done with the aim of sharing the province’s thinking on the distribution of financial benefits from expanded resource development as noted below.

In terms of Compliance and Enforcement planning, the government announced that it would impose higher fines on companies that violate laws governing oil and gas development (CBC, 2012c). The new penalization system would establish a maximum fine of \$1 million for industry proponents that breach the *Oil and Natural Gas Act*. This would be in addition to the mandatory

seismic testing and drilling provisions that were announced by the government in 2011. In terms of water regulation, the government was working on developing surface and groundwater monitoring requirements (CBC, 2012c).

Under the work on an Economic Benefits Plan and the development of a Regulatory Framework, the NGG released a discussion document to engage the public on the royalty structure for the oil and gas industry. The document titled *Responsible Environmental Management of Oil and Gas Activities in New Brunswick: Sharing of Royalty Revenues From Natural Gas Activities in New Brunswick*, was based on the Government's stated intent to ensure financial benefits for New Brunswickers should shale gas development proceed full scale (New Brunswick Natural Gas Group, 2012). The proposed path based on discussion with public agencies, consultants and industry, recommended a new royalty regime that included a basic royalty component as well as an economic profit royalty (10% of the selling market price or market value at the time of production & resource royalty totally 40% of profits from a resource investment respectively as outlined in Chapter 5) (New Brunswick Natural Gas Group, 2012).

The document specified that the potential for shale gas was still unknown in the province as noted below. It did, however, note the anticipated large-scale deposits of shale in NB based on the sheer landmass under exploration and the 'known thickness of the hydrocarbon bearing formation in areas where it has been assessed' (New Brunswick Natural Gas Group, 2012a, p.1). As noted in the previous chapter, the proposed regime for the province included a basic royalty component as well as an economic profit one. The revenues would be shared with local landowners who hosted well pads with producing wells, and with municipalities and LSDs

within 25 km of shale producing well pads. Public comments on the discussion document were also accepted for a period of 2 months until July 18, 2012 via fax, mail or online.

Under the NGSC's Community Development Approach, presentations were provided to the Unions of Municipalities (Albert and Westmorland County), the NB Association of Planning Commissions, the Royal District Planning Commission, the Union of Municipalities at their AGM and the NB Planning Directors (Energy and Resources Development, 2018b). Internal government documents also demonstrate that community meetings were targeted for the fall of 2011 with a broader First Nations Engagement component that the Aboriginal Affairs Secretariat was working with the Natural Gas Steering Committee to develop a 'go-forward plan' (Energy and Resources Development, 2018b) – a point discussed later in the chapter. The group also engaged the Public Health Department to include a public health component in the Environmental Protection Plan that they were developing. It is not clear what work was underway within the Resource Development Plan and Regulatory Framework streams of work. However, they appear to be related to advancing the proposed recommendations of Rules for Industry noted above (Energy and Resources Development, 2018b). Furthermore, there is limited public information available regarding the meetings that the NGG conducted with municipalities and the virtual town halls that were hosted⁷⁶.

Risk and Public Controversy

To involve New Brunswickers in the proposed regulations the government announced an engagement tour to be led by Dr. Louis LaPierre with the support of members from the NGG

⁷⁶ No additional details were provided through the request under the New Brunswick RTTIPA.

(GNB, 2012f). Dr. LaPierre, a Professor Emeritus in Biology from the University of Moncton with a background in environmental research and government consulting experience on different files. The professor was appointed by the Minister of Natural Resources through the Office of the Premier to engage on the discussion document released by the NGG through public meetings across the province. Dr. LaPierre was mandated to solicit feedback from citizens, record public sessions, review submissions, and ultimately provide a report that summarized the issues related to the regulation of shale gas development in New Brunswick (LaPierre, 2012).

The engagement tour held 9 separate meetings in different communities between June 6th and July 4th, predominantly concentrated in and around the areas where leases for shale gas exploration were in effect which included Bathurst, Blackville, Bouctouche, Chipman, Havelock, Hillsborough, Moncton Norton, Fredericton, Durham Bridge and Grand Falls (GNB, 2012f). The meetings provided two different types of formats for citizens to participate – the first two hours were structured in open house format where people could interact with the NGG to engage in discussion regarding the exploration and development of shale gas in the province and information booths were set up in the room. The members of the NGG present also provided informational material. The two hours after the open house were formatted as a public meeting with a 30-minute presentation followed by a question and answer period. A communiqué from the Department of Natural Resources noted that any groups or associations could request a separate meeting with Dr. LaPierre and members of the NGG (GNB, 2012f). Furthermore, in an effort to engage more broadly, two of the public meetings were live streamed for New Brunswickers to view (GNB, 2012g).

The context of engagement is an important consideration in the overall assessment of policy learning in the province. Public opposition to fracking was on the rise in 2012, and this was evidenced by the organization of public rallies, blockades and petitions. In May 2012, before the engagement tour was slated to take place, there was a large parade that was organized in May in Fredericton outside of the legislature where the anti-shale coalition spoke out against shale development in the province (Dudziak and D’Arcy, 2017). Many citizens in opposition to development also attended the town halls organized by the NGG to voice their concerns and pose questions about the risks of fracking that were emerging in the scientific literature but also in the media (Dudziak and D’Arcy, 2017).

As mentioned in the previous section, the risks of fracking to water were the predominant concern in NB, and the perceptions of risk escalated amidst the popularization of adverse events and research emerging (Nanos, 2016). The anti-shale coalition pointed to the emerging research to argue that more information was needed to decide to proceed with shale development in their province. They looked to what other jurisdictions were doing and noted several momentous events. For example, in 2010, the Environmental Protection Agency (EPA) was asked by US Congress to investigate the safety of fracking, with one component to look at its impacts on water⁷⁷ (EPA, 2015). In Canada, as noted previously, the CCA launched an expert panel in 2012 on *Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction*. Several Canadian jurisdictions were also starting to turn their attention to understanding the impacts of fracking, particularly in Eastern Canada in Québec and Nova

⁷⁷ The EPA ultimately released an external review draft in 2015 that stated there was no evidence that fracking had led to widespread systemic impacts on drinking water resources in the United States (EPA, 2015).

Scotia. Additionally, in 2012, numerous publicized studies began to emerge disputing the impacts of fracking on human health and the environment as discussed previously⁷⁸.

In their advocacy efforts, the anti-shale coalition set up screenings and distributed the documentary *Gasland* that advanced images of people's tap water lighting on fire. A documentary was also developed by a local filmmaker Rob Turgeon called *Be Without Water*, emphasizing the potential risks of fracking including the joint initiative between Corridor and Potash Corporation discussed earlier that allegedly caused residents to lose their water. Using the direct experiences of people in New Brunswick with industry, the documentary questioned the risks that other citizens who rely on groundwater could potentially endure as a result of fracking. These documentaries were cited in interviews and were key resources for the anti-shale coalition to engage communities on the potential impacts of shale development in the province (Interview 8, New Brunswick, 2018; Interview 9, New Brunswick, 2018). The perceptions of risk associated with fracking were high, particularly in relation to contamination from methane migration and well-construction failure (Simon, 2016). Additionally, with the attention emerging on the magnitude of wastewater and the need to treat the water, the coalition was concerned with the impacts on their environment (particularly commination of aquifers) and how the wastewater would be managed (CBC, 2012d).

As noted above, the NGG engaged the NB department of health and the CMOH, Dr. Eilish Clearly, was recruited to assess the impacts of the shale gas sector on health. Dr. Clearly assembled a team to produce a set of recommendations for the provincial government to oversee

⁷⁸ Notably, the Duke study by Jackson et al. (2013) and separately a study by Colburn et al. (2011) that were critical of the chemical components of fracking fluid and their effect on water, the environment and human health.

shale and ‘track the health effects of the shale gas industry’ (CBC, 2012b). The team reviewed best practices in other Canadian provinces and US states and assessed the scientific literature available from a health perspective (Office of the Chief Medical Officer of Health, 2012). However, in the fall of 2012, controversy emerged around the CMOH’s report as it was leaked to the public that the report was complete but not yet released publicly. It is not clear how this information emerged, but the opposition Liberals demanded the report’s release from the government and the media controversy surrounding it stimulated public outcry (CBC, 2012e). Public assurances from the government indicated that the report would be released, but it was not clear when and how much of it would be made public. According to one media source quoting the Environment Minister Bruce Fitch: “anything that overlaps with other current studies, such as a report by Prof. Louis LaPierre on his public consultations regarding proposed rule changes for the industry, may not be released” (CBC, 2012f).

In response to mounting public pressure, the health report titled *Chief Medical Officer of Health’s Recommendations Concerning Shale Gas Development in New Brunswick* was released on October 15 2012, at the same time of the release of Dr. LaPierre’s report. The analysis is grounded in key determinants of health, ethical considerations of public health and health objectives related to the industry’s expansion in New Brunswick. The report proposed 30 recommendations to address the findings of the work and protect population health (Office of the Chief Medical Officer of Health, 2012). The recommendations broadly targeted health and community wellbeing in light of social and physical environment changes. These suggestions included the introduction of mechanisms to measure and monitor ‘equitable distribution of risks and rewards that maximize benefits to the socioeconomic determinants of health’ (Office of the Chief Medical Officer of Health, 2012 p.36), the introduction and development of Health Impact

Assessments as part of standard project regulation and oversight, and numerous controls and measures to protect public health (Office of the Chief Medical Officer of Health, 2012).

Notably, the report took a broad lens on health and included socioeconomic and social determinants of health as indicators. It also recommended the need to develop monitoring networks for air and water quality, the development of wastewater management plans, full disclosure of chemical additives in the fracking process and many other more technical recommendations (Office of the Chief Medical Officer of Health, 2012). Importantly, it recommended the establishment of sufficient capacity and resources by the province to ensure effective oversight and enforcement. Of note, there is a section of the report dedicated to “What We Know Now and What We Don’t Know Now”. Dr. Cleary did not recommend whether or not to proceed with shale gas development, but made it clear there would need to be many controls for it to proceed in light of the limited information available and that more information is needed (Office of the Chief Medical Officer of Health, 2012).

For interview participants, the controversy surrounding the release of the CMOH’s report from a public health perspective reflected a lack of transparency by the government (Interview 1, New Brunswick, 2018; Interview 8, New Brunswick, 2018). This perspective is also mirrored in the media where references to the Premier’s promise to maintain open and inclusive government was at odds with withholding the report (CBC, 2012f). For many New Brunswickers, the public health perspective was a critical piece of understanding the industry’s expansion in their province (CBC, 2012g). As noted by a prominent member of the CCNB: “We need that piece, to make sure people have the whole picture [...] that's the piece that's missing, and that's the piece

that is, I think, the most salient to the public. That's what they really want to know — how is this going to impact me and my family going forward?” (CBC, 2012e).

Simultaneously, the engagement tour was facing controversy as well. The anti-shale coalition participated in the meetings and the sentiment from many interviews is that of being unheard by the government as they tried to voice their concerns while increasing amounts of research questioned the safety of the fracking process and posited negative impacts. Importantly, the tour was mandated to engage on the proposed regulatory recommendations, and therefore was technical and downstream in nature. Meanwhile, the anti-shale coalition was focused on upstream concerns, questioning whether there was enough information to regulate shale and whether shale development should even proceed in the province. However, they were met with the pro-development’s coalition focus on the rules and regulations that they advanced as the strictest in North America and argued would ensure shale development could proceed safely. This served to create cynicism amongst anti-coalition members, questioned the genuineness of the engagement exercises (Interview 1, New Brunswick, 2018; Interview 3, New Brunswick, 2018; Interview 8, New Brunswick, 2018; Interview 9, New Brunswick, 2018; Interview 11, New Brunswick, 2018). Additionally, the representation of government and industry delegates at town halls together to provide information on fracking, represented to some participants collusion of government with industry at the public’s expense. Ultimately, the anti-shale coalition did not view LaPierre engagement tour as a genuine exercise to engage.

The Path Forward report also released in October 2012 by Dr. LaPierre recommended that shale development proceed in NB with a phased approach. It provided a summary of the main issues highlighted the top concerns of the public, which included: government integrity, water

contamination, well integrity, jobs, chemicals, health risks, and security of fresh water supply (LaPierre, 2012). Section I of the report discussed the public response under each of the main categories of top public concerns and proceeded to highlight the path forward in Section II based on the professor's recommendations for future directions. The key recommendations included the need for a shale gas health database; a structured process to enable deeper public participation and reduce the credibility gap; a 'heritage pool' where a supply of oil and gas could be supplied to home-based users; the development and integration of a risk assessment model into decision-making transfer of regulatory oversight to the Ministry of Energy with the creation of a gas and oil commission and an Energy and Utilities Board (LaPierre, 2012).

The most notable issue from Dr. LaPierre's perspective, and what the report ultimately concluded was the need for 'clear and credible New Brunswick based, science-driven direction on this industrial opportunity' (LaPierre, 2012) where Dr. LaPierre noted:

“Participants during the tour echoed the worry over the limited amount of verified, factual information about shale gas which is available in a format that can be easily accessed by the average citizen. For these reasons an independent scientific peer review of the literature and technical reports is a necessary first step to provide a comprehensive overview of the environmental and health issues that may relate to the extraction of shale gas in New Brunswick in my view.” (LaPierre, 2012, p.28)

To fulfill this, he proposed the creation of an independent research driven energy institute that would provide information to support energy decision-making and have a role in communicating science to the public.

In sum, the need for credible scientific research and findings emerged quite strongly from the engagement exercise. The engagement's focus on a set of technical recommendations to ensure stringent regulation was met with citizen concerns over the scientific controversy regarding the impacts of fracking. The author does allude to this in his report and in response proposes governance changes and the creation of an institute. Nonetheless, in reaction to the report and these events, members of the anti-fracking coalition released a press release stating that 'LaPierre's recommendations and conclusions were based on opinion, not science' (NBEN, 2012). The coalition questioned the ability to provide meaningful input on the government's recommendations for regulating industry on the very basis that they did not have enough information and were faced with too many unknowns (NBEN, 2012).

The development of a shale gas industry in New Brunswick was clearly controversial and public opposition was increasing. In 2011, there were blockades on major routes and protests against seismic testing trucks in different areas across the province. By September 2012, there was a large rally outside of the Energy and Mines Ministers Conference⁷⁹ in Charlottetown Prince Edward Island and another one in November that was the opening of legislature rally. By this time, many calls for a moratorium had surfaced. The most notable of which was a petition signed by 16,000 citizens in New Brunswick to establish a moratorium on shale gas. The

⁷⁹ Annual conference of federal, provincial and territorial Energy and Mines Ministers, where they engage on joint priorities.

Progressive Conservative (PC) MLA for North York, Kirk MacDonald, tabled the petition in the legislature in November 2011. The petition stated:

“The Government of New Brunswick is expediting the exploration and production of shale gas on 1.5M hectares of land, private and public, throughout our province without a formal public inquiry. The history of shale gas development elsewhere has seen devastating impacts on drinking water, surface waters, air quality, landscape integrity and human health. Evidence from across North America, from jurisdictions with stronger regulatory frameworks and enforcement capacity than NB, has shown that accidents and detrimental impacts cannot be avoided” (CBC, 2011b).

Notably, MLA MacDonald did not “endorse or repudiate the petition’s call for a ban on shale gas development” (CBC, 2011c). Twelve Liberal MLAs also tabled petitions “urging that the entire shale fracturing process, including present exploration for natural gas, be halted immediately” (Legislative Assembly of New Brunswick, 2011). Following this, the Premier held a free vote on a shale gas motion in which all PC MLAs (including MacDonald) voted for the resolution proposed by the Progressive Conservatives for responsible development of shale gas under strong regulations. The Opposition Liberals voted against it and submitted an amendment that called for a moratorium on shale gas, which was defeated by the PC majority (CBC, 2011d). The PC government advocated for the development of stronger regulations for shale gas for the industry to proceed safely. Additionally in early 2012, 51 French-speaking municipalities of the Association francophone des municipalités du Nouveau-Brunswick and 12 English-speaking municipalities called for a moratorium.

Additionally, in 2012 the Honorable Craig Leonard, Minister of Energy and Mines, addressed the House Speaker. The Minister emphasized the potential for shale gas deposits in NB and the economic benefits for the province that development could elicit:

“New Brunswick has a shale natural gas in-place resource estimate of close to 80 trillion cubic feet (TCF). And of course, further exploration could potentially increase that estimate. To put this in context, Mr. Speaker, using the current estimated reserve as a base and using industry experience as a guide, we could expect to be able to economically extract approximately 15 TCF of natural gas. 15 trillion cubic feet of gas is enough to heat every home in New Brunswick for the next 630 years, Mr. Speaker. Or if used to generate electricity, it could supply all of New Brunswick’s residential, commercial and industrial needs for over 100 years. In other words, it has the potential to provide a significant competitive advantage to our province.” (CBC recording, 2012)

The statement underlined the government’s recognition of the province’s shale gas potential and the steps taken to advance a set of proposed regulatory standards and rules that would be built into the existing regulatory framework for oil and gas. Minister Leonard explicitly referred to the research and reports produced by Dr. LaPierre and Dr. Cleary to conclude that neither recommended a moratorium. Rather, from the government’s perspective, the focus was on how to build on the information regarding the challenges that other jurisdictions faced, and use the recommendations of both professionals on how to mitigate them moving forward in NB (CBC recording, 2012). In recognition of the notion that large-scale development would need time and

an incremental approach and that clarity from policy and regulation was necessary, the government announced its intention to use the feedback and information it had collected to develop an Oil and Gas Blueprint to be released in 2013 (GNB, 2012h).

Accordingly, it was determined that the Blueprint would be based on five fundamental objectives to guide policy decisions identified through the public engagement initiative over the course of 2011 and 2012: (1) environmental responsibility, (2) effective regulation and enforcement, (3) community engagement, (4) stability of supply, and (5) economic development (GNB, 2012h). In response to the concerns expressed by New Brunswickers, the Minister announced that the province was considering the establishment of an Oil and Gas Commission and Secretariat (GNB, 2012h). This would serve to promote an independent approach to the regulation and oversight of resource development (recall that NB does not have an independent energy regulator). The provincial government also emphasized that “as part of the blueprint, the Department of Environment and Local Government will focus on the issues of water monitoring, water use in exploration and extraction, wastewater treatment, and water-related public information. In addition, the provincial government commits to developing a comprehensive water management strategy for New Brunswick” (GNB, 2012i). Additionally, based on Dr. LaPierre’s recommendation, Minister Leonard announced the intention to establish a body to provide rational, science-based information to support informed government decisions (GNB, 2013a). Together, the establishment of these institutions would guide responsible resource development.

2013: Strenuous Engagement

In February 2013, the province proceeded with the establishment of the new rules for resource development. The *Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick – Rules for Industry* were targeted at managing oil and gas operations and equipping government to ensure stringent oversight. Based on the recommendations that were released in 2012 for public discussion, these now mandatory rules for industry built on existing regulations. They were not adopted as legislation, however, the new rules were implemented as ‘conditions to Approvals and Certificates of Determination’ (GNB, 2013b, p.vi) issued under current legislation⁸⁰. Based on much of the same requirements and action items detailed under the recommendations for discussion, the new rules for industry were heavily critiqued by the anti-shale coalition. Fundamentally, they argued that the democratic process for engagement “appears to have been staged to further a pre-established political agenda” (CCNB, 2013, p3; see also NBEN, 2013) and that the promise of world-class regulations for industry only resulted in rules that they contended did not have the same conditions for enforcement. As conditions associated with permitting these were not only deemed negotiable by the coalition, but coalition members also had low levels of trust in the province’s capacity to enforce them. Additionally, the coalition pointed to data to contend that the industry could not be regulated to an ‘acceptable level of risk’ (CCNB, 2013 p. 3). Overall, the anti-fracking coalition based their criticism on the gap between what the government had committed to in broad policy and regulatory terms and how that was translated into action. By drawing on experience, the coalition grounded its critiques on their lack of confidence in public authorities to enforce regulations. This dynamic

⁸⁰ Oil and Natural Gas Act, Clean Air Act, Clean Environment Act, and Clean Water Act.

emerged throughout the study period and is a point to which we will return in the analysis of beliefs (Interview 1, New Brunswick, 2018; Interview 3, New Brunswick, 2018; Nanos, 2016).

In the spring of 2013, the *Oil and Gas Blueprint* was released. The objectives to guide policy were updated from the five noted above to include a sixth: First Nations engagement. It was listed as a separate objective from community relations in the last version and in line with this, the government said “it will ‘balance’ its duty to consult aboriginal people with the province’s “constitutional mandate” to manage public lands and resources” (CBC, 2013b) a point to which we will return in the next section. In the blueprint, the document highlighted 16 action items under four key themes based on the CMOH and Dr. LaPierre’s work and their recommendations:

- **“Responsible Management of the Industry** covers water and air management, the regulatory framework, compliance and enforcement, and addressing potential future regulatory agency models”.
- **“Addressing Community Concerns and Needs** deals with ongoing public health engagement and dispute resolution”.
- **“Optimizing Economic Benefits** addresses the areas of oil and gas revenues and revenue sharing, measuring economic impacts, First Nations opportunities, economic development and investment attraction, and workforce development”.
- **“Informing Future Decisions** outlines the role of the New Brunswick Energy Institute, planning for future regional gas supplies and offshore development”. (GNB, 2013a, p.2)

The Blueprint did not advance the establishment of a regulatory body or commission to oversee the industry. The government tentatively established the goal of ensuring that a compliance and enforcement strategy be developed and specified the strategy would support the provision of inspection and enforcement capacity. The report did emphasize the role of the Department of Environment and Local Government in regulating water concerns in the hydraulic fracturing processes (GNB, 2013a). The province committed to the development of a comprehensive water management strategy aimed at establishing water monitoring and use throughout the fracking cycle including during extraction and wastewater treatment as well as looking at how this information can be shared publicly. Additionally, the report noted that the issues of royalties and revenue sharing were still under assessment, and specified work with the NBEI on economic impacts of the resources (GNB, 2013a).

As the report shows, issues related to impacts on water were still prominent. The anti-shale coalition's concerns were with the impacts of groundwater contamination, as well as concern with how wastewater would be managed⁸¹. The pro-development coalition maintained the position that, it was possible to develop shale resources safely under stringent regulations, and pointed to the development a water management strategy. To support this, the coalition argued for increased evidence-based research and analysis to support decision-making. In 2013, the government moved ahead with the establishment of the NBEI aimed at developing a credible evidence base to inform policymakers about the benefits and risks of fracking, as well as to provide a medium for dialogue between energy leaders and citizens about the associated risks and benefits of fracking (GNB, 2013c).

⁸¹ The question on wastewater management systems was also validated in 2014 with the extensive engagement exercise that the New Brunswick Commission on Hydraulic Fracturing conducted.

The Blueprint was met with more public criticism and protests (CBC, 2013c). Those in opposition to shale development set up camps along different major routes in NB that aimed to block companies from carrying out their operations to complete seismic testing. These operations, specifically by SWN Resources, had been deferred from 2012 to 2013 in order to provide more time for public engagement (Southwestern Energy Company, 2012). The anti-shale coalition in the meantime still planned meetings that took place regularly and they circulated information amongst members and more broadly to the public. Anglophone, Acadian and Francophone, as well as Indigenous communities united to advocate against shale gas development in the province (Howe, 2015). They worked to raise awareness amongst municipalities and regionally regarding fracking. Meanwhile, the government held virtual town halls based on a call-in radio program design where people could call in to ask questions about shale development and listen to the Minister of Natural Resources and provincial experts provide responses (Energy and Resource Development, 2018c). These town halls took place virtually in different ridings across the province – including Miramichi South, Miramichi Centre, Petitcodiac, Kings East, and Grand-Lake Gagetown (Energy and Resource Development, 2018b; 2018c).

The pro-development coalition continued to call for evidence to support decision-making. In this vein, Dr. Louis LaPierre was appointed as the chair of the NBEI, an organization with the mandate to fund and foster energy research, examine research and communicate findings clearly to the public (GNB, 2013d). It was set up as a not-for-profit corporation financed through a provincial grant. In addition to a chair to oversee research and objectives of the organization, the organizational structure included an executive director, a Scientific Advisory Council (SAC)

with associated external research fellows and an Energy Roundtable. The SAC, made up of scientists and specialists, operated as the board of directors to oversee deliberations at the Energy Roundtable (NBEI, 2018). The Energy Roundtable was established “to provide a forum for discussions and debate on issues associated with energy development in New Brunswick” (NBEI, 2013, p.3). The roundtable, set up as an inclusive forum to represent many interests, included representation of Indigenous, business, oil and gas industry, municipal and regional governments, environmental and citizen representation, rural community industries, health practitioners, representatives of oil and gas trades, technical institutions and community colleges as well as Work Safe NB.

As one of its first major initiatives, the NBEI undertook a series of energy roundtable discussions in August 2013. While these were positioned as discussions to more broadly speak about energy development, the discussion was highly focused on the role of fracking and shale gas exploration and development. An analysis of the roundtables by Bronson (2016) reveals that the discussions were organized to prioritize the opposing beliefs of the coalitions in the province regarding shale development: economic benefits and environmental risks of fracking. A subsequent analysis by Bronson and Beckley argues that: “the NBEI roundtable makes little to no epistemic space for the complex historical, social, political, and cultural issues related to fracking that have been raised by activists during informal political processes (such as demonstrations)” (2018, p.278). The government’s response to citizen lack of trust appeared to be grounded in using science as a way to overcome interests and politics. But the narrow focus on technical considerations and educating the lay public, the discussion left no space for the normative considerations very real to the issues. Paradoxically, the roundtable exercise itself

served to further mistrust amongst the public and government in the province (Bronson and Beckley, 2018).

By early September 2013, Radio-Canada had raised questions about the head of the NBEI's credentials. Upon further investigation, it became clear that Dr. LaPierre had falsified his credentials⁸² and on September 19, 2013, the professor resigned as the Chairman of the NBEI and apologized for misrepresenting his academic qualifications. Dr. LaPierre's falsification stirred further controversy and public outcry. The professor, already lacking legitimacy in the eyes of many citizens advocating against shale gas, served to further citizen mistrust (Interview 8, New Brunswick, 2018; Interview 9, New Brunswick, 2018; Interview 10, 2018; Interview 11, New Brunswick, 2018). He had not only insisted that shale gas development could proceed safely in line with the government's rhetoric, but was also appointed by the government as the head of the institute that he recommended be impartial and produce credible scientific research and advice for New Brunswickers. In response, the province maintained the former Chairman's "credentials controversy did not taint the work he did on the shale gas file. Science was never part of LaPierre's job on shale gas" (CBC, 2014b). This was inconsistent with the earlier strategy that the government had undertaken with Dr. LaPierre's appointment and the scientific expertise he brought to the role.

In the wake of this, public opposition to fracking escalated significantly in September 2013. Anti-shale advocates were coordinated in their efforts for public action. They ramped up their coordination efforts with local governments by engaging local government officials to oppose

⁸² He held a Doctorate in Education from Walden University instead of a Doctorate in Ecology from the University of Maine.

shale gas development in their jurisdictions. Based on experience and knowledge of the political system, the anti-shale coalition found ways to engage their municipal representatives. At the same time, the opposition Liberals ramped up their efforts to oppose shale development. They called on the Progressive Conservatives to impose a moratorium on hydraulic fracturing, citing environmental risks of the practice and the need for proper government oversight (in particular for enforcement) (Arif, 2011).

The next section will provide an overview of First Nations engagement in NB, and highlight the key events as well as key perspectives and policy beliefs from First Nations members.

6.2.2 Engagement with First Nations in New Brunswick

This dissertation includes a separate section dedicated to Indigenous engagement for two reasons: (1) Indigenous peoples have inherent rights to self-determination and decision-making capacity over their own future and traditional lands; and (2) due to their standing as rights holders, they are consulted and engaged through different approaches that are outlined by the Crown and provinces in Canada. While the case of NB is unique in the fact that the First Nations communities formed ties with the anti-shale coalition and coordinated with them around major activities, Indigenous peoples have inherent rights that within the historical Canadian context, require due consideration⁸³.

⁸³ In 2013, SWN's physical exploration sites were impacting Mi'kmaq and Maliseet peoples directly. It is to the best of this researcher's knowledge that leaders from different First Nations were engaged via the Assembly of First Nations Chiefs in New Brunswick (AFNCNB). The consultation process with First Nations is protected information, and therefore with limited access to company and provincial documentation, the researcher's insights are based on personal accounts in interviews of the controversial events in NB in addition to what is publicly available.

In New Brunswick, the Mi'kmaq, Maliseet and Passamaquoddy peoples signed Peace and Friendship Treaties with colonial officials prior to 1779. Indigenous communities have asserted these rights in terms of their practices (e.g., hunting) for the last two centuries. A major legal precedent in the maritime provinces was also set when the Supreme Court of Canada ruled that Peace and Friendship Treaties can be considered treaties within the meaning of section 88 of the *Indian Act* and, as such, they exempt their beneficiaries from the application of certain provincial laws (*Simon v. The Queen*, 1985).

The case study focused on in this research predominantly implicated the Mi'kmaq, specifically the Elsipogtog First Nation, who assert that their communities did not cede land through the Peace and Friendship Treaties signed by their ancestors (CNSC, 2022). As explained in a brief submitted to the Canadian Nuclear Safety Commission for a project at Point Lepreau by Kopit Lodge from the Elsipogtog First Nation:

“Between 1760-61, Elsipogtog’s ancestors entered into a Peace and Friendship Treaty with the British Crown. The Peace and Friendship Treaties contained no land cession provisions and did not surrender or extinguish Aboriginal rights or title. The Treaties were intended to ensure peace by protecting the Mi'kmaq traditional economy. This included the right to hunt, fish, trap and gather resources, as well as the right to trade and earn a livelihood in their territory. The Peace and Friendship Treaties were not land surrender treaties, and Canadian courts have confirmed this. Rather, the Peace and Friendship Treaties corroborated Mi'kmaq Rights and Title. Elsipogtog is a member of the Mi'kmaq Grand Council, a traditional form of governance, and is committed to

preserving and protecting the natural resources for present and future generations. Elsipogtog continues to hold Aboriginal Rights, Treaty Rights and Aboriginal Title over its lands and waters” (CNSC, 2022, p.2).

Also implicated in this case study research are the Maliseet peoples, who filed notice of court action to assert title to their lands (Wolastoq) by the St. John River. They include several major First Nations - Kingsclear, Woodstock, Madawaska, St. Mary’s, Oromocto and Tobique First Nations. Community leaders like Chief Allan Polchies Jr. of Sitansisk First Nation led the claim arguing, “We entered into treaties to have peace and friendship with the Crown, but we never agreed to give up our lands” (as quoted in CBC, 2020). Underpinning these claims are efforts by the communities to ensure their rights on traditional lands are upheld, and that the provincial and federal governments are upholding their Duty to Consult and Accommodate (a concept to be explained in detail below).

The following section will provide a brief overview of the recent context for engagement with Indigenous peoples in Canada, in particular highlighting the Government of Canada’s commitment to strengthen relationships. The section after that will provide an overview of the legal implications of the Duty to Consult and Accommodate, which had direct bearing on engagement in the time period of this case study. It outlines the provincial role and the approach taken in NB, as well as the associated developments surrounding First Nations consultation over shale gas⁸⁴. Finally, the section concludes with an overview of First Nations’ policy beliefs and

⁸⁴ Consistent with the rest of this study, the discussion does not evaluate the quality of engagement processes themselves.

demonstrates the alignment of Indigenous community objectives with the broader anti-shale coalition's objectives

Indigenous Engagement in the Canadian Context

Indigenous peoples are peoples indigenous to Canada, who inhabited the land prior to and at the time of European contact. They possess rights as the first peoples of Canada. In Canada, there is a distinct set of rights created under Section 35 of the *Constitution Act* (1982) that Indigenous people hold. Section 35 recognizes and affirms the existing Aboriginal⁸⁵ and treaty rights of the Aboriginal peoples of Canada. Importantly, while Section 35 recognizes these rights, it does not define them. Historically, Indigenous peoples have faced grave injustices and systemic racism in Canada. The Government of Canada recently aimed to strengthen and renew relationships with Indigenous peoples, and has emphasized reconciliation as the fundamental principle underlying Canada's relationship with Indigenous peoples.

In this vein, the Royal Commission on Aboriginal Peoples was a fundamental initiative established by the Government of Canada in 1991 to examine the relationship between 'Indigenous peoples in Canada, the Canadian government and Canadian society as a whole' and to propose solutions for improving the relationship and charting a path forward (Government of Canada, 2021). The commissioners not only hosted 178 days of public hearings and went to 96 communities, but they also consulted experts, commissioned research studies and reviewed previous reports and research. They provided 440 recommendations in a five-part in-depth report, in which they summarized their key argument as follows: "The main policy direction,

⁸⁵ This study only refers to the First Peoples of Canada as 'Aboriginal peoples' in the context of legal, historic or policy documents (e.g., the Canadian Constitution Act).

pursued for more than 150 years, first by colonial then by Canadian governments, has been wrong” (CIRNAC, 2022a). Their work provided a strong foundation for the renewal of Canada’s relationship with Indigenous peoples.

Further initiatives to strengthen Canada’s relationship with Indigenous peoples evolved only in the latter years of this case study (2015 onwards). While these changes were too new to influence the case, the recent landscape is worth noting due to the degree of change it portended. The Government of Canada launched an initiative in 2018 to advance 10 new principles to guide the Government’s commitment to renewed relationships with Indigenous peoples. The federal government stated that it recognized that:

1. “All relations with Indigenous peoples need to be based on the recognition and implementation of their right to self-determination, including the inherent right of self-government.
2. Reconciliation is a fundamental purpose of section 35 of the *Constitution Act, 1982*.
3. The honour of the Crown guides the conduct of the Crown in all of its dealings with Indigenous peoples.
4. Indigenous self-government is part of Canada’s evolving system of cooperative federalism and distinct orders of government.
5. Treaties, agreements, and other constructive arrangements between Indigenous peoples and the Crown have been and are intended to be acts of reconciliation based on mutual recognition and respect.
6. Meaningful engagement with Indigenous peoples aims to secure their free, prior, and informed consent when Canada proposes to take actions which impact them and their rights on their lands, territories, and resources.
7. Respecting and implementing rights is essential and any infringement of section 35 rights must by law meet a high threshold of justification which

includes Indigenous perspectives and satisfies the Crown's fiduciary obligations.

8. Reconciliation and self-government require a renewed fiscal relationship, developed in collaboration with Indigenous nations, that promotes a mutually supportive climate for economic partnership and resource development.
9. Reconciliation is an ongoing process that occurs in the context of evolving Indigenous-Crown relationships.
10. A distinctions-based approach is needed to ensure that the unique rights, interests and circumstances of the First Nations, the Métis Nation and Inuit are acknowledged, affirmed, and implemented”.

(Department of Justice Canada, 2022a, p1)

As the legal, social and political landscape in Canada has evolved, there are several developments targeted at creating change. A major development came about in 2006 through the Indian Residential Schools Settlement Agreement, an agreement that required the Government of Canada to establish a Truth and Reconciliation Commission under a specific mandate and guiding principles. The foundation of the Truth and Reconciliation Commission of Canada's (TRCC) goals was to contribute to healing and reconciliation. As the Commission itself stated, “reconciliation requires that a new vision, based on a commitment to mutual respect, be developed” (CIRNAC, 2022b). As part of this process, the Commission travelled for 6 years and heard from over 6,500 witnesses and hosted national events around the country to raise awareness of the injustices and historical legacy of residential schools within the period between 2007 and 2015 (CIRNAC, 2022b). The TRCC's report made 94 Calls to Action to advance reconciliation in Canada in 2015, and the federal government committed to implement some of

the recommendations including by implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (CIRNAC, 2022b).

Bill C-15, an Act respecting the United Nations Declaration on the Rights of Indigenous Peoples received royal assent in June 2021. The legislation provides that “the Government of Canada must take all measures necessary to ensure that the laws of Canada are consistent with UNDRIP, and must prepare and implement an action plan to achieve the objectives of the Declaration” (United Nations Declaration on the Right of Indigenous Peoples, 2021). Since the bill became law, the Government of Canada has launched a national engagement initiative with First Nations, Inuit and Métis to co-develop an action plan to be tabled no later than June 2023 (Department of Justice Canada, 2022b).

In terms of implications for the natural resource sector, the implementation of UNDRIP is meant to ensure ‘positive change’ involving Indigenous peoples as full partners in the energy economy and engaged fundamentally in decision-making where resource development has consequences for their communities (Department of Justice Canada, 2022c). The Declaration supports Indigenous rights as affirmed in Section 35 of the Constitution Act, 1982. Justice Canada outlines this by underlining the Government’s continued responsibility: “The Government of Canada will continue to have a constitutional duty to consult and accommodate Indigenous groups when it considers measures that might adversely impact potential or established Aboriginal or Treaty rights. This legislation supports the Government’s ongoing implementation of its constitutional duty and provides a legislative framework to advance the Government’s implementation of the Declaration in Canada, in partnership with Indigenous peoples” (Department of Justice Canada, 2022c).

Under the 10 principles adopted by the Government of Canada above, the federal government “has taken a range of measures that contribute to renewed, respectful Crown-Indigenous relationships that align with both section 35 of our Constitution and the Declaration” (CIRNAC, 2022c). In terms of the natural resource sector, this includes the *Impact Assessment Act*, a piece of federal legislation that references the Declaration. The key influence under the Impact Assessment Act is to meaningfully engage and involve Indigenous peoples in different phases of federal assessments⁸⁶. Another fundamental driver in the natural resource sector is meaningful engagement aimed at securing Indigenous peoples’ Free, Prior, and Informed Consent (FPIC) when energy projects are proposed that could impact their rights and their lands. Within this context the Government of Canada also recently engaged on the renewal of Comprehensive Land Claims Policy towards a framework for addressing Section 35 Aboriginal Rights in the case of modern treaties⁸⁷.

Duty to Consult and Accommodate

Section 35(1) of the *Constitution Act*, 1982 recognizes the responsibility of governments to ensure that Aboriginal people are properly consulted about matters that may affect their Aboriginal or treaty rights and is known as the Duty to Consult and Accommodate (Aboriginal Affairs Secretariat, 2011). As mentioned above, the Constitution does not, however, define such rights. Courts have therefore played an important role in defining the scope and substance of

⁸⁶ In cases where the Impact Assessment Act is required.

⁸⁷ Modern treaties are nation-to-nation relationships between Indigenous peoples and the provincial or territorial and federal governments. 26 moderns treaties have been signed since 1975 which address major issues such as ownership, and land management (CIRNAC, 2022d).

Indigenous rights in Canada, including rights to land and participation in decision-making. The Supreme Court of Canada through several rulings (*Haida Nation v. British Columbia*, 2004); (*Tsilhqot'in Nation v. British Columbia*, 2014); (*Mikisew Cree First Nation v. Canada (Governor General in Council)*, 2018) has established a Crown obligation to consult and, where necessary, accommodate Indigenous peoples before making a decision that could unduly affect the exercise of their rights recognized in the Canadian Constitution. As Coates clarifies:

“As a result of Indigenous legal actions and the resulting Supreme Court of Canada decisions, Indigenous people secured the power necessary to negotiate better financial arrangements in the resource sector [...]. The legal decisions clarified, without providing a great deal of precision, the rights of Indigenous people to be consulted on developments on their traditional lands and to be accommodated for any socio-economic dislocations associated with resource activity. As is the norm with such judgments, there was limited specificity in several key areas, such as the appropriate level and nature of consultation, the standard for community accommodations, expectations of financial returns, and the best structure for formal agreements between Indigenous governments, companies, and governments.” (2020, p.268)

When the impact on Aboriginal rights of proposed developments is major, the Crown must “consult with the objective of obtaining Indigenous consent before proceeding with a decision” (Papillon & Rodon, 2019, p.321). The Crown has a procedural duty to consult even in cases where Aboriginal title is unproven, and where it *is* proven, should aim to attain consent of the titleholders. As Papillon and Rodon (2019) note, this duty does not inherently recognize the

distinctive decision-making rights for Indigenous peoples or their autonomy on the land, but is primarily a ‘participatory right’.

The Duty to Consult and Accommodate exists alongside the Government’s commitments to implement UNDRIP and FPIC. As highlighted in the beginning of this section, the intent with FPIC is to ensure meaningful engagement attains the free, prior, and informed consent of Indigenous communities. However, in the case of the application of the Crown’s Duty to Consult and Accommodate, it has been controversial and applied differently across cases. Additionally, the objective of achieving FPIC has proven to be more aspirational than obligatory (Papillon and Rodon, 2019). As a result, “Indigenous peoples are regularly challenging existing consultation processes as inadequate and inconsistent with both Canada’s constitutional obligations and its international commitments under UNDRIP” (Papillon & Rodon, 2019, p.323).

Provincial policy

In 2011, the *Government of New Brunswick Duty to Consult Policy* was implemented with involvement of the AFNCNB (Aboriginal Affairs Secretariat, 2011). The policy pertains to government decisions that have the potential to adversely affect the Aboriginal use of Crown land and resources for traditional purposes. Under the guiding principles of integrity and good faith, respect, reciprocal responsibility, transparency and accountability, as outlined by the Government of New Brunswick, the Duty can be triggered by an action or decision that impacts Aboriginal and treaty rights pertaining to (i) regulations, policies, plans and procedures (ii)

resource management (iii) Crown land management, and (iv) land use and environmental regulation (Aboriginal Affairs Secretariat, 2011). Specifically:

“The policy ensures that the government fulfills its constitutional obligations by providing guidance to provincial regulators, industry proponents and the First Nations on whether Crown decisions such as regulatory approvals will negatively impact the Aboriginal use of Crown land and resources for traditional purposes and, thereby, infringe upon Aboriginal and treaty rights. The consultation process also provides opportunities for First Nations to identify issues or concerns related to the proposed activity” (GNB, 2013e).

Through the duty to consult, the Government of New Brunswick delegates certain procedural features of consultation to industry proponents in an effort to reconcile project development objectives with First Nations’ Aboriginal and treaty rights. As explained further below, in the case of hydraulic fracturing, procedural elements of exploration and development work were delegated to the proponent. This included notifying First Nations of the activity, obtaining input on potential adverse effects and developing accommodation measures.

Consultation: Application and delegation

For the exploratory and proposed drilling work by companies, the application of the Duty to Consult policy differs across the stages of work. In 2009, the Province of New Brunswick issued the largest licences to search to SWN Resources Canada under the *License to Search and Lease Regulation* in the *Oil and Natural Gas Act*. Licenses to search are used to examine the geology

and determine hydrocarbon resources for potential commercial production. The process to convert search licenses into leases for resource production is done through a formal regulatory process (the phased EIA approach outlined in Chapter 5).

Notably, in this case the government had maintained in early 2011 that initial exploratory work did not trigger the duty to consult (Howe, 2015). The government noted that: “The seismic program proposed by SWN Resources Canada in the Kent County area was determined by the Crown to have a negligible risk of adverse impact on Aboriginal land use or treaty rights. The Crown also recommended that SWN notify the adjacent First Nations communities about the seismic program, compile information on the traditional use of the proposed seismic route, and discuss related issues and concerns” (GNB, 2013e). However, the regulatory permitting to convert a license to search to one for resource exploitation would require consultation. To reinforce this publicly, the Minister of Energy and Mines stated: “As we have said all along, if oil and gas reserves are found through the exploration process, the government and proponents would have to enter into further consultations with First Nations to ensure that the environment was protected and that Aboriginal peoples benefitted from oil and gas development, in addition to abiding by regulations such as the environmental assessment and permitting processes required by the province before any drilling or extraction was to take place” (GNB, 2013e).

SWN Resources Canada consulted with First Nations in the exploration phase of their work in 2012. The consultation took place with the AFNCNB, and included the communities of Elsipogtog First Nation, Bouctouche First Nation, Eel Ground First Nation, Eel River First Nation, Fort Folly First Nation, Indian Island First Nation, Pabineau First Nation and Metepenagiag First Nation. The full list of consultation activities is listed in Table 6 below:

Table 6: 2012 – 2013 Indigenous consultation and engagement activities⁸⁸

May 2012	SWN hosted community meetings at Elsipogtog First Nation
June 2012	SWN hosted community meetings at Indian Island First Nation
July 2012	SWN hosted Elder Workshops at Tobique First Nation
August 2012	Provincial government oil and gas presentation to tripartite committee representing federal and provincial governments, as well as the AFNCNB
September 2012	SWN conducted Mi'kmaq Elder Workshop at Elsipogtog First Nation
October 2012	Chiefs' consultation committee visited SWN operations in Arkansas
March 2013	Provincial government issued Crown determination on Duty to Consult with First Nations
April 2013	SWN provided details of seismic program to First Nations in project area. SWN invited First Nations to demonstration of seismic equipment and process.
June 2013	SWN met with First Nations to discuss traditional knowledge and environmental monitoring
July 2013	Elder Information Session (23 elders representing First Nations in the AFNCNB)
August 2013	SWN invited the chief and council of Elsipogtog First Nations to visit Arkansas
September 2013	Presentation to New Brunswick First Nations by Indian Resource Council (the Council represents First Nations involved in oil and gas production)
Ongoing	SWN meetings with chief and/or council of First Nations in project area. Provincial government meetings with chief and/or council of First Nations in project area. Provincial government meetings with AFNCNB.

Adapted from GNB, 2013e.

The list of activities was published in a news release from the Government of New Brunswick in light of public questioning over whether consultation requirements were being fulfilled, and over the government's role in the process. While limited information is in the public domain about these activities, the list above suggests engagement took place mainly with leadership and elders

⁸⁸ As noted, the consultation process with Indigenous peoples is protected, therefore there is little publically available information regarding discussions with First Nations in NB on shale development. This table is adapted from an online news release from the provincial government to highlight the key events.

in impacted communities, with community meetings taking place only at the start of the process. Most of the process was focused on providing information, ensuring first hand experience with operations (e.g., the Arkansas trips) and workshops to discuss seismic activities and routes to collect information on traditional use of the land as well as any issues or concerns with the proposed exploratory activity (GNB, 2013e). The AFNCNB also received funding from SWN for two years to undertake environmental monitoring for SWN as they conducted their exploratory work (Barrera, 2013a).

SWN engaged mainly leadership and elders who shared information with their communities and the focus of engagement was on exploration activity only. This raised a lot of questions about production, notably the process of hydraulic fracturing for shale gas, and the potential impacts this could have on traditional lands and livelihoods. While the consultation approach aligned with the regulatory approach at the time (whereby more consultation would be needed only if shale development proceeded), it created a lot of uncertainty for First Nations about what shale gas development would mean for their communities and environment. As a First Nations Representative stated: “At the time when the exploration was happening, the company SWN did engage in consultation with the Indigenous groups here as a collective through the AFNCNB. And through that came some answers but not a whole lot of answers. There was a lot of ambiguity in terms of what process would be used because it’s not just cut and dry that we’re going to do hydraulic fracturing. So a lot of questions came up like what is the solvent going to be? what are you going to do with the wastewater? That was a huge issue, because we have no treatment plants equipped to handle that much contaminated water in that form. Those are questions that came up” (Interview 4, Telephone, 2018).

Throughout 2011 and 2012, many community members from impacted First Nations began to organize and engage with other communities in opposition to shale gas development. The anti-shale coalition that emerged was unique, notably since “for the first time in the diverse histories of colonization, Native, Acadian, and Anglophone groups united to find common cause across ethnic, linguistic, and ideological lines” in NB (Simon, 2016, p.95). They participated in the activities of the anti-shale gas coalition, including rallies, petitions, participating in engagement activities led by the province, and they organized activity on and around their reserves (e.g., establishing blockades and camps). Activities ramped up in 2013 and became the focal point of discussions and engagement with the provincial government as controversy escalated and events in Kent County made national headlines as discussed in this Chapter.

Opposition and controversy

As mentioned, the provincial government deemed seismic testing a non-invasive activity and advised the proponent (SWN Resources Canada) to provide information to First Nations implicated by exploration. Government engagement with First Nations directly was limited up until 2013. While First Nations community members did participate in some engagement activities that the province had established around shale development, the proponent performed the main consultative duties. It was not until an escalation of civil action in 2013 in Kent County that more formal discussions were launched between First Nations leaders and the premier.

Feeling overlooked by the proponent and government, community members aimed to make their voices heard. During the summer of 2013, they organized camps and protests along major SWN

truck transportation routes. Over this time, tensions escalated and there were several arrests of Indigenous advocates and in some cases other community members. At the end of September 2013, First Nations advocates along with other community groups blockaded Route 134. In response, the Royal Canadian Mounted Police (RCMP) tried to stop protesters on the route as well as those who had blocked the entrance to a compound where SWN's seismic testing trucks were stored. On October 1, Elsipogtog Chief Aaron Sock delivered an eviction notice to SWN Resources. Additionally, "His band and his band council planned to pass a resolution preventing the government and shale gas companies from continuing their work by reclaiming all unoccupied reserve land and giving it back to First Nations" (CBC, 2013d). On October 3, in light of ongoing civil action and at the request of SWN Resources, a New Brunswick judge issued an injunction for protesters to remove their blockades and allow SWN access to their site to continue their testing operations. The RCMP ultimately did not enforce the injunction since the blockade prompted Premier Alward to meet with Elsipogtog Chief Aaron Sock.

The Intention of the meeting was to develop cooperation between the Elsipogtog First Nation and the government on next steps. However, the meeting turned out to be quite controversial since news outlets reported that instead of discussing SWN's exit from First Nations lands, the leaders appeared to discuss the continuation of exploratory work (Barrerra, 2013b). On October 12 a judge extended the injunction to October 21, 2013. At the same time, SWN was scheduled to be in court on October 18 for another hearing regarding further extensions. Additionally, a Working Group was struck between representatives of the government and the Elsipogtog First Nation. On October 17, the RCMP was present to enforce the injunction against the blockade near Route 134. This led to clashes between the RCMP, protestors and many people from the Elsipogtog community in Rexton and resulted in 40 arrests that day (CBC, 2013d). The next day,

on October 18, Premier Alward and Chief Aaron Sock agreed to a ‘cooling-off’ period with the AFNCB citing the need to go back to the table and addressing their concerns with shale development (CBC, 2013e; 2013f).

The events of October 17 are highly contested; many interview participants noted that what started as a peaceful protest quickly turned violent through factors they couldn’t explain. Six police vehicles and an unmarked van were burned and weapons were reportedly on site. Ultimately, it is not clear who or what was behind the violence of the day but it was a pivotal moment in the opposition to shale gas development, and a deeply upsetting experience for many people involved.

On October 21, 2013, the judge did not extend SWN Resources’ application for an indefinite injunction to stop protestors from blocking and intervening with their activities. Following this, on November 14, 2013, the Elsipogtog First Nation applied for an injunction to stop SWN Resources’ exploratory activities. They cited improper consultation with the community and outside forces creating the risk of violent confrontations (CBC, 2013g). The government and company maintained that the impact of seismic testing was very low and should development proceed for shale gas, a ‘higher standard of consultation’ would follow (CBC, 2013g). For the community, however, consultation was the responsibility of the Crown to fulfill and should exploratory work prove successful it would lead to development. As such, the application stated, “the licenses and permits issued to the Respondent SWN are part of a regulatory chain that leads to a lease and permits for drilling and hydraulic fracturing to extract shale gas” (Elsipogtog First Nation, 2013).

On November 18, the judge rejected Elsipogtog’s application based on no evidence of harm. SWN applied for a permanent injunction on November 21. This time, the injunction was granted. The company concluded the seismic testing and withdrew from the area on December 6, 2013. The opposition to fracking on and in close proximity to First Nations’ lands in 2013 was a pivotal moment for Indigenous peoples in the province. Empowered by community relations and their conviction to protect the land for future generations, they established a formal consultative body called Kopit Lodge. As elder Kenneth Francis from Elsipogtog noted: “After the blockade — the feeling of empowerment that we got from it, the co-operation we were getting from our allies, is that this can be done, that we can do this. You say, ‘Oh my goodness we can do this.’” – (as quoted in CBC, 2017).

In addition, the Elsipogtog community established a fund to retain lawyers to support their cause. In November 2016 they filed for Aboriginal title for approximately one third of New Brunswick, in an area that encompassed both private and public lands. The claim was filed on behalf of all Mi’kmaq in the province, to give recognition legally to the Mi’kmaq peoples’ right to decide what will occur on the land and the right to benefit from it. The process is lengthy and expensive, however Kopit Lodge has been active in raising funds and gathering support in NB – “Kopit Lodge has been told the legal challenge could cost \$8 million, which it is raising in a variety of ways with help from supporters such as the New Brunswick Anti-Shale Gas Alliance” (CBC, 2017).

After the events of 2013, the Civilian Review and Complaints Commission for the RCMP (an agency of the federal government independent of the RCMP) received many public complaints regarding the RCMP’s response to protests against shale gas development in Kent County. Due

to the number of complaints, the Commission conducted an investigation in the public interest (CRCC, 2022). The Commission concluded that: “most of the arrests, and use of force incidents, were in fact reasonable and justified under the circumstances. There was also significant concern expressed by community members about the overall role played by the RCMP in the context of the protests, but the Commission found that the RCMP members involved exercised their law enforcement role appropriately” (CRCC, 2022). The Commission also made recommendations to improve the RCMP’s policing of protests as well as knowledge and sensitivity of Indigenous cultural practices. While the RCMP agreed with the recommendation for sensitivity training, they rejected the recommendations about policing protests (including intelligence gathering).

Policy Beliefs

As noted above, consultation initially proceeded with the AFNCNB and community elders. At the outset, the AFNCNB called on the provincial government and proponent to discuss resource development opportunities in their jurisdictions. They emphasized that they would be looking to work only with companies that were responsible and open to creative solutions and revenue sharing. The objective was to ensure that First Nations peoples could benefit from development and alleviate poverty in their communities. The Chiefs noted, “We will protect our rights and the environment as we move ahead but we must help our people immediately. We cannot agree with those who want our people to remain in poverty or those from outside our communities who do not have to live with the consequences of their rhetoric” (CBC, 2013h).

Indigenous peoples in Canada already have a deep distrust in public authorities as a result of the grave injustices and systemic racism they have faced, and with the events in NB involving the

province's consultation duties, trust in public authorities was strained even further. On the question of whether First Nations' trusted the government, one interviewee noted: "No, not at all. I think that they [the government] really were standing firm on the fact that this is still exploration and exploration really had no impact (...) and so I think they [First Nations community members] were also disappointed with the way that the province handled it by not sharing more information with the Indigenous groups and the way that it [consultation] was put off" (Interview 4, Telephone, 2018).

However, this initial position eventually changed as events and controversy escalated between June and October of 2013. The leadership argued that they required time to understand how potential shale development could impact their communities and rights, and emphasized that the communities they represent "are unconvinced that the industry is actually safe" (CBC, 2013e). In the week after October 17, Grand Chief Derek Nepinak of the Assembly of Manitoba Chiefs arrived in New Brunswick to demonstrate solidarity with the Elsipogtog community and protesters. "We recognize that there are a lot of consistencies in a lot of what is happening across the land with extractive industry and corporate interests versus Indigenous rights and our fight to preserve our ecosystems. We have a commitment and responsibility to the land and people need to respect that" (as quoted in Bissett, 2013).

Throughout this period the concern around impacts of fracking on water became central. As one First Nations representative noted: "With the possible threat to the groundwater, the communities demanded implementing the precautionary principle. So don't do anything until we have some answers. There was very, very strong opposition to the fracking and of course, the company was saying 'we're not fracking we're just doing exploration'" (Interview 4).

Community opposition grew and as noted, First Nations communities potentially impacted by development were not convinced that fracking was safe. A predominant concern was the environment: “For Indigenous people, especially for me, New Brunswick is my home territory and one of the things that came up in the fracking conversation is that there is nowhere else to go. I have always maintained that for Aboriginal people it [perspective on the environment] is unique – we look at the environment as being the only way we can survive as human beings and we have always protected that. We have always protected the environment not just for us but for our children and grandchildren” (Interview 10, New Brunswick, 2018).

Chief Aaron Sock of the Elsipogtog First Nation became heavily engaged in voicing his community’s concerns, and issued a notice of eviction to SWN. “I want a moratorium on fracking in New Brunswick,” he said. “Until there is such a time that they can come up with a safer solution on how to extract shale gas. Right now, I am here for our children and their children’s children. Right now, nobody can guarantee a safe and effective way of extracting shale gas without harm to the environment. No more negotiations with anybody” (as quoted in Howe, 2013).

Advocacy for a moratorium was aligned with the anti-shale coalition’s approach in 2013. For First Nations people, in addition to protecting their lands, it was about protecting their rights. As one First Nations representative noted: “The people in the communities are quite aware of how powerful the Peace and Friendship treaties are here in the Maritimes and so they’re going to exercise their right and they’re going to, they’re not going to hold back and we’re going to tell

the public and the government what they need to hear. This is unceded territory and without our consent, it [shale gas development] will not happen” (Interview 4, Telephone, 2018).

Civil Action

The year 2013 saw the expansion of the movement to oppose shale gas in New Brunswick. In particular, the anti-shale gas alliance organized protests and rallies across the province. As noted above, the coalition was very active at the community level and through their grassroots engagement expanded their network broadly in the province, expanded to include many other organizations. They held weekly meetings to discuss their strategies to oppose shale gas development in the province. They were active and vocal in the media, doing interviews and speaking out against fracking in New Brunswick through radio and television (Dudziak and D’Arcy, 2017). They also wrote open letters for print in media outlets and consistently wrote to Ministers and the Premier’s office to highlight their concerns with fracking and the process of engaging the community to develop shale resources (Dudziak and D’Arcy, 2017). They also shared a compendium of research by the Concerned Health Professionals of New York (NBEN, 2021).

On the whole, members continued their work to actively link members to other sources of information (e.g., organizations like the report from Concerned Health New York (2021) in the US mentioned above) to legitimate their claims (NBEN, 2021). At home, several organizations supported their work, including the NB College of Family Physicians, Medical Doctors of the Moncton and George Dumont Hospitals, the NB Nurses Union, and the the NB Lung Association (NBEN, 2021). Anti-shale coalition members coordinated their participation in

different public engagement initiatives including the listening tour undertaken by Dr. LaPierre and the engagement undertaken by Dr. Clearly, to ensure representation and ask questions to get information. At the municipal level, as noted above, they engaged mayors and council members to oppose exploration and development activities in their jurisdictions.

Anti-shale coalition members set up camps on major transportation routes, notably highways 126 and 134, where people started gathering and setting up camps on location in June. These were planned as peaceful protests on the routes of the SWN thumper trucks (large vehicles with a ground impact system for seismic testing of the geology for shale), however, protest activities escalated. One blockade turned violent in September and resulted in images in national and global newspapers of RCMP cars having been set on fire. The clashes between protesters and police officers lead to a series of arrests and the events of the day are contested with no one view on how events unfolded. What did build is further mistrust of citizens towards public authorities.

As Fast (2017) argues:

“The confrontation tested the limits of government’s monopoly authority on the use of force. Trust was eroded among some community members who feel the RCMP acted badly. Some seriously believe the burning of police cars seen on national news was set up by police.”.

The violence had its impact on the Elsipogtog community in particular as discussed above.

By engagement standards outlined under the IAP2 spectrum, the government’s engagement initiatives during this period can be considered as engaging the public at the ‘inform’ and

‘consult’ level. With different mechanisms aimed at providing information and answering questions, the province tried to provide an overview of shale development in different ways: via informational pamphlets, town halls and engagement with local government officials. The government also developed the detailed rules for regulation and a proposed royalty structure that were provided to the public for feedback. The NBEI roundtable series wasn’t truly directed at working with the public to involve them in decision-making. Rather, these exercises consulted people in a limited sense and it is not clear how public input influenced decisions made during this period.

6.2.3 Policy beliefs

Following the above overview of coalitional activity and the role of Indigenous engagement, this next section will provide an overview of the key arguments for and against shale development on a coalitional basis in the period between 2012 and 2014. It will also examine the claims in the key categories to better understand the nature of learning, including information, uncertainty, and public participation.

In terms of claims regarding information, the pro-development coalition’s claims peaked in 2013 and 2014 particularly around the belief that shale development could be done safely as demonstrated in Figure 13 in the previous section. As one industry representative put it: “Everything that I had learned was it is a very safe procedure when done correctly. There are all kinds of safeguards that need to be put in place and responsible operators can conduct it in a responsible way” (Interview 13, New Brunswick, 2018). To support this, the pro-development coalition deferred to expert authority to achieve their policy goals. The coalition focused on the

role of regulation as the basis of engagement, which meant that for them the exercise centered on technical concerns. In the face of rising opposition to the practice of hydraulic fracturing, the pro-development coalition's strategy was to focus on the role of expertise as the best method to achieve the development and advancement of policy decisions to govern fracking in the province (CBC, 2013a).

The difficulty with this approach is that the engagement was focused on measures for which the anti-coalition deemed the evidence uncertain. A strong narrative emerged from the anti-fracking coalition that there just wasn't enough information (see Figure 14). As one industry representative remarked, "Looking back over the course of four years the number one thing that kept coming from the public at large was 'we don't have enough information'. Any of the surveys that were done a lot of information or a lot of answers were centered around 'we don't have enough information to make a decision'" (Interview 6, New Brunswick, 2018).

Normatively, the anti-shale coalition argued that measuring the risk did not account for the social and environmental concerns. One interviewee noted, "Scientists say that's the quantity of the risk, but you look at the quality of the risk and you say, 'if something did happen, what are the consequences?' Well they're massive so the quality of the risk is significant and you need to think about that - so, so you can say 'well that's not worth it'" (Interview 3, New Brunswick, 2018). The reliance on expertise left the pro-development coalition's beliefs prone to attack from the anti-coalition due to what appeared to them to be uncertain negative impacts on the environment from the practice. On a secondary level, the pro-coalition's beliefs were further attacked when they pinned their deferral to expert authority on a level of enforcement and oversight that the anti-coalition had the lived experience to undermine – by questioning the

legitimacy of the normative and empirical core beliefs that the pro-coalition held. Furthermore, as one government official noted, “I mean people are very attached to their communities and their landscape and that is true in New Brunswick a lot, and then they worry that that would change. It really impacted people and I think that was a whole area that was really underestimated” (Interview 7, New Brunswick, 2018).

The anti-shale coalition argued that there was not enough information about fracking for such large-scale shale gas development to proceed in the province. As Green Party Leader David Coon noted, “The government of New Brunswick has failed to provide the public with peer-reviewed scientific evidence of the harmful effects of shale gas fracking and shale gas development. The people are not getting in the information that they need” (NBASGA, 2014a). The coalition was able to organize a sustained attack on the notion of the safety of fracking operations with regulation by sourcing information that questioned the impacts of fracking and posited negative consequences, particularly on groundwater and human health.

In terms of claims regarding uncertainty, they were intertwined with those about information, as demonstrated above. Ultimately, what concerned the anti-shale coalition was that fracking seemed unsafe, and the uncertainty around the practice meant they had questions that they felt the pro-development coalition had not addressed. One Indigenous scholar stated that: “It's not just cut and dry and we're going to do hydraulic fracturing and then you know, a lot of questions like ‘what is the solvent going to be?’ ‘what are you going to do with the wastewater?’ That was a huge issue because we have no treatment plans equipped to handle that much contaminated water in that form. Those are questions that came up” (Interview 4, New Brunswick, 2018). But the pro-development coalition maintained that risks were manageable. As one industry

representative noted: “Fracking - it is not all that particularly unique. The concerns that people have with fracking are treatable. Wastewater is treated and disposed of all the time and the volumes we would be talking about would be relatively insignificant to the overall volumes that are already being treated and disposed of in New Brunswick” (Interview 14, Telephone, 2018). The Maritimes Energy Association continued to advance the economic opportunity associated with shale gas development, and that it can be done safely. As noted by the Executive Director, Barbara Pike: “Energy drives the economy. Energy is economic development. Energy can transform our region. But it is the mix of energy sources that will be our success. Natural gas is an important part of that mix, and it is proven daily in this country that it can be developed safely” (Pike, 2012).

Nonetheless, the anti-shale coalition was concerned with protection and oversight, and this was based on their knowledge that the resources within government to regulate and enforce did not exist. This is a practical dimension of the understanding of problems involving risk. One interviewee noted, “People never saw their government actually respond to enforce laws that are out there to protect our waterways, to protect our air, to protect our land. Most people see from that perspective the government allowing itself to be captured by significant/big economic interests and here is another one coming in” (Interview 3, New Brunswick, 2018). This degree of public concern for water is supported by the NB Ombudsman that critiqued the provincial government in 2014 for its failure to implement legislation to classify waterways and initiate steps for protection (Office of the Ombudsman, 2014).

Additionally, according to polling results in Kent County, NB, approximately 59% of residents aware of shale gas exploration said their confidence was somewhat low or low in New

Brunswick regulators to enforce environmental regulations (Nanos, 2016). This issue became a part of the debate about hydraulic fracturing, and the seeming lack of oversight on water resources caused concerns for many groups. This concern over provincial public service capacity was also reflected in the interviews. As one government official noted, “The ability of the government to formulate well thought through policies and approaches and you know planning and regulation is very limited and I think they thought they could do better or hoped they could do better” (Interview 7, New Brunswick, 2018). An academic’s interviewee stated that, “We need to rebuild policy capacity both at the strategic level and in departments [but] not all from within. This time around, rebuilding the policy departments from the 60s and 70s we need an ecosystem – universities need to be engaged, we need think tanks and some other analysis, [but] not without coordination from government” (Interview 12, New Brunswick, 2018).

The claims around risk also brought to the front some of the issues associated with the distribution of risk and benefit. This is a dynamic inherent in many resource development debates, and the case of fracking in NB is no exception. In particular as noted earlier, the governance landscape in the province meant that municipal and local governments had limited tools and resources at their disposal, but they had to deal with many of the impacts of fracking. As one industry representative asserted, “It is (the distribution of benefits) part of a real discussion even with municipal governments who would say that they would take on all the risk and the province would reap all the benefits” (Interview 13, New Brunswick, 2018). The role of LSDs and RSCs in joining the call to action for a moratorium created significant momentum in 2013 for the anti-shale coalition. In particular, Association francophone des municipalités du Nouveau-Brunswick (AFMNB) and the RSC #6 (Kent Regional Service Commission) adopted motions requesting that the provincial government adopt a moratorium for shale gas predicated

on the need for the social acceptability of municipalities and LSDs (RSC6, 2013). As one local government official noted, “Since royalties go to the province, and there are no guarantees [for local governments] the risk was too high” (Interview 9, New Brunswick, 2018). They were worried about how wastewater would be managed in the absence of clarity on this work and the lack of details around the comprehensive Water Management Strategy that was promised. In particular, the motion adopted by RSC #6 specified “no precise indication was provided to determine what are the water supply demand for businesses that will exploit shale gas and also the mediums of the waste water treatment” noting that land use planning is under their purview (RSC6, 2013, p.6). This dynamic was especially relevant when it came to wastewater management and treatment, where the mandate was with local governments that did not have the capacity to oversee the scale of shale development.

The anti-shale coalition advanced the argument that the province should invest in alternative sustainable energy resources throughout 2013, as opposed to new fossil fuel investments. Their call for a moratorium on hydraulic fracturing gained prominence and consolidated in 2014. Linked to the claims about public engagement, the anti-shale coalition felt that the democratic process of engagement on shale was not genuine, and that it was conducted with the aim of ensuring shale development could proceed (NBEN, 2012; 2022). The interviews revealed that this furthered mistrust throughout the engagement process (Interview 6, New Brunswick, 2018; Interview 7, New Brunswick, 2018; Interview 8, New Brunswick, 2018; Interview 9, New Brunswick, 2018; Interview 11, New Brunswick, 2018). The anti-shale coalition referred to the instances of Dr. LaPierre’s development of a report with recommendations to proceed with the industry’s development, when they had voiced quite strongly that they did not feel there was enough information to make that decision (NBEN, 2012).

Additionally, the initiative to withhold the CMOH's report led to questions about the legitimacy of public authorities. The *Path Forward* report and the subsequent falsification of Dr. La Pierre's credentials hurt the credibility of the Engagement Tour and the very legitimacy of the evidence base that the NBEI was established to build. The work of the NBEI itself also created mistrust as argued earlier in the chapter. As one environmental advocate noted, "They sent a guy around the province and he heard what people had to say and overwhelmingly people said 'no' but he made recommendations to go ahead [with fracking]. A few years later it was revealed that he is a phony. And so I mean that kind of a thing where government isn't even respecting the process and engaging in deceit [...] that is when the trust is really broken because it became apparent they have no interest in trying to get some sort of measure of approval or listen to what was going on" (Interview 11, New Brunswick, 2018).

On the question of trust another interviewee noted: "Absolutely not. Zero (based on) experience. [People] never saw their government actually respond to enforce laws that are out there to protect our waterways, you know, to protect our air, to protect our land. Most people see from that perspective the government allowing itself to be captured by significant big economic interests and here's another big one coming in" (Interview 3, New Brunswick, 2018). The recognition of mistrust became apparent for the pro-development coalition too. As one industry advocate noted, "People have started to mistrust the process itself. Public consultation has ceased to be about the mechanism anymore. People don't trust it" (Interview 6, New Brunswick, 2018).

In conclusion, the second phase of engagement ramped up the use of a variety of mechanisms to consult citizens. However, this time they were more focused on shale development specifically with (a) a regulatory agenda to advance development initially, and then (b) a stronger evidence base to advance development. The engagement had a very narrow focus on the technical aspects associated with the decision to proceed with shale development, and left no room for the consideration of some of the anti-shale coalition's broader concerns. Without room to integrate these considerations and address the issues that people were raising, the engagement process fostered mistrust in public authorities. The events between 2012-2014 clearly had negative impacts on public trust, and the anti-coalition utilized the opportunity to call into question the beliefs of the pro-development coalition as they faced a crisis of legitimacy.

6.3 Period 2014 – 2017: Moratorium and the commission on hydraulic fracturing

This final section of the chapter will cover the events of 2014 to 2017. The key events in this time frame include the election of a new Liberal government into power in September 2014 on the promise of a moratorium on hydraulic fracturing (CBC, 2014c). The new government kept this promise and placed a moratorium on the practice, and to accompany this key policy change they outlined five conditions to be met if fracking was to ever proceed in the province. They also appointed a provincial commission, the New Brunswick Commission on Hydraulic Fracturing (NBCHF), to engage the public broadly. The NBCHF, which will be covered in more detail in this section, produced a final report with some fundamental considerations for government in the spring of 2016. Ultimately, it is not clear the extent to which the government made progress on the five conditions it imposed on fracking, but what is clear, is that the moratorium was extended indefinitely in 2018. Thus, maintaining the change in policy in 2014 – which was the initial

introduction of the moratorium in 2014 - that was mandated through an amendment to the *Oil and Natural Gas Act* effectively prohibited fracking activity indefinitely.

In 2014, the call for a moratorium on hydraulic fracturing in NB solidified (see Figure 14). The anti-shale coalition argued that there wasn't enough information to proceed with the practice and with shale development in the province (see Figure 14). The coalition mobilized its own 'Voice of the People Tour' to disseminate information and resources to communities across NB. In addition, in June 2014, it filed a lawsuit against the province (Dudziak and D'arcy, 2017). The statement of claim against the government contended that "the development of unconventional shale gas and oil deposits poses so great a threat to human health and the environment that it violates Section 7 of the Canadian Charter of Rights and Freedoms guaranteeing all persons in Canada the right to life and security of their person" (NBASGA, 2014b). The anti-coalition's strategy evolved along one major thread: they began asserting that the pro-development coalition did not have enough information to advance shale gas as a key policy driver and undermined the very legitimacy of the pro-coalitions core claims.

The pro-development coalition continued to advance the need for development due to the economic benefits for the province and the opportunity to develop the region's self-reliance (see Figure 13). With the Sable offshore energy project in Nova Scotia facing declining rates of natural gas production, the coalition argued that shale could ensure the region's needs were met and that development held the promise of a large export market through existing LNG infrastructure that could be updated (Huras, 2012). With what they argued were stringent regulations in place, the coalition argued that shale development could proceed safely

(Telegraph-Journal, 2014). With this, the 2014 provincial election, fast-forward four years from the last, was also centered on energy issues.

The Liberals, who had spent their last few years in opposition advocating for a moratorium on fracking due to the environmental risks associated with it, now pressed forward with a moratorium as a key plank in their election campaign. They ultimately won by a very narrow margin, and the newly elected Liberal government under Premier Brian Gallant imposed a moratorium on fracking as one of their first actions in power (Lewis et al., 2018). This represented a policy change with the government introducing the *Prohibition against Hydraulic Fracturing Regulation – Oil and Natural Gas Act*, effectively legislating a moratorium on hydraulic fracturing in the province in 2014⁸⁹ The government also outlined five conditions to be met before the moratorium could be lifted:

1. “A social license in place⁹⁰;
2. Clear and credible information about the impacts of hydraulic fracturing on our health, environment and water, allowing us to develop a country-leading regulatory regime with sufficient enforcement capabilities;
3. A plan that mitigates the impacts on our public infrastructure and that addresses issues such as waste water disposal;
4. A process in place to respect our obligations under the duty to consult with First Nations;
5. A mechanism in place to ensure that benefits are maximized for New Brunswickers, including the development of a proper royalty structure.” (NBCHF, 2016a, p.4)

⁸⁹ Voted into law in March, 2015 by the Legislative Assembly and took effect in June, 2015.

⁹⁰ The government did not define what it meant by ‘Social License’ when the conditions were announced. The NBCHF defined the term as part of their work - this is outlined on the next page.

The five conditions clearly reflect the anti coalition's concerns highlighted in the previous sections of this chapter, and address the major concerns around uncertainty that the anti-shale coalition raised. The conditions were presented as concurrent conditions to be worked on at the same time for shale gas to proceed in the province. The province committed to 'extensive consultation and engagement exercises with New Brunswickers in order to achieve social acceptance'(GNB, 2014c) and continue to engage on the other conditions as well. Furthermore, with a lack of definition for a 'social license', the NBHCF adopted a simple definition for the concept – they defined it as “informed public consent” (NBCHF, 2016a, p.21).

The NBCHF was established shortly thereafter as a citizens' commission, and while it dealt with the scientific and technical review of information regarding fracking, the predominant focus was to listen to the concerns of citizens and make recommendations for the future of shale development in the province (NBCHF, 2016a). The commission's mandate was to determine whether the five conditions could be met. Their purview was limited to the issue of fracking specifically, however, in an effort to depolarize the conversation and create opportunities for deeper engagement, the commissioners insisted on broadening the conversation to include a discussion about the future of energy in NB (Interview 12, New Brunswick, 2018).

6.3.1 Public engagement

The commission was composed of reputable commissioners that were actively engaged leaders in the province. They included a former Deputy Minister, Marc Leger, the President of the University of New Brunswick, John McLaughlin, and a veteran in education, Cheryl Robertson.

Although the Premier's Office appointed them, they worked to shape the commission's activities and ensure they had an active role in determining the parameters of their work (Interview 15, Telephone, 2017). In the midst of scientific controversy, they positioned themselves as a citizens' panel "most interested in understanding this complex issue from a citizen's perspective" (NBCHF, 2015, p.4). They specifically noted that they would include the science in their reporting but were not in a position to assess it. Additionally, they hired a communications expert to structure the engagements and write the reports communicating what they heard and their recommendations (Interview 15, Telephone, 2017).

The NBCHF's approach was a fresh start to engagement in a time when the controversy surrounding fracking in the province had cooled down. The introduction of a Moratorium and SWN Resources' withdrawal from the province allayed fears that development would proceed at least in the short term. In terms of process, the NBCHF committed to speak with everyone in the province who wished to speak to them and to maintain transparency and openness with New Brunswickers about their engagement activities (NBCHF, 2016a). The commissioners travelled the province and met with several different groups and associations as well as individual citizens. People prepared presentations and statements to provide to the commissioners in the meetings. All of these materials along with Minutes from meeting discussions were posted on the Commission's website (NBCHF, 2016a).

The engagement activity spanned seven months, and the NBCHF was frank about what it was they wanted to speak about. According to the commission: "Our goal is to move past the polarizing rhetoric and engage in a conversation with our fellow New Brunswickers about the potential benefits, risks, opportunities and challenges shale gas represents and the options for our

shared future” (CTV, 2015). The last component of their statement – the discussion on a shared future – is an area where they aimed to move the conversation upstream into broader energy policy, something that the first of the major engagement exercises aimed to do in 2010 through the energy commission (Interview 12, New Brunswick, 2018; Interview 15, Telephone, 2017). By repositioning shale development in the broader conversation on the province’s energy mix and future, the commissioners attempted to move past the emotional gridlock that had resulted between two polarized camps on hydraulic fracturing.

Ultimately, after receiving 135 submissions and meeting with 228 individuals, the NBCHF spent much of their time reviewing the information available to them before they released their findings and recommendations in early 2016 (NBCHF, 2016a). What emerged from the NBCHF report was a focus on the social and technical considerations around shale development in the province, and with that a shift in the parameters of the policy problem. The findings, highlighted in Table 7 below, demonstrate the range of recommendations (9 in total) correlating to each condition set out by the government.

The first and most significant condition for the anti-coalition was the establishment of a social license. As noted, the NBCHF developed a working definition based on their engagement with New Brunswickers. As outlined in their final report, social license is based on three key components: (i) Informed: reflecting the need for a transparent process “with access to timely scientific and technical information, delivered by trusted and objective sources, and that also has the ability to bring all parties together for a meaningful shared dialogue about the possible risks and benefits of a project” (NBCHF, 2016a, p.21); (ii) Public: emphasizing citizen participation in decision-making and the responsibility for government to facilitate it; and, (iii) Consent:

addressing the requirement to establish community acceptance and ‘respect for the regulatory process’ (NBCHF, 2016a, p.21). Necessarily, this condition and the recommendations associated with it focused on the normative issues that the anti-shale coalition advanced throughout the engagement period, with emphasis on the democratic process and the need to ensure that citizens’ views are reflected in decision-making. To this end, rebuilding public trust was the driver of recommendation 1 (NBCHF, 2016a, p.21), which called for a different approach to complex issues built on the notion of transparent engagement around both the risks and benefits of development, supported by independent credible information aiding decision-making, and the need for an independent trusted regulator to oversee development. Finally, the NBCHF reasserted the need to link the policy and regulatory decisions with the broader upstream policy objectives to create coherence and understanding of a shared vision.

The recommendations under conditions 2 and 3 follow from those outlined under condition 1, with a strong recurring emphasis on the establishment of an independent regulator (NBCHF, 2016a). The NBCHF specified that the monitoring and evaluation capacity in NB needs to be strengthened and proposed conferring that mandate to the regulator, with an additional focus on understanding the cumulative effects of development (for shale gas in this case), including on human health, as the CMOH had called for. The NBCHF (2016a) also emphasized the need for resources to ensure capacity for planning and addressing infrastructure requirements associated with wastewater management in the case of hydraulic fracturing. The commission also outlined the need for an independent research network in the energy and environment space to support regulatory development. They outlined the role of engagement with municipal and local governments as key throughout the process of water management and infrastructure planning.

These were all concerns that the anti-shale coalition had spent time advocating for (NBCHF, 2016a).

In terms of Indigenous engagement related to condition 4, the NBCHF recommended the need for the provincial government to redefine its relationship with Indigenous people in the province (NBCHF, 2016a, p.27). Based on what they had heard from their engagement with Mi'gmaq and Maliseet (Wolastoqiyik) people, the commissioners advised that this work on redefining the relationship was necessary and asserted that “only then will Indigenous people in New Brunswick be willing to fully participate in a conversation about the future of shale gas development” (NBCHF, 2016a, p.27). They also recommended the government should support Indigenous-led research and monitoring as part of the broader work on energy and environmental research, to understand the impacts on Indigenous people and their way of life.

Finally, under condition 5, the NBCHF advised that royalties should be designed using the principle of responsible development (NBCHF, 2016a). Notably, at the time of the commission's engagement the full potential of shale deposits in NB were still unknown, and the price volatility for gas was raising questions over whether sustained development and production would even be viable in the province. In that vein, the NBCHF recommended that if fracking was to proceed, royalty fees should be calculated based using business forecasts as a clear indicator that the market is prepared to proceed⁹¹. They also advised that the fees should be invested in priorities such as community benefits to support clean energy initiatives and support Indigenous-led initiatives such as research and skills training.

⁹¹ This recommendation was made to safeguard against merely lowering royalty rates if they are deemed too high.

Table 7: New Brunswick Commission on Hydraulic Fracturing

Finding	
Condition 1: The establishment of a social license	
1	“A different approach is needed to address complex public issues such as hydraulic fracturing”.
2	“A broader community conversation about community risks and benefits is required”.
3	“An independent environment and energy research network is required”.
4	“An environment and energy strategy needs to be developed that helps transition to a new, value-added knowledge-based economy”.
Condition 2: Cohesive and credible information regarding the impacts of hydraulic fracturing on our health, environment and water, to establish a regulatory regime with adequate enforcement capacity	
Condition 3: A strategy to mitigate the impacts on infrastructure and that addresses key issues such as wastewater disposal	
5	“An independent regulator should be created with a mandate to strengthen New Brunswick’s monitoring and evaluation of shale gas development in terms of understanding cumulative effects, including impacts on human health and the environment”.
6	“Adequate resources must be assigned to properly plan for potential public infrastructure impacts”.
7	“Short-term and long-term solutions to hydraulically fractured wastewater should be determined before commercial production begins”.
Condition 4: A process to fulfill the government’s obligations under the duty to consult with First Nations	
8	“The Government of New Brunswick needs to work with Indigenous leadership in New Brunswick to adopt a nation-to-nation consultation process for hydraulic fracturing”.
Condition 5: Establishment of a mechanism to maximize benefits for New Brunswickers, including a royalty structure	
9	“The Government should determine a royalty structure that encourages responsible development and promotes specific government priorities”.

Adapted from NBCHF, 2016a, p.1.

Furthermore, the NBCHF did concluded their engagement work with 5 potential options for the government to consider that were presented in their final report (NBCHF, 2016a): (1) establish a

legislated ban on hydraulic fracturing; (2) continue the moratorium; (3) continue the moratorium until “there is in place an enhanced regulatory system, an independent research and monitoring program and sufficient public support to proceed with a government-sponsored exploration program similar to the federal/ provincial agreements that led to oil and gas offshore developments in Nova Scotia and in Newfoundland and Labrador” (p.29); (4) lift the moratorium either partially or fully, with enhanced regulatory system and the independent research program; or (5) lift the moratorium with no changes.

After the report’s release, Energy and Mines Minister Donald Arsenault noted that the conditions could not be satisfied for the ‘foreseeable future’ (CBC, 2016a). In 2016, government extended the moratorium on hydraulic fracturing indefinitely. The Liberals claimed that the moratorium could not be lifted when the conditions had not been met for the shale gas industry to proceed. The Minister of Energy, Donald Arsenault, asserted that “creating jobs is our number one priority, but not at any cost. It is clear that our conditions cannot be satisfied in the foreseeable future” (CBC, 2016a). This move was celebrated by the anti-shale coalition, since the change in policy reflected their key objective (CBC, 2016b). As noted in Figure 14 above the calls for a moratorium peaked in 2014 and the coalition asserted the need for more information.

By engagement standards outlined under the IAP2 spectrum, the NBCHF’s work can be considered as engaging the public at the ‘involve’ level. The NBCHF demonstrated an effort to work with the public directly, to truly understand their perspectives and reflect it in the report that ultimately shaped the future of hydraulic fracturing in the province. Consistent with this research’s findings, the report reflected the issue of trust in public authorities in NB, and emphasized the need for the province to develop an integrated risk management strategy in

conjunction with policies that move the province to a ‘value-added economy’ (NBCHF, 2016b, p.3). It is worth noting that the commission interpreted their mandate broadly, and while predominantly focused on the issue of shale gas, their discussions took on a broader energy lens (Interview 15, Telephone, 2017). Their report and recommendations demonstrate a more holistic approach to the question of shale development, as one piece of a broader energy subsystem.

6.3.2 Policy beliefs

As it relates to learning and change, this section will assess the claims with regards to uncertainty, information and public engagement before concluding this chapter on the mechanisms of engagement. The claims respecting uncertainty during this period from the pro-development coalition peaked as they argued that fracking could proceed safely. While industry representatives interviewed regarded the *Rules for Industry* (the set of regulations for oil and gas developed by the government in 2013) as perhaps burdensome and overly strict, they noted that they were willing to work with the government to ensure that the introduction of the rules signalled that they could proceed safely with shale development (Interview 13, New Brunswick, 2018; Interview 14, Telephone, 2018); Energy and Resources Development, 2018b). Using the notion that the rules and regulations were the most stringent in North America, the pro-development coalition also pointed to the need for a growth strategy for the Atlantic region and the potential for energy self-reliance.

As noted earlier, the major supplier in the region was NS’s Sable Offshore project, and pro-development advocates argued that: “there's no offshore gas exploration underway anywhere in

the region now [in 2015] and production at Nova Scotia's Sable field has been decreasing since 2002. Total production at the Sable field is down about 50 per cent in the first half of 2015” (Donkin, 2015). The pro-development coalition argued that shale production would not only help advance the region’s energy market, but would create global opportunities for New Brunswick to export its gas resources (see Figure 13 above). A major Spanish energy proponent, Repsol, that owned the LNG terminal in Saint John with Irving Oil Ltd., was looking to convert the import facility into one for exports, and had applied to the National Energy Board for approval to export LNG. As an editorial noted, “New Brunswick has the chance to become a major natural gas exporter. Developing a domestic industry would support Repsol's plans to convert the Canaport LNG terminal to an export facility” (Telegraph-Journal, 2015).

The anti-shale coalition alternatively argued that the risks were too high to New Brunswickers and their environment to bear. They advanced that there simply wasn’t enough information to make informed decisions. As one health representative noted, “it doesn’t mean you can’t take risks but you have to clearly understand them and then you have to try to prevent them, or mitigate them if you can’t prevent them. So that comes down to planning and I think there is a belief that if you have regulations in place that you have proper planning and this is not true” (Interview 7, New Brunswick, 2018). The claims for information were very much intertwined with the claims around uncertainty during this period. As one Indigenous advocate noted: “There was a lot of uncertainty and so we did a lot of consultations with elders’ councils within the communities. But that still was not enough information and we just didn't have solid answers” (Interview 4, Telephone, 2018). It was during this time that the call for a moratorium really solidified.

Furthermore, as noted earlier, the anti-shale coalition questioned the government's capacity to regulate and noted their distrust in public authorities. As a local official argued: "people do not trust the government [...] because in other industries there isn't a sufficient amount of people to ensure that the regulations are followed by the letter. So when they see that in other types of industries or sectors, they question why would this sector have more resources than agriculture for example?" (Interview 9, New Brunswick, 2018). The lack of trust really surfaced during the NBCHF's engagement. As one commissioner noted, "public trust in traditional government departments was so low we had to rebuild and build outside the traditional process" (Interview, 12, New Brunswick, 2018).

Given the broad role of the commission, it is clear that this engagement exercise was targeted at surfacing the social as well as technical considerations associated with shale development. It brought to light many of the normative considerations associated with development that the anti-shale coalition was concerned about. It also appeared to give weight to the concerns of the pro-development side about the need to establish a clear regulatory process. Overall, in terms of public engagement claims during this period, all the participants in this study looked favourably upon the NBCHF's process.

However, from an outcomes perspective, it is not clear the extent to which the recommendations made by the NBCHF were acted upon by the province. The government implemented the indefinite extension on the moratorium in 2016 after none of the conditions were met, and there is little evidence that the conditions were considered beyond that. What initially began as a temporary moratorium with work regarding five conditions to proceed - was extended indefinitely later in light of no progress on the conditions (CBC, 2018). Many industry

representatives and community groups did note that they participated in a government established working group to address the issue of water management related to fracking in 2016. However, this did not lead to concrete action and the Department of Environment and Local Governance later launched a separate public engagement exercise to build a water strategy for the province (GNB, 2016)⁹². During this time, the pro-development coalition maintained that the shale industry held the potential for economic growth and continued to advocate for its continuation, although, as one industry representative noted, “we told the government you are basically killing this industry without even realizing it” (Interview 14, Telephone, 2018). Nonetheless, the change in policy prohibiting shale gas development remained.

6.4 Research findings and discussion: Factors impacting the nature of policy learning and change

The last chapter provided a detailed description of the mechanisms of public engagement regarding shale gas development in NB and associated key events over the course of 2007 to 2017. As demonstrated, there was a significant drive by the pro-development coalition to advance shale development in the province. However, the implementation of a moratorium in 2014 and its indefinite extension in 2016 represented a significant policy change. To begin to understand what led to this change, the previous chapter outlined the key advocacy coalitions in the province and highlighted their respective beliefs and activities over the period of 10 years. Drawing from this work, the key policy core and secondary beliefs of the two coalitions are outlined below in Table 8.

Table 8: Belief systems of pro-development and anti-shale gas coalitions in NB

	Definition	Pro-development	Anti-shale gas
--	------------	-----------------	----------------

⁹² Which was not implemented until 2018

<p>Policy core beliefs</p>	<p>Normative and empirical beliefs concerning policy subsystems</p>	<p>General goals:</p> <ul style="list-style-type: none"> ● Economic benefits ● Economic development: jobs, natural gas supply, investment attraction <p>Positions on general policy solutions and instruments:</p> <ul style="list-style-type: none"> ● Regulation and resource revenue <p>Problem severity and cause:</p> <ul style="list-style-type: none"> ● Risks can be managed with stringent regulations <p>Normative precepts and role of government:</p> <ul style="list-style-type: none"> ● Create domestic supply of natural gas ● Promote eastern region's growth and self-reliance ● Create and keep jobs for New Brunswickers to stay in their province 	<p>General goals:</p> <ul style="list-style-type: none"> ● Protect the environment ● Promote sustainable energy alternatives <p>Positions on general policy solutions and instruments:</p> <ul style="list-style-type: none"> ● More information needed to decide <p>Problem severity and cause:</p> <ul style="list-style-type: none"> ● Uncertainty regarding the impacts of fracking (particularly in the case of water) <p>Normative precepts and role of government:</p> <ul style="list-style-type: none"> ● Don't trust that regulations will be enforced; point to a lack of capacity in government resources ● Don't believe that there will be appropriate recourse available in the event of a harmful event ● Public engagement needs to be meaningful; people should feel heard and included in policy process ● Should be advancing sustainable energy development alternatives
<p>Secondary beliefs</p>	<p>Instrumental beliefs or beliefs about a subset of a policy subsystem</p>	<ul style="list-style-type: none"> ● Regulatory regime to ensure safe operations ● Royalty regime to ensure economic benefits earned for resources 	<ul style="list-style-type: none"> ● Implement a moratorium ● Extend the moratorium/apply an indefinite ban

As discussed in Chapter 4, this research seeks to reintegrate three key elements of context to advance understanding of how policy learning occurs, specifically: (i) uncertainty (ii) public engagement, and (iii) trust.

Consequently, the key consideration throughout the analysis is assessing belief change. To evaluate if policy-oriented learning did indeed lead to change, this thesis utilizes Bennett and Howlett’s (2009) approach to identify who learns, what do they learn and to what effect, as mentioned in Chapter 2 (see Table 9).

Table 9: Learning by category

<i>Type of Learning</i>	<i>Who Learns</i>	<i>Learns What</i>	<i>To What Effect</i>
Policy-oriented learning	Advocacy Coalitions; actors include: bureaucrats, government officials, regulators, journalists, industry and environmental representatives, members of the public	Policy core policy preferences – involving beliefs about the role of government, severity of problem cause and goals for policy (including based on scientific expertise and experience) around shale development	Goals, instruments and settings related to shale development (regulation and legislation predominantly) – policy change

(Howlett and Bennett, 2009)

As demonstrated earlier in this chapter, little information was available in the early days of shale development in NB and the province did not have measures (e.g., regulation) explicitly governing the resource’s development. Bureaucrats and politicians as part of the pro-development coalition engaged in learning from scientific experts, regulators and bureaucrats in other jurisdictions to develop the NB regulatory framework in anticipation of large-scale development. The evidence from this case study demonstrates policy learning regarding not only the secondary aspects of beliefs in terms of what instruments should be used to govern shale development, but also learning on the cognitive policy core level where the evidence served to

strengthen the bureaucrats’ and politicians’ beliefs that shale development could be safely managed under a comprehensive regulatory regime (which they proceeded to develop). In short, the pro-development coalition’s learning was rooted in cognitive beliefs regarding the ability to safely mitigate the risks associated with hydraulic fracturing and shale development.

As also demonstrated in this chapter, environmental organizations, local government organizations, and members of the public updated their beliefs based on experience. Rooted in a different way of knowing that was not explicitly targeted at understanding problem severity and cause alone, the anti-shale coalition turned to experience to understand how shale development would impact them in their context. Their normative beliefs were updated as they learned more about the potential impact of resource development and the government’s ability to enforce regulation (as experienced in NB in other environmental/resource sectors such as waterway protection/mining). In terms of their cognitive beliefs, the anti-shale coalition initially advocated for more information due to scientific uncertainty, and these beliefs were strengthened over time as they pointed to the challenges experts encountered in determining the magnitude of risk posed by hydraulic fracturing and shale development. In conjunction with a lack of trust in public authorities to adequately oversee development, this belief led the anti-coalition to advocate for a moratorium on the practice of fracking – a strategy that effectively prevented the ability for shale development (see Table 10 below).

Table 10: Learning by category based on research findings in New Brunswick

<i>Type of Learning</i>	<i>Who Learns</i>	<i>Learns What</i>	<i>To What Effect</i>
Intra-coalitional learning: learning within each coalition	In the case of NB, two main coalitions:	(1) Pro-development coalition: (i) cognitive learning re. the risks	The overarching goal of policy was to promote all forms of viable oil

<p>where members share similar belief systems</p>	<p>(a) a pro-development coalition, and; (b) an anti-shale coalition</p>	<p>associated with fracking and the ability to effectively regulate them (ii) secondary beliefs learning re. instruments</p> <p>(2) Anti-shale coalition: (i) normative learning regarding the experience with public authorities; lack of trust and capacity for enforcement (ii) cognitive learning re. uncertainty associated with fracking</p> <p>Strategies:</p> <p>(1) Pro-development coalition: Defer to expert authority to argue that NB has the most comprehensive regulation in North America, and can mitigate effectively against risks of fracking to enable safe shale development</p> <p>(2) Anti-shale coalition: Initially advocated for more information to make a decision, but then shifted to arguing that the impacts are too uncertain and a moratorium on the practice is needed. The empirical component was uncertainty: the government cannot adequately regulate from harm</p>	<p>and gas development. While the intent to advance oil and gas was not reversed or halted, one fundamental avenue for development (shale) was no longer seen as a legitimate source due to the scientific uncertainty associated with the methods used to extract the resource, and the impact of these methods.</p> <p>The promotion of natural resource development was rooted in promoting economic growth. The question in NB became about: “at what cost? and to what end?”</p>
---	--	--	---

With both coalitions engaged in policy learning, it is apparent that in the case of NB the type of learning is intra-coalitional learning, i.e., learning that updated the beliefs within each coalition, but not necessarily across coalitions. Against this backdrop, the question remains: what led to policy change? The analysis in this chapter demonstrated that the pro-development coalition's key strategy of relying on scientific expertise left them open to critique. The anti-shale coalition was successful in questioning the very basis of the pro-development coalition's legitimating precepts (namely, deferral to expert authority). They argued that the degree of uncertainty was too high regarding the impacts of fracking, and also advanced based on experience that the province did not have the capacity to regulate and could not be trusted to do so effectively. Members of the Liberal Party in particular were able to use the looming election in 2014 to campaign for a moratorium on fracking as a key pillar of their platform. In line with the anti-shale coalition's calls, they cited a need for more information before permitting fracking to proceed (CTV Atlantic, 2013).

As noted earlier, it was under the Liberal government in 2009 that leases for shale exploration were initially granted to industry proponents. However, the Liberals in opposition became particularly vocal about the need for more information between 2013 and 2014 in the lead up to the election. After coming into power in the fall of 2014, the Liberals advanced a new understanding of how to approach the policy problem. The new government implemented an initial moratorium on fracking and utilized the controversies associated with public engagement during the 2011-2013 period to argue that fracking should not proceed without a social license and certainty that four other conditions could be met. Committed to this frame, Premier Gallant announced the launch of the NBCHF and its mandate. In 2016 the government extended the

moratorium indefinitely, citing lack of fulfilment of the conditions. As outlined by the Premier, “Our government has put a moratorium on hydraulic fracturing, which will continue indefinitely, as it is clear that our conditions (for ending it) cannot be satisfied in the foreseeable future” (CBC, 2018). This extension led to a policy change that was implemented by the Liberal government.

The pro-development coalition was the dominant coalition in the period between 2010 and 2014, and the change in government brought with it the policy change as a result of intra-coalition policy-oriented learning. Therefore, it is important to look at how the policy content and focus evolved over time to better understand the role of normative and cognitive beliefs in policy change (Howlett and Cashore, 2009). In this case, the goal of policy was initially to foster economic development in the province. The government of the day advocated for the promotion of shale resources and development to create jobs, promote self-reliance for oil and natural gas supply in the Atlantic region, and to get resources to market to promote economic growth. In terms of settings, the key considerations were two-fold: ensuring the physical and economic viability of the resource for development and managing the risks associated with hydraulic fracturing to ensure safety. This is further detailed below (see Table 11) based on an evaluation framework developed by Howlett and Cashore (2009) as outlined in Chapter 2:

Table 11: Policy content and focus in New Brunswick

Policy Content				
		High level abstraction	Programme level Operationalization	Specific on-the-ground measures
	Policy Ends or Aims	GOALS <i>What general types of ideas</i>	OBJECTIVES <i>What does policy formally aim to address?</i>	SETTINGS <i>What are the specific on-the-ground requirements of</i>

		<i>govern policy development?</i>		<i>policy?</i>
		Economic development	Create jobs in resource development but also through supply chains associated with industry, promote self reliance in the region for oil and gas (especially in light of NS Sable supply decline), get resources to market (internationally and domestically)	Considerations around the viable shale beds, and significant measures to ensure that risks are mitigated – e.g., appropriate set back distancing, use of freshwater and recycling
Policy Focus				
	Policy Means or Tools	INSTRUMENT LOGIC <i>What general norms guide implementation preferences?</i>	MECHANISM <i>What specific types of instruments are utilized?</i>	CALIBRATIONS <i>What are the specific ways in which the instrument is used?</i>
		Coercive instruments – regulation and oversight	Regulatory framework with enforcement mechanisms + distribution of economic benefit royalty framework	Mandatory regulatory guidelines and permitting

Additionally, the policy focus was clearly on stringent regulation and oversight with the development of a regulatory framework and rules for industry that the government undertook in 2013 (also outlined in the table above).

The indefinite suspension of fracking reverses the fundamental goal of promoting shale development. While it may appear to be a simple political decision, learning arguably shaped

public debate in the province by questioning whether it was socially acceptable to proceed with a policy to develop shale. With the goal no longer simply economic development, the parameters of the policy problem shifted. While the Liberals were able to capitalize on this, it is arguably policy-oriented learning that led to a new understanding of the policy problem writ large. As demonstrated above, the NBCHF was about a lot more than just hydraulic fracturing. It addressed social concerns and concerns about the future of energy for NB. The new problem framing is one that also endured a subsequent government change, as evidenced by the Progressive Conservatives' unsuccessful move to partially lift the moratorium on fracking in 2018 when they rose to power under the leadership of Premier Blaine Higgs. Not only did the PCs aim to partially lift the ban in areas of the province where fracking was socially acceptable, they tried to do so under the radar and faced significant backlash. Ultimately, they were unable to amend the policy once more and the moratorium remained in place (Brown, 2019).

Ultimately, this dissertation set out to investigate the circumstances under which policy learning can lead to policy change. The case study research demonstrated that policy learning can take place outside of 'professionalized forums' as articulated by the ACF and can take place as part of the broader policy process. This is not the normal incremental adjustments to instruments that over time lead to a significant policy change (a process the ACF postulates), but rather, the case demonstrated that interactive knowledge was brought to bear in the process. This knowledge led to new shared understandings of the policy problem, and therefore the change occurred at the level of the policy core. Moreover, it demonstrated that the narrow and technical focus of the ACF can be expanded to consider the influential role of normative beliefs in altering preferences, as hypothesized by this research.

Therefore, in terms of the secondary questions postulated in this research, the case study also highlighted how uncertainty, trust and public engagement can influence the nature of learning. Additionally, the case demonstrated that normative beliefs are under emphasized in policy learning literature and research, and it elucidated the role of interactive knowledge in learning. A policy area that started off as highly technical in nature in terms of policy/regulatory development and engagement, ended up with a fundamentally different frame for consideration of goals and objectives that impacted the policy change in NB. The new frame was based on the concerns of citizens about how a policy would impact them in their context and how it would shape the future of their province.

Chapter 7: Conclusion

Shale oil and gas are unconventional resources that transformed the energy landscape in North America in the early 2000s (IEA, 2019). For Canada, shale development presented economic opportunities in many regions, with some jurisdictions capitalizing on it and others foregoing it. Hydraulic fracturing, the method used for shale resource extraction, proved to be contentious and while hailed for its ability to contribute to oil and gas production, it also posed uncertain risks on human health and the environment (CBC 2012a; CCA, 2014). In a context of uncertainty where the degree and likelihood of potential harm due to fracking were unknown, various jurisdictions proceeded to govern the resource in different ways.

In New Brunswick, the large-scale potential for shale gas development presented significant economic opportunities for the province. By the 2010 fall election, search licenses for large swaths of land along the corridor between Fredericton to Miramichi had been granted to several proponents (GNB, 2015). Additionally, by this time, the opposition Progressive Conservatives had launched a panel to advise how a future PC government could engage New Brunswickers on a long-term cohesive energy strategy (Stephenson and Desjardins, 2010). When the PCs were elected into power in September 2010, they launched a series of public engagement mechanisms on shale development in the province.

The government contended that shale development presented significant economic opportunities and benefits for the province, and could be done safely. A key pillar of their approach was to establish that shale resource development could be strictly regulated to mitigate the potential risks of hydraulic fracturing (GNB, 2013a). However, over the course of 2010 to 2014,

controversy over hydraulic fracturing led to significant public opposition to shale development in the province. During this period, two coalitions emerged, each advancing arguments for and against shale development (Dudziak and D'Arcy, 2017). In 2014, a moratorium on hydraulic fracturing was established with the election of a new provincial Liberal government. The government outlined five conditions that needed to be met in order for shale development to be permitted to proceed in the province and it launched a commission to engage the public on whether the conditions could be met (CBC, 2014a). In 2016, after the commission's work concluded, the moratorium on fracking was extended indefinitely (CBC, 2016a).

This dissertation set out to explore why in a case with so much impetus for shale development, was a moratorium hydraulic fracturing imposed? The moratorium represented a major policy change compared to the previous government's approach. While the change may appear to be as simple as a government responding to public opposition, this dissertation aimed to uncover the dynamics and mechanisms of change looking in particular at the extensive public engagement undertaken. The dissertation grounded its analysis in the Advocacy Coalition Framework, a framework specifically geared to examine policy change (Jenkins-Smith and Sabatier, 1994). The thesis contributed to the development of the framework by bolstering its conception of learning. The study identified three factors that are important to consider in policy contexts involving controversies over risk, namely – uncertainty, trust, and public engagement. Using this conceptual framework, the dissertation set out to understand (i) the circumstances under which learning occurs, (ii) what accounts for the nature of learning and policy change in the case of NB during the 2007 to 2017 period.

The first section of the dissertation, consisting of Chapters 2, 3, and 4, presented the theoretical approach, the design of the study, and the literature review. Chapter 2 presented the research questions as highlighted above, introduced the theoretical framework and detailed the methodology for the study. The chapter argued that while the predominant change in beliefs occurs at the empirical policy core level within the ACF (Weible, et al., 2009), examining the role of interactive knowledge provides the opportunity to explore whether normative policy core beliefs can also produce change. This approach departs from the positivist stance of the ACF, incorporating post-positive perspectives into the conception of knowledge and communicative action (Fischer, 2000). The Chapter highlighted how these latter approaches represent a shift from technocratic understandings of policymaking involving policy elites, to include a broader variety of perspectives in policymaking. The Chapter also outlined the methodology used to guide the inquiry. This included (i) tracing energy policy and regulatory development through primary and secondary document analysis, (ii) thematic review of anti and pro shale positions drawing on provincial news media articles; and 3) thematic analysis of key informant interviews with government officials, politicians, environmental advocates, industry representatives, grassroots activists, scientific experts and media officials.

Chapter 3 explained the overall approach to policy change in public policy literature. It examined how approaches to policy change based on learning are conceptualized, highlighting the key mechanisms and drivers across different theoretical approaches (May, 1992; Hall, 1993). Chapter 3 also provided an in depth examination of the ACF and outlined contemporary applications of and modifications to the framework. It specified the directions of research that the ACF is taking, and highlighted the importance of examining and assessing policy learning as a factor driving policy change. Chapter 4 reviewed the literatures associated with the three

factors examined in this study – public engagement, trust and uncertainty. It demonstrated that a unifying thread emerges in the literatures associated with these three factors: they advocate for the inclusion of people in decision-making and for collective learning through public engagement exercises. The chapter also included a section on the practical implications of this in the Canadian context, differentiating between various types of public engagement mechanisms in energy decision-making and how they may affect policy.

The second section of the dissertation, containing Chapters 5 and 6, presented the empirical case and research findings. Chapter 5 underlined the policy and regulatory context for shale development in NB, provided an overview of the governance landscape and key social and economic considerations for the case study. In addition, it described the physical parameters of proposed exploration and potential shale gas production in NB. Chapter 6 presented the three major phases of public engagement on shale development that took place in the province between 2010 and 2017. The Chapter traced the emergence of two coalitions, one advocating for shale development and the other advocating against it. It assessed the key coalitional beliefs, arguments, and strategies, along with the influence of public engagement, trust and uncertainty on learning.

Additionally, Chapter 6 presented the findings of this research. This dissertation found that the preponderance of engagement mechanisms provided the anti-shale gas coalition with many opportunities to engage in decision-making and shape the debate over shale development. In particular, the anti-shale coalition was able to contest the goals and means of the pro-development coalition's strategies. By drawing on the normative claims linked to their policy core beliefs, the anti-shale coalition was able to successfully challenge the dominant coalition's

policy approach and push for change. The coalition advanced the assertion that there was not enough information to proceed with hydraulic fracturing in New Brunswick. As their main strategy, the coalition appealed to this argument to undermine the very underpinnings of the pro-development coalition's claims that fracking was safe and that shale could be developed safely using regulatory best practice.

From the analysis presented here, it becomes clear that learning took place through intra-coalitional learning, i.e., strengthening each coalition's own beliefs around hydraulic fracturing in the province. In the case of NB, it is not clear that policy change was due to the alteration of beliefs in either coalition. Rather, the problem definition was altered to become a question of whether fracking possessed the social license to proceed - not how to develop it safely and maximize economic benefit. By evaluating the key goals and means of the policy differently, the anti-shale coalition successfully challenged the technocratic management of an emerging technology. Ultimately, the newly elected government in 2014 changed the policy with regards to shale development by imposing a moratorium, and then extending it indefinitely in 2016 when it appeared they did not have a social license to proceed.

Furthermore, the case demonstrates the importance of trust, uncertainty, and public engagement in understanding the nature of policy-oriented learning and policy change. Public engagement allows for a broad network of actors to be involved in decision-making, and the case demonstrates that this can influence learning. The process of engagement in NB over the course of 2007-2017 appears to have led to further mistrust in public authorities. The uncertainty characterizing the period enabled the anti-shale coalition to undermine the pro-development coalition's deferral to expert authority and their fundamental argument that development could

proceed in a safe and regulated manner. The initial lack of trust in public authorities due to how they were perceived to have managed resource development in the past is a factor that also shaped learning. People did not fundamentally trust that proposed regulatory measures would protect them from the risks posed by hydraulic fracturing. Interactive knowledge played a major role in updating the anti-shale coalition's beliefs, as they focused on how policy and regulation would impact their lives and less on the technical aspects of regulation and policy.

Theoretical and empirical contributions

Building on the ACF, the conceptual framework developed in this dissertation helps to explain the circumstances under which policy learning occurs, the nature of learning that takes place and its effect on policy outcomes and policy change. The research demonstrates that the context for learning is integral, and that trust, uncertainty and public engagement are three factors that shape policy learning. Furthermore, the research illustrates that with so many avenues for citizens to engage, a broader conception of policy learning is warranted in the ACF.

By understanding better how interactive knowledge and experience can influence thoughts and behavior, this thesis incorporates a post positivist conception of learning whereby it is rooted in people's context and experiences and is consistent with the definition of learning under examination in this study (Fischer, 2000; Park 1993). It also demonstrates how coalitions coordinate in this context to formulate strategies and advance their beliefs. Fundamentally, this study contributes to the literature on policy learning, particularly by responding to recent advocates arguing for the refinement of its conception (Moyson, Scholten and Weible, 2017; Dunlop and Radaelli, 2017) in ways that move beyond understandings of knowledge gained

through rational means towards a wider view of knowledge based on experience, interactions, and practical wisdom.

The dissertation also contributes to knowledge by drawing on democratic governance, environmental planning and risk management literatures to establish the importance of trust and uncertainty in decision-making and learning (Dryzek, 1994; Renn, 2004). While their importance has tended to be advanced largely at the downstream project level in the energy literature, this research proposed how they can be important at the upstream level in policy processes, particularly where governments open up policy decision-making processes with public engagement.

Empirically, within the field of energy and environmental policy, many democratic governments are incorporating public engagement mechanisms into decision-making. By changing venues and providing the public with more opportunities to engage, learning processes do not necessarily take place only within ‘professionalized forums’ or through formal negotiation mechanisms, as traditionally posited in approaches like the ACF (Jenkins-Smith and Sabatier, 1994). Assessments of how governments are managing in the context of uncertainty - especially in cases where scientific consensus and expert knowledge is privileged - are key for policy making. This study contributes in this regard by unpacking the role of public trust on policy decisions and tracing the mechanisms of engagement and their policy impact over the course of 2007-2017 in NB. The study provides a detailed examination of all consultation mechanisms undertaken, and is the only research of its kind to try and understand their impacts on policy throughout the entire engagement period for shale development in the province.

In this vein, the research contributes to assessments of modern socio-technical governance challenges. The need to manage ‘unknown unknowns’ is not a new phenomenon, and there are many cases where this can be seen in practice – the emergence of COVID-19 is only one recent example. The focus on policy elites in theories of policy processes does not account for the modern context where the public is highly involved in policy development. Postpositivists advocate for the inclusion of citizens in processes of decision-making that impact them. But how social considerations of policymaking are managed alongside traditional technical considerations is less understood.

This study shed light on these dynamics in the case of NB, where the government deferred to expert authority and turned to regulatory instruments to manage shale development while at the same time opening up decision processes to engagement. While the energy commission’s work in 2010 provided some strategic direction for natural gas as part of the province’s energy strategy (Volpé and Thompson, 2011), subsequent decisions were taken without early and sufficient engagement on shale gas development itself. The majority of initial engagement on shale was limited to regulatory approaches for risk management and focused on technical considerations. People in NB brought many different considerations to bear and ultimately changed the framing around shale development fundamentally by questioning whether it was socially acceptable for it to proceed.

In sum, this dissertation contributes to the literature on policy learning, an aspect of public policy that tends to be under-assessed and requires further research, particularly to understand the implications of cognition on learning. It also contributes practically to the field of energy and environmental decision-making – governments across the world are undertaking public

engagement exercises in this field at different scales (all the way from national to regional and local/project based). However, there are limitations to the research. The limitations and areas for future avenues of research are discussed in the next section.

Limitations and future research

As noted earlier, this study proposed a conception of learning based on interactive knowledge within the ACF and also developed a hypothesis to test it, drawing on the distinction between normative and empirical policy beliefs. This was tested in the case of shale gas development in NB so there is a limit to generalizing the findings. Future research would do well to apply this framework to different contexts and at different scales. Specifically, future studies would do well to examine different cases across various policy sectors to assess how and if other factors influence interactive knowledge and learning that leads to policy change. In so doing, this would contribute to advancing models of the individual in theories of policy learning and change.

Additionally, the scope of this research was limited to the local context within the boundaries of NB. Future research could undertake comparative studies across jurisdictions (e.g., Québec, British Columbia, Alberta). It is also important to note the constraints of using a single case study: there is limited generalizability due to the narrow focus of the investigation. While the benefit of focusing on context can illuminate certain factors that influence policy learning and policy change in a single case, this is not easily replicable and causal factors may vary across studies. Finally, a big limitation of this study is the degree to which the research is able to speak to and assess the role of events impacting Indigenous peoples in New Brunswick. Information

about public engagement processes with Indigenous peoples is protected and interviewees were only able to speak to the issues participants were comfortable sharing.

Finally, the study sought to contextualize the process of learning as well as include non-traditional actors in the assessment of learning. Building on postpositivist literature it highlighted how people experience their world and advocate for different policy outcomes. Future avenues of research could build on this and focus on how to manage risks in contexts where the public is engaged, with understanding the implications of trust in public authorities.

References

- Abelson, J., Montesanti, S., Li, K., Gauvin, F. P., & Martin, E. (2010). *Effective strategies for interactive public engagement in the development of healthcare policies and programs* (pp. 1-52). Ottawa: Canadian Health Services Research Foundation.
- Aboriginal Affairs Secretariat (2011). Duty to Consult Policy. Government of New Brunswick. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/aas-saa/pdf/en/DutytoConsultPolicy.pdf>
- Ali-Khan, F., & Mulvihill, P. R. (2008). Exploring collaborative environmental governance: perspectives on bridging and actor agency. *Geography Compass*, 2(6), 1974-1994.
- Andorno, R. (2004). The precautionary principle: a new legal standard for a technological age. *Journal of international biotechnology law*, 1(1), 11-19
- Arif, H. (2009, Nov 02). NB power sale looks like wrong move. *Telegraph-Journal*. Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/newspapers/nb-power-sale-looks-like-wrong-move/docview/423352053/se-2?accountid=14701>
- Arif, H. (2011). Controversy Over Shale Gas Fracking Hits New Brunswick. Huffington Post: Blog Post. Retrieved from: https://www.huffpost.com/archive/ca/entry/new-brunswick-fracking_b_898238
- Atkinson, M. M., & Coleman, W. D. (1992). Policy networks, policy communities and the problems of governance. *Governance*, 5(2), 154-180.
- Aven. (2010). On how to define, understand and describe risk. *Reliability Engineering & System Safety*, 95(6), 623-631. <https://doi.org/10.1016/j.ress.2010.01.011>
- Bacchi, C. (2000). Policy as discourse: What does it mean? Where does it get us?. *Discourse: studies in the cultural politics of education*, 21(1), 45-57.
- Barke, R. P., & Jenkins-Smith, H. C. (1993). Politics and scientific expertise: scientists, risk perception, and nuclear waste policy. *Risk Analysis*, 13(4), 425-439.
- Barrera, J. (2013). NB chiefs group, Mi'kmaq district council received contracts from SWN and Irving-owned security firm. *Aboriginal Peoples Television Network (APTN) National News*. Retrieved from: <https://www.aptnnews.ca/national-news/nb-chiefs-group-mikmaq-district-council-received-contracts-swn-irving-owned-security-firm/>
- Barrera, J. (2013b). NB premier, Mi'kmaq chief discussed ending blockade, allowing shale gas exploration to continue, handwritten notes reveal. *Aboriginal Peoples Television Network (APTN) National News*. Retrieved from: <https://www.aptnnews.ca/national-news/nb-nb->

premier-mikmaq-chief-discussed-ending-blockade-allowing-shale-gas-exploration-to-continue-handwritten-notes-reveal/

- Bateman, T. M. (2011). Stuck...in This Place: Shrinking Policy Space in New Brunswick. *Journal of New Brunswick Studies / Revue d'études Sur Le Nouveau-Brunswick*, 2. Retrieved from <https://journals.lib.unb.ca/index.php/JNBS/article/view/18733>
- Bauer, M. W., & Knill, C. (2014). A conceptual framework for the comparative analysis of policy change: Measurement, explanation and strategies of policy dismantling. *Journal of Comparative Policy Analysis: Research and Practice*, 16(1), 28-44.
- Baumgartner, F., & Jones, B. (1993). *Agendas and instability in American politics*. University of Chicago Press.
- Baumgartner, F. R., & Jones, B. D. (2010). *Agendas and instability in American politics*. University of Chicago Press.
- Beach, D., & Pedersen, R. B. (2011). What is Process-Tracing Actually Tracing? The Three Variants of Process Tracing Methods and Their Uses and Limitations. *APSA 2011 Annual Meeting Paper*, Available at SSRN: <https://ssrn.com/abstract=1902082>
- Beach, & Pedersen, R. B. (2013). *Process-tracing methods : foundations and guidelines*. University of Michigan Press.
- Beach, D., & Pedersen, R. (2019). *Process-tracing methods : foundations and guidelines* (Second edition.). University of Michigan Press.
- Bennett, C. J., & Howlett, M. (1992). The lessons of learning: Reconciling theories of policy learning and policy change. *Policy sciences*, 25(3), 275-294.
- Bird, S. (2018). *The Policy-Regulatory Nexus in Canada's Energy Decision-making: From best practices to next practices*. Positive Energy Project, University of Ottawa.
- Bissett, K. (2010a, Jan 20). Hydro-Quebec deal to buy NB Power watered down. *Canadian Television Network News*. Retrieved from: <https://montreal.ctvnews.ca/hydro-quebec-deal-to-buy-nb-power-watered-down-1.475720>
- Bissett, K. (2010b). N.B. premier calls off \$3.2-billion NB Power sale to Hydro-Québec. *CTV News*. Retrieved from: <https://montreal.ctvnews.ca/n-b-premier-calls-off-3-2-billion-nb-power-sale-to-hydro-Québec-1.495114>
- Bissett, K. (2013). First Nation community, protesters meet in N.B. over protest. *CTV Atlantic News*. Retrieved from: <https://atlantic.ctvnews.ca/first-nation-community-protesters-meet-in-n-b-over-protest-1.1505977>

- Bidstrup, M., & Hansen, A. M. (2014). The paradox of strategic environmental assessment. *Environmental Impact Assessment Review*, 47, 29-35.
- Bherer, L., & Breux, S. (2012). The diversity of public participation tools: Complementing or competing with one another?. *Canadian Journal of Political Science/Revue canadienne de science politique*, 379-403.
- Bherer, D. (2016). The participatory democracy turn: an introduction. *Journal of Civil Society*, 12(3), 225–230. <https://doi.org/10.1080/17448689.2016.1216383>
- Bherer, L., Gauthier, M., & Simard, L. (2017). *The professionalization of public participation*. Routledge. <https://doi.org/10.4324/9781315637983>
- Bogason, M., & Musso, J.A. (2016). The Democratic Prospects of Network Governance. *American Review of Public Administration*, 36(1), 3–18. <https://doi.org/10.1177/0275074005282581>
- Bohman, J. (2003). Critical theory as practical knowledge: Participants, observers, and critics. *The Blackwell guide to the philosophy of the social sciences*, 10, 91-109.
- Bolden A.L., Schultz K., Pelch K.E., Kwiatkowski, C.F. (2018). Exploring the endocrine activity of air pollutants associated with unconventional oil and gas extraction. *Environmental Health*, 17(1):26. doi: 10.1186/s12940-018-0368-z.
- Bomberg, E. (2013). The comparative politics of fracking: Networks and framing in the US and Europe. In *APSA 2013 Annual Meeting Paper*.
- Borden Commission (1958). Royal Commission on Energy: First Report. Retrieved from Library and Archives Canada: <https://epe.lac-bac.gc.ca/100/200/301/pco-bcp/commissions-ef/borden1958-59-eng/borden1958-vol1-eng/borden1958-vol1-eng.pdf>
- Boudet, H., Clarke, C., Bugden, D., Maibach, E., Roser-Renouf, C., & Leiserowitz, A. (2014). “Fracking” controversy and communication: Using national survey data to understand public perceptions of hydraulic fracturing. *Energy Policy*, 65, 57-67.
- Boyer, C., Clark, B., Jochen, V., Lewis, R., & Miller, C. K. (2011). Shale gas: a global resource. *Oilfield review*, 23(3), 28-39.
- Brady, H.E., & Collier, D. (2010). *Rethinking social inquiry diverse tools, shared standards* (2nd ed.). Rowman & Littlefield Publishers.
- Brett, C., & Tardif, C. (2008). The Grants Are Falling! The Grants Are Falling! How Municipal Governments Changed Taxes in Response to Provincial Support in New Brunswick, 1983-2003. *Canadian Public Policy / Analyse de Politiques*, 34(4), 441–456. <http://www.jstor.org/stable/25463633>

- Brideau, I. (2019). The Duty to Consult Indigenous Peoples. Library of Parliament Research Publications. Retrieved from: https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/201917E
- Bronson, K., & Beckley, T. (2018). Scientized and sanitized: Shale gas in the context of New Brunswick's political history. In J. Whitton, M. Cotton, I. CharmleyParry., & K. Braiser (Eds.), *Governing shale gas: Development, citizen participation and decision making in the US, Canada, Australia and Europe* (pp. 272–287). London: Taylor and Francis.
- Brown, S. (2019). New Brunswick Indigenous chiefs left 'blindsided' by decision to lift fracking moratorium. *Global News*. Retrieved from: <https://globalnews.ca/news/5356115/indigenous-chiefs-issue-warning-gas-fracking/>
- Brownsey, K., Howlett, M., & Milne, D. A. (2001). *The provincial state in Canada: politics in the provinces and territories*. Peterborough, Ont. ; Orchard Park, N.Y.: Broadview Press.
- Brundtland, G.H. (1987) Our Common Future: Report of the World Commission on Environment and Development. Geneva, UN-Dokument A/42/427. <http://www.un-documents.net/ocf-ov.htm>
- Bryant, T. (2001) *The Social Welfare Policy Change Process: Civil Society Actors and the Role of Knowledge*. Doctoral Thesis, Faculty of Social Work, University of Toronto.
- Bryant, T. (2002). Role of knowledge in public health and health promotion policy change. *Health Promotion International*, 17(1), 89-98.
- Bundale, B. (2009, Nov 20). New Brunswick's Graham to tackle N.L. 'rhetoric' on energy deal with Quebec. *Global News*. Retrieved from: <https://globalnews.ca/news/80747/new-brunswicks-graham-to-tackle-n-l-rhetoric-on-energy-deal-with-quebec/>
- Burrell, G., & Morgan, G. (2017). *Sociological paradigms and organisational analysis : elements of the sociology of corporate life* . Routledge. <https://doi.org/10.4324/9781315242804>
- Bundale, B. (2009). New Brunswick's Graham to tackle N.L. 'rhetoric' on energy deal with Québec. *Saint John Telegraph Journal*. Retrieved from: <https://globalnews.ca/news/80747/new-brunswicks-graham-to-tackle-n-l-rhetoric-on-energy-deal-with-Quebec/>
- Cairney, P., & Weible, C. M. (2017). The new policy sciences: combining the cognitive science of choice, multiple theories of context, and basic and applied analysis. *Policy Sciences*, 50(4), 619-627.
- Cairney, P. (2021). The UK government's COVID-19 policy: assessing evidence-informed policy analysis in real time. *British Politics*, 16(1), 90-116.
- Cairney, P. (2021). *The politics of policy analysis*. London: Palgrave Pivot.

- Callon, M., Lascoumes, P., & Barthe, Y. (2009). *Acting in an uncertain world : an essay on technical democracy*. MIT Press.
- Cameron, J., & Abouchar, J. (1991). The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment, 14 B.C. Int'l & Comp. L. Rev. 1 Retrieved from: <http://lawdigitalcommons.bc.edu/iclr/vol14/iss1/2>
- Campbell, J. L. (2002). Ideas, politics, and public policy. *Annual review of sociology*, 28, 21-38.
- Campbell, J. L. (2004). *Institutional change and globalization*. Princeton University Press.
- Hall, P. A. (1990). Policy paradigms, experts, and the state: The case of macroeconomic policy-making in Britain. *Social Scientists, Policy and the State, New York, Praeger*.
- Canadian Association of Petroleum Producers (CAPP). (2021). Mineral Rights. Retrieved from: <https://www.capp.ca/explore/mineral-rights/>
- Canadian Broadcasting Corporation (CBC). (2009, Nov 17). Lord government considered NB Power sale. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/lord-government-considered-nb-power-sale-1.841607>
- Canadian Broadcasting Corporation (CBC). (2010, Apr 21). Opposition unveils energy plan: Liberals argue consultation is not a plan. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/opposition-unveils-energy-plan-1.899999>
- Canadian Broadcasting Corporation (CBC) Map. (2011, Nov 28). Interactive map of New Brunswick's shale gas industry. *CBC News*. Retrieved from: https://www.cbc.ca/nb/features/fracturedfuture/rights_map.html
- Canadian Broadcasting Corporation (CBC). (2011a, Oct 14). Mining hearing into Penobscis fight nears record. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/mining-hearing-into-penobscis-fight-nears-record-1.1081605>
- Canadian Broadcasting Corporation (CBC). (2011b, Nov 29). Anti-shale gas petition tabled at legislature. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/anti-shale-gas-petition-tabled-at-legislature-1.1046848>
- Canadian Broadcasting Corporation (CBC). (2011c, Nov 30). PC MLA won't break party ranks over shale gas. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/pc-mla-won-t-break-party-ranks-over-shale-gas-1.997385>
- Canadian Broadcasting Corporation (CBC). (2011d, Dec 7). PC MLA supports shale gas motion. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/pc-mla-supports-shale-gas-motion-1.1064201>

- Canadian Broadcasting Corporation (CBC). (2011e, Oct 23). Former Texas mayor discusses shale gas in N.B. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/former-texas-mayor-discusses-shale-gas-in-n-b-1.1044467>
- Canadian Broadcasting Corporation (CBC). (2012a, Sept 12). Penobscis residents drop PotashCorp battle. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/penobscis-residents-drop-potashcorp-battle-1.1268901>
- Canadian Broadcasting Corporation (CBC). (2012b, May 22). Health study may examine impact of shale gas sector: Chief medical officer will issue recommendations in the summer. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/health-study-may-examine-impact-of-shale-gas-sector-1.1242025>
- Canadian Broadcasting Corporation (CBC). (2012c, May 17). Shale gas industry hit with higher fines, royalties. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-industry-hit-with-higher-fines-royalties-1.1134338>
- Canadian Broadcasting Corporation (CBC). (2012d, Apr 23). Hydro-fracking concerns UNB profs. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/hydro-fracking-concerns-unb-profs-1.1177807>
- Canadian Broadcasting Corporation (CBC). (2012e, Oct 3). Shale gas report by health officer may remain secret. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-report-by-health-officer-may-remain-secret-1.1136049>
- Canadian Broadcasting Corporation (CBC). (2012f, Oct 3). Parts of shale gas health report will now be released. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/parts-of-shale-gas-health-report-will-now-be-released-1.1219932>
- Canadian Broadcasting Corporation (CBC). (2012g, Oct 3). Full shale gas health report to be released. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/full-shale-gas-health-report-to-be-released-1.1215456>
- Canadian Broadcasting Corporation (CBC) recording. (2012, Nov 28). Shale gas strategy may add new regulatory agencies. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-strategy-may-add-new-regulatory-agencies-1.1272340>
- Canadian Broadcasting Corporation (CBC). (2013a). Shale gas rules in New Brunswick among 'strictest'. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-rules-in-new-brunswick-among-strictest-1.1336457>
- Canadian Broadcasting Corporation (CBC). (2013b). Oil and gas blueprint released. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/oil-and-gas-blueprint-released-1.1377123>

- Canadian Broadcasting Corporation (CBC). (2013c Oct 19). N.B. fracking protests and the fight for aboriginal rights. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/n-b-fracking-protests-and-the-fight-for-aboriginal-rights-1.2126515>
- Canadian Broadcasting Corporation (CBC). (2013d, Oct 17). RCMP, protesters withdraw after shale gas clash in Rexton. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/rcmp-protesters-withdraw-after-shale-gas-clash-in-rexton-1.2100703>
- Canadian Broadcasting Corporation (CBC). (2013e, Oct 22). Shale gas company loses bid for injunction to halt N.B. protests. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-company-loses-bid-for-injunction-to-halt-n-b-protests-1.2128622>
- Canadian Broadcasting Corporation (CBC). (2013f, Oct 19). N.B. fracking protests and the fight for aboriginal rights. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/n-b-fracking-protests-and-the-fight-for-aboriginal-rights-1.2126515>
- Canadian Broadcasting Corporation (CBC). (2013g, Nov 15). Shale gas injunction ruling to come Monday. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-injunction-ruling-to-come-monday-1.2427690>
- Canadian Broadcasting Corporation (CBC). (2013h, Jun 19). Chiefs want 'sensible solutions' in shale gas sector. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/chiefs-want-sensible-solutions-in-shale-gas-sector-1.1382121>
- Canadian Broadcasting Corporation (CBC). (2014a, Dec 18). Shale gas moratorium details unveiled by Brian Gallant. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-moratorium-details-unveiled-by-brian-gallant-1.2877440>
- Canadian Broadcasting Corporation (CBC). (2014b, Jun 13). Louis LaPierre stripped of Order of Canada. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/louis-lapierre-stripped-of-order-of-canada-1.2675141>
- Canadian Broadcasting Corporation (CBC). (2014c, Sept 24). Brian Gallant holds firm on hydro-fracking moratorium promise. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/nbvotes2018/brian-gallant-holds-firm-on-hydro-fracking-moratorium-promise-1.2776203>
- Canadian Broadcasting Corporation (CBC). (2016a, May 27). New Brunswick indefinitely extends hydraulic fracturing moratorium. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/arseneault-fracking-commission-report-1.3602849>
- Canadian Broadcasting Corporation (CBC). (2016b May 28). Anti-fracking protesters celebrate indefinite moratorium. *CBC News*. Retrieved from:

<https://www.cbc.ca/news/canada/new-brunswick/fracking-moratorium-indefinite-brunswick-rexton-1.3603889>

Canadian Broadcasting Corporation (CBC). (2017, Nov 20). A Mi'kmaq seat at the table. *CBC News*. Retrieved from: <https://www.cbc.ca/news2/interactives/a-mikmaq-seat-at-the-table/>

Canadian Broadcasting Corporation (CBC). (2018, Jun 21). Province extends fracking ban 'indefinitely' after failing to meet its own conditions. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/shale-gas-fracking-gallant-moratorium-1.4715225>

Canadian Broadcasting Corporation (CBC). (2020, Oct 05). Wolastoqey Nation lawsuit to claim title to half of New Brunswick. *CBC News*. Retrieved from: <https://www.cbc.ca/news/canada/new-brunswick/wolastoqey-nation-filing-for-title-claim-against-new-brunswick-1.5750955>

Canadian Nuclear Safety Commission (CNSC). (2022). Written submissions from the Kopit Lodge & Elsipogtog First Nation in the matter of New Brunswick Power Corporation Point Lepreau Nuclear Generating Station: Commission Public Hearing Part 2. *Government of Canada*. Retrieved from: <https://www.nuclearsafety.gc.ca/eng/the-commission/hearings/cmd/pdf/CMD22/CMD22-H2-145.pdf>

Capano, G. (2009). Understanding policy change as an epistemological and theoretical problem. *Journal of Comparative Policy Analysis*, 11(1), 7-31.

Capano, G., & Howlett, M. (Eds.). (2020). *A modern guide to public policy*. Edward Elgar Publishing.

Cattino, M., & Reckien, D. (2021). Does public participation lead to more ambitious and transformative local climate change planning?. *Current opinion in environmental sustainability*, 52, 100-110.

Chambers, S. (2003). Deliberative democratic theory. *Annual review of political science*, 6(1), 307-326.

Chilvers, J. (2007). Towards analytic-deliberative forms of risk governance in the UK? Reflecting on learning in radioactive waste. *Journal of Risk Research*, 10(2), 197-222.

Chong, J., & Simikian, M. (2014). Research Branch. Shale Gas in Canada: Resource Potential, Current Production and Economic Implications. Library of Parliament. Canada. *Publication No. 2014-08-E*.

Retrieved from: <http://www.parl.gc.ca/Content/LOP/ResearchPublications/2014-08-e.pdf>

- Chouinard, O., Desjardins, P. M., & Forgues, É. (2002). Collective entrepreneurship and regional development: Case study of a new Brunswick cooperative. *Journal of Rural Cooperation*, 30(886-2016-64548), 94-16.
- Citrin, J., & Stoker, L. (2018). Political trust in a cynical age. *Annual Review of Political Science*, 21, 49-70.
- Civilian Review and Complaints Commission (CRCC) for the RCMP. (2022). Commission's Final Report into the RCMP's Response to Anti-shale Gas Protests in Kent County, New Brunswick. *Government of Canada*. Retrieved from: <https://www.crcc-ccecp.gc.ca/en/FACR-anti-shale-Gas-Protests-Kent-County#toc2>
- Cleland, M., & Gattinger, M. (2017) System Under Stress: Energy decision-making in Canada and the need for informed reform. *University of Ottawa, Positive Energy Project*. Retrieved from: https://www.uottawa.ca/positive-energy/sites/www.uottawa.ca.positive-energy/files/2_positive_energy-system_under_stress-cleland_and_gattinger.pdf
- Cleland, M., & Gattinger, M. (2019). Canada's Energy Future in an age of Climate Change: How partisanship, polarization and parochialism are eroding public confidence. *University of Ottawa, Positive Energy Project*. Retrieved from: https://www.uottawa.ca/positive-energy/sites/www.uottawa.ca.positive-energy/files/canadas_energy_future_design_rd_web.pdf
- Coates, K. (2020). Towards Comprehensive Engagement: Indigenous-Industry Collaboration in the Resource Sector in Canada in *Indigenous-industry agreements, natural resources and the law* Odumosu-Ayanu & Dwight G. Newman, Eds. Routledge.
- Cobb, R. W., & Elder, C. D. (1971). The politics of agenda-building: An alternative perspective for modern democratic theory. *The Journal of Politics*, 33(4), 892-915
- Colborn, T., Kwiatkowski, C., Schultz, K., & Bachran, M. (2011). Natural gas operations from a public health perspective. *Human and ecological risk assessment: An International Journal*, 17(5), 1039-1056.
- Coleman, W., Skogstad, G.D., & Atkinson, M. (1996). Paradigm Shifts and Policy Networks: Cumulative Change in Agriculture. *Journal of Public Policy*, 16(3), 273-301. Retrieved December 28, 2020, from <http://www.jstor.org/stable/4007648>
- Coleman, W. D., & Skogstad, G. D. (1990). *Policy communities and public policy in Canada: A structural approach*. Mississauga, Ont.: Copp Clark Pitman.
- Collier, D., Brady, H. E., & Seawright, J. (2010). Introduction to the second edition: A sea change in political methodology. In *Rethinking social inquiry: Diverse tools, shared standards* (pp. 1-10). Rowman and Littlefield.
- Colton, J., Corscadden, K., Fast, S., Gattinger, M., Gehman, J., Hall Findlay, M., Morgan, D., Sayers, J., Winter, J., & Yatchew, A. (2016). Energy projects, social licence, public

acceptance and regulatory systems in Canada: A white paper. *SPP Research Paper No, 9(20)*.

Concerned Health NY. (2021). Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking and Associated Gas and Oil Infrastructure, Eighth Edition, April 28, 2022. Retrieved from: <https://concernedhealthny.org/compendium/>

Conservation Council of New Brunswick (CCNB). (2013). CCNB Action Response to “Responsible Environmental Development of the oil and gas activity in New Brunswick: The Rules for Industry”. Retrieved from: https://www.conservationcouncil.ca/wp-content/uploads/2013/05/CCNBAction_ResponseToTheRules_Feb2013.pdf

Cook, J. J. (2014). Who’s Regulating Who? Analyzing Fracking Policy in Colorado, Wyoming, and Louisiana. *Environmental Practice*, 16(02), 102-112.

Cope, S., Frewer, L. J., Houghton, J., Rowe, G., Fischer, A. R. H., & de Jonge, J. (2010). Consumer perceptions of best practice in food risk communication and management: Implications for risk analysis policy. *Food policy*, 35(4), 349-357.

Council of Canadian Academies (CCA). (2014). *Environmental Impacts of Shale Gas Extraction in Canada: The Expert Panel on Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction* (pp. 1-262, Rep.). Ottawa, ON: Council of Canadian Academies.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2021). Mi'gmaq Wolastoqiyik / New Brunswick / Canada Umbrella Agreement. *Government of Canada*. Retrieved from: <https://www.rcaanc-cirnac.gc.ca/eng/1327349684848/1539610070918>

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2022a). Highlights from the Report of the Royal Commission on Aboriginal Peoples. *Government of Canada*. Retrieved from: <https://www.rcaanc-cirnac.gc.ca/eng/1100100014597/1572547985018>

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2022b). Truth and Reconciliation Commission of Canada. *Government of Canada*. Retrieved from: <https://www.rcaanc-cirnac.gc.ca/eng/1450124405592/1529106060525>

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2022c). Appearance before the Standing Senate Committee on Aboriginal Peoples: Bill C-15, An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples, May 31, 2021. *Government of Canada*. Retrieved from: <https://www.rcaanc-cirnac.gc.ca/eng/1624906622343/1624906649093>

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2022d). Treaties and agreements. *Government of Canada*. Retrieved from: <https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231#chp4>

- CTV. (2010, Jan 29). N.B. premier defends sale of NB Power to Hydro-Québec. *CTV News*. Retrieved from: <https://montreal.ctvnews.ca/n-b-premier-defends-sale-of-nb-power-to-hydro-Québec-1.478780>
- CTV Atlantic. (2013, Nov 7). N.B. Liberal leader calls for moratorium on fracking in response to throne speech. Retrieved from: <https://atlantic.ctvnews.ca/n-b-liberal-leader-calls-for-moratorium-on-fracking-in-response-to-throne-speech-1.1532935>
- CTV News. (2015, Sept 28). N.B. commission on shale gas fracking seeks public input. Retrieved from: <https://www.ctvnews.ca/business/n-b-commission-on-shale-gas-fracking-seeks-public-input-1.2584950>
- Cvitanovic, C., Hobday, A. J., van Kerkhoff, L., Wilson, S. K., Dobbs, K., & Marshall, N. A. (2015). Improving knowledge exchange among scientists and decision-makers to facilitate the adaptive governance of marine resources: a review of knowledge and research needs. *Ocean & Coastal Management*, 112, 25-35.
- Davis, C. (2012). The politics of “fracking”: Regulating natural gas drilling practices in Colorado and Texas. *Review of Policy Research*, 29(2), 177-191.
- Davis, C., & Hoffer, K. (2012). Federalizing energy? Agenda change and the politics of fracking. *Policy sciences*, 45(3), 221-241.
- Davis, C., & Fisk, J.M. (2017) Mitigating Risks From Fracking Related Earthquakes: Assessing State Regulatory Decisions, *Society & Natural Resources*, 30:8, 1009-1025, DOI: 10.1080/08941920.2016.1273415
- Della Porta, D., & Keating, M. (Eds.). (2008). *Approaches and methodologies in the social sciences: A pluralist perspective*. Cambridge University Press.
- DeLeon, P. (1995). Democratic values and the policy sciences. *American Journal of Political Science*, 886-905.
- DeLeon, P. (1997). *Democracy and the policy sciences*. Albany, NY: State University of New York Press.
- DeLeon, P. (1998). Models of policy discourse. *Policy Studies Journal*, 26, 147–161.
- Delong, D., & Fox, M. (2015). Small communities and public participation in the cumulative environmental impact assessment process: the case of Little Bouctouche River, New Brunswick. *Journal of New Brunswick Studies/Revue d'études sur le Nouveau-Brunswick*, 6(1).
- Dentons. (2014). Case Comment – Tsilhqot’in Nation v. British Columbia, 2014 SCC 44. Retrieved from: <https://www.dentons.com/en/insights/alerts/2014/july/3/case-comment-tsilhqotin-nation-v-british-columbia-2014-scc-44>

- Department of Justice Canada. (2022a). Principles respecting the Government of Canada's relationship with Indigenous peoples. Government of Canada. Retrieved from: <https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html>
- Department of Justice Canada. (2022b). Implementing the United Nations Declaration of the Rights of Indigenous Peoples in Canada: Next steps. Government of Canada. Retrieved from: <https://www.justice.gc.ca/eng/declaration/engagement/index.html>
- Department of Justice Canada. (2022c). Implementing the United Nations Declaration of the Rights of Indigenous Peoples Act – Background under Natural Resource Sector. Government of Canada. Retrieved from: <https://www.justice.gc.ca/eng/declaration/bgnrcan-bgnrcan.html>
- Desserud, D. A. (2011). The 2010 Provincial Election in New Brunswick. *Canadian Political Science Review*, 5(1), 99-116.
- Desserud, D. (2015). The political economy of New Brunswick. In B. Evans & C. Smith (Eds.), *Transforming provincial politics: The political economy of Canada's provinces and territories in the Neoliberal Era* (pp. 110-134). University of Toronto Press.
- Diduck, A. P. (2010). Incorporating participatory approaches and social learning. In B. Mitchell (Ed.), [Resource and Environmental Management in Canada: Addressing Conflict and Uncertainty \(4th ed.\)](#) 495-525. Toronto: Oxford University Press.
- Diduck, A. P., Sinclair, A. J., Hostetler, G., & Fitzpatrick, P. (2012). Transformative learning theory, public involvement, and natural resource and environmental management. *Journal of Environmental Planning and Management*, 55(10), 1311-1330. <https://doi.org/10.1080/09640568.2011.645718>
- Diduck, A. P., Pratap, D., Sinclair, A. J., & Deane, S. (2013). Perceptions of impacts, public participation, and learning in the planning, assessment and mitigation of two hydroelectric projects in Uttarakhand, India. *Land Use Policy*, 33, 170-182.
- Donkin, K. (2015, Jul 31). Fracking ban could lead to natural gas price hike, report says. *Telegraph-Journal* Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/newspapers/fracking-ban-could-lead-natural-gas-price-hike/docview/1700264161/se-2>
- Dorcey, A. (2004). Sustainability Governance: Surfing the waves of transformation (p528-554). In Mitchell, B., *Resource and environmental management in Canada : addressing conflict and uncertainty* (3rd ed.). Oxford University Press.
- Douglas, M., & Wildavsky, A. B. (1982). *Risk and culture: An essay on the selection of technical and environmental dangers*. Berkeley: University of California Press.
- Douglas, M. (2004). *Risk acceptability according to the social sciences* . Routledge. <https://doi.org/10.4324/9780203708781>

- Downey, K., (2010). Fueling North America's energy future: The unconventional natural gas revolution and the carbon agenda. Executive summary, IHS CERA: Cambridge, MA.
- Dryzek, J. (1982). Policy Analysis as a Hermeneutic Activity. *Policy Sciences*, 14(4), 309–329. <https://doi.org/10.1007/BF00137394>
- Dryzek, J. S. (1990). *Discursive democracy: Politics, policy, and political science*. Cambridge University Press.
- Dryzek, J. S. (1993). Environmentalism and Political Theory: Toward an Ecocentric Approach. By Robyn Eckersley. Albany: State University of New York Press, 1992. 274p. 14.95 paper. *American Political Science Review*, 87(3), 765-765
- Dryzek, J. S., & Torgerson, D. (1993). Editorial: Democracy and the policy sciences: a progress report. *Policy Sciences*, 127-137.
- Dryzek, J. S. (1994). *Discursive democracy: Politics, policy, and political science*. Cambridge University Press.
- Dryzek, J. S. (2002). A post-positivist policy-analytic travelogue. *The Good Society*, 11(1), 32-36.
- Dryzek, J.S. (2008). Policy analysis as critique. In *The Oxford handbook of public policy*. (Eds.) by Moran, M., Rein, M., & Goodin, R. E. . Oxford Handbooks Online.
- Dryzek, J. S. (2013). *The politics of the earth: Environmental discourses*. Oxford University Press.
- Dudley, G., Parsons, W., Radaelli, C. M., & Sabatier, P. (2000). Symposium: theories of the policy process. *Journal of European Public Policy*, 7(1), 122-140.
- Dudziak, S. & D'Arcy, M. (2017). Reinventing Democracy Through Public Advocacy: The Case of the Anti-Shale Gas Movement in New Brunswick. In *The Shifting Terrain: Non-Profit Policy Advocacy in Canada*. Mulé, N. & De Santis, G., (eds). Montréal and Kingston: McGill-Queen's University Press.
- Dunlop, C. A., & Radaelli, C. M. (2017). Learning in the bath-tub: The micro and macro dimensions of the causal relationship between learning and policy change. *Policy and Society*, 36(2), 304-319.
- Dunlop, C. A., & Radaelli, C. M. (2018). Does policy learning meet the standards of an analytical framework of the policy process?. *Policy Studies Journal*, 46, S48-S68.
- Earle, T. C., & Cvetkovich, G. (1995). *Social trust: Toward a cosmopolitan society*. Greenwood Publishing Group.

- Edelman (2021). 2021 Edelman Trust Barometer. Available at:
<https://www.edelman.com/sites/g/files/aatuss191/files/2021-01/2021-edelman-trust-barometer.pdf>
- Eisen, B., & Milke, M. (2010) Nova Scotia, New Brunswick, and the Equalization Policy Crutch. Fraser/AIMS Institute: Research Bulletin. Retrieved from:
<https://www.fraserinstitute.org/sites/default/files/nova-scotia-new-brunswick-and-the-equalization-policy-crutch-rev2.pdf>
- Elliott, C., & Schlaepfer, R. (2001). The advocacy coalition framework: application to the policy process for the development of forest certification in Sweden. *Journal of European Public Policy*, 8(4), 642-661.
- Elsipogtog First Nation. (2013). Notice of Preliminary Motion between Elsipogtog First Nation and Attorney General of New Brunswick; Minister of Energy and Mines; SWN Resources Canada Inc. and the Assembly of First Nations' Chiefs in New Brunswick. Judicial District of Fredericton. Retrieved from:
<https://s3.documentcloud.org/documents/835110/elsipogtog-application-for-injunction.pdf>
- Energy and Mines Ministers' Conference (EMMC). (2013). *Responsible Shale Development: Enhancing the Knowledge Base on Shale Oil and Gas in Canada*. Retrieved from: http://publications.gc.ca/collections/collection_2013/rncan-nrcan/M34-14-2013-eng.pdf
- Energy and Mines Ministers' Conference (EMMC). (2017). *Building Trust in Canada's Natural Resource Development*. Retrieved from:
https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/emmc/pdf/17-0024-Public-confidence_access_eng.pdf
- Energy Information Administration (EIA). (2011). *Review of Emerging Resources: Review of Emerging Resources*. Washington, DC: U.S. Department of Energy.
- Energy Information Administration (EIA). (2014, April 10). *U.S. Crude Oil and Natural Gas Proved Reserves*. Retrieved July 15, 2014, from Independent Statistics and Analysis U.S. Retrieved from: <http://www.eia.gov/naturalgas/crudeoilreserves/>
- Energy Information Administration (EIA). (2021). Retrieved January 22, 2022, from <https://www.eia.gov/energyexplained/natural-gas/liquefied-natural-gas.php>
- Environment and Local Government. (2022a). Structure of the new Regional Service Commissions. *Government of New Brunswick*. Retrieved from:
https://www2.gnb.ca/content/gnb/en/departments/elg/local_government/content/promos/action_plan_local_governance/structure.html
- Environment and Local Government. (2022b). Regional Service Commissions Map. *Government of New Brunswick*. Retrieved from:

<https://www2.gnb.ca/content/dam/gnb/Departments/lg-gl/pdf/Plan/MapRSC-CarteCSR.pdf>

- Environmental Protection Agency (EPA). (2015). Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources: Executive Summary. Retrieved from: https://www.epa.gov/sites/production/files/2015-07/documents/hf_es_erd_jun2015.pdf
- Energy and Resource Development. (2018a). Oil and Natural Gas in New Brunswick – Part and Present. *Government of New Brunswick*. Partially declassified and released document under the Right to Information and Protection and Privacy Act request.
- Energy and Resource Development. (2018b). Natural Gas Development Action Plan. *Government of New Brunswick*. Partially declassified and released document under the Right to Information and Protection and Privacy Act (RTIPPA) request.
- Energy and Resource Development. (2018c). Appendix C - Public Consultation. *Government of New Brunswick*. Partially declassified and released document under the Right to Information and Protection and Privacy Act (RTIPPA) request.
- Energy and Resource Development. (2018d). Year End Shale Gas Update, Dec 23, 2011. *Government of New Brunswick*. Partially declassified and released email under the Right to Information and Protection and Privacy Act (RTIPPA) request.
- Fast, S., & Mabee, W. (2015). Place-making and trust-building: The influence of policy on host community responses to wind farms. *Energy Policy*, 81, 27-37.
- Fairclough, N. (2000). Discourse, social theory, and social research: The discourse of welfare reform. *Journal of sociolinguistics*, 4(2), 163-195.
- Fast, S. (2016). Shale Gas (Fracking) Exploration in Kent County and Elsipogtog First Nation Case study for *A Matter of Trust: The Role of Communities in Energy Decision-Making*. Canada West Foundation and the University of Ottawa. Retrieved from: https://www.uottawa.ca/positive-energy/sites/www.uottawa.ca/positive-energy/files/nrp_mattertrust_casestudy_kentcounty_24nov2016.pdf
- Figueroa, P. (2016). Nuclear risk governance in Japan and the Fukushima triple disaster: Lessons unlearned. *Disaster Governance in Urbanising Asia* (pp. 263-282). Springer, Singapore
- Finn, J.G. (2008). Building Stronger Local Governments and Regions An Action Plan for the Future of Local Governance in New Brunswick. Report of the Commissioner on the Future of Local Governance. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/lg-gl/pdf/BuildingStrongerLocalGovernmentsAndRegions.pdf>

- Fiorino, D. J. (1989). Technical and Democratic Values in Risk Analysis 1. *Risk Analysis*, 9(3), 293-299.
- Fischer, F. (1992). Reconstructing policy analysis: a postpositivist perspective. *Policy sciences*, 25(3), 333-339.
- Fischer F., & Forester J. (1993). *The argumentative turn in policy analysis and planning*. Duke University Press.
- Fischer, F. (1998). Beyond empiricism: policy inquiry in post positivist perspective. *Policy Studies Journal*, 26(1), 129-146.
- Fischer, F. (1999). Technological deliberation in a democratic society: the case for participatory inquiry. *Science and Public Policy*, 26(5), 294-302.
- Fischer, F. (2000). *Citizens, experts, and the environment: The politics of local knowledge*. Duke University Press.
- Fischer, F. (2003). *Reframing Public Policy: Discursive Politics and Deliberative Practices: Discursive Politics and Deliberative Practices*. Place of publication? Oxford University Press.
- Fischer, T. B. (2003b). Strategic environmental assessment in post-modern times. *Environmental impact assessment review*, 23(2), 155-170.
- Fischer, F., & Miller, G. J. (Eds.). (2006). *Handbook of public policy analysis: theory, politics, and methods*. crc Press.
- Fischer, F. (2007). Policy analysis in critical perspective: The epistemics of discursive practices. *Critical policy analysis*, 1(1), 97-109.
- Fischer, F. (2009). *Democracy and expertise: reorienting policy inquiry*. Oxford University Press.
- Fischer, F., & Gottweis, H. (2012). *The argumentative turn revisited public policy as communicative practice* . Duke University Press.
- Fischer, F., & Gottweis, H. (2013). The argumentative turn in public policy revisited: twenty years later. *Critical policy studies*, 7(4), 425-433.
- Fischer, M. (2014). Coalition Structures and Policy Change in a Consensus Democracy: Coalition Structures and Policy Change. *Policy Studies Journal*, 42(3), 344–366. <https://doi.org/10.1111/psj.12064>
- Fischer, F. (2019). *Politics, Values, and Public Policy: The Problem of Methodology (1st ed.)*. Routledge. <https://doi.org/10.4324/9780429302558>

- Fisk, J. M. (2013). The right to know? State politics of fracking disclosure. *Review of Policy Research*, 30(4), 345-365.
- Fitzpatrick, P. (2006). In it together: organizational learning through participation in environmental assessment. *Journal of Environmental Assessment Policy and Management*, 8(02), 157-182.
- Flynn, R., Bellaby, P., & Ricci, M. (2009). *The Limits of 'Upstream' Public Engagement: Citizens' panels and deliberation over hydrogen energy technologies*. University of Salford, Conference Paper.
- Forester, J. (1993). *Critical theory, public policy, and planning practice*. SUNY Press.
- Forester, J., & Fischer, F. (Eds). (1993). *The argumentative turn in policy analysis and planning*. Duke University Press.
- Fox, C. R., Ülkümen, G. (2011). Distinguishing two dimensions of uncertainty. In G. Kirkeboen W. Brun, G. Keren & H. Montgomery (eds.), *Perspectives on thinking, judging, and decision making*, Universitetsforlaget.
- Fox, J. (Director). (2010). *Gasland* [Motion Picture]. United States.
- Frewer, L. (1999). Risk perception, social trust, and public participation in strategic decision making: Implications for emerging technologies. *Ambio*, 569-574.
- Gabehart, K. M., Nam, A., & Weible, C. M. (2022). Lessons from the Advocacy Coalition Framework for climate change policy and politics. *Climate Action*, 1(1), 1-14.
- Gagnon Thompson, S.C. & Barton, M. A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14(2), 149–157. [https://doi.org/10.1016/S0272-4944\(05\)80168-9](https://doi.org/10.1016/S0272-4944(05)80168-9)
- Gamlen, A., & McIntyre, C. (2018). Mixing methods to explain emigration policies: A post-positivist perspective. *Journal of Mixed Methods Research*, 12(4), 374-393.
- Gamper-Rabindran. (2018). *The Shale Dilemma: A Global Perspective on Fracking and Shale Development*. University of Pittsburgh Press.
- Gastil, J., Braman, D., Kahan, D., & Slovic, P. (2011). The cultural orientation of mass political opinion. *PS: Political Science & Politics*, 44(4), 711-714.
- Gattinger, M. (2012). Canada–United States Energy Relations: Making a MESS of Energy Policy 1, 2. *American Review of Canadian Studies*, 42(4), 460-473.

- Gauthier, M., Simard, L., & Waaub, J. P. (2011). Public participation in strategic environmental assessment (SEA): Critical review and the Québec (Canada) approach. *Environmental impact assessment review*, 31(1), 48-60.
- George, A., & Bennett, A. (2005). *Case studies and theory development in the social sciences*. MIT Press.
- Gergen, K. J. (1985). Social constructionist inquiry: Context and implications. In *The social construction of the person* (pp. 3-18). Springer, New York, NY.
- Gerring, J. (2007). *Case study research : principles and practices*. Cambridge University Press.
- Government of New Brunswick (GNB). (2010). Commission to develop long-term strategy for province's energy future [News release]. Office of the Premier. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2010.10.1646.html
- Government of New Brunswick (GNB). (2011a). Province developing action plan to manage natural gas sector. [News Release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2011.04.0400.html
- Government of New Brunswick (GNB). (2011b). Province to hold forum on natural gas [News release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/departments/erd/news/news_release.2011.06.0642.html
- Government of New Brunswick (GNB). (2011c). The New Brunswick Energy Blueprint. New Brunswick Department of Energy.
- Government of New Brunswick (GNB). (2011d). Guiding principles for natural gas regulations announced [News release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2011.12.1351.html
- Government of New Brunswick (GNB). (2011e). Province announces stronger requirements for natural gas development [News release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2011.06.0703.html
- Government of New Brunswick (GNB). (2011f). Minister to hold natural gas webcast [News release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2011.10.1113.html
- Government of New Brunswick (GNB). (2012a). Annual Report 2011-2012: Department of Energy. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/AnnualReport2011-12RapportAnnuel.pdf>
- Government of New Brunswick (GNB). (2012b). Understanding the Law: A Guide to New Brunswick's Water Classification Regulation. Retrieved from:

<https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Water-Eau/WaterClassificationRegulation.pdf>

- Government of New Brunswick (GNB). (2012e). Discussion papers released with recommendations for new standards for the oil and natural gas industry. Department of Environment and Local Government. Retrieved from:
https://www2.gnb.ca/content/gnb/en/departments/erd/multimedia/mmrenderer.2012.05.2012-05-17_1.JPG.html
- Government of New Brunswick (GNB). (2012f). Details announced for citizen engagement tour for new oil and natural gas standards [News release]. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2012.06.0481.html
- Government of New Brunswick (GNB). (2012g). Two natural gas meetings to be live-streamed. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2012.06.0552.html
- Government of New Brunswick (GNB). (2012h). Oil and Gas Blueprint to be developed by spring of 2013 [News release]. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2012.11.1116.html
- Government of New Brunswick (GNB). (2012i). REVISED / New Brunswick Oil and Natural Gas Blueprint released. [News Release]. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2013.05.0416.html
- Government of New Brunswick. (2013a). The New Brunswick Oil and Natural Gas Blueprint. Retrieved from:
<https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/ONGEnglishFinal.pdf>
- Government of New Brunswick (GNB). (2013b). Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick: Rules for Industry. Retrieved from:
<https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/ong-rules-for-industry.pdf>
- Government of New Brunswick (GNB). (2013c). Province moving forward with energy institute. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2013.01.0081.html
- Government of New Brunswick (GNB). (2013d). Scientific advisory council members, fellows to energy institute named. [News Release]. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2013.07.0673.html
- Government of New Brunswick (GNB). (2013e). Province provides details on the natural gas consultation process with First Nations. [News Release]. Retrieved from:
https://www2.gnb.ca/content/gnb/en/news/news_release.2013.10.1053.html

- Government of New Brunswick. (2014a). *Exploring Natural Gas in New Brunswick*. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/ExploringNaturalGasinNewBrunswick.pdf>
- Government of New Brunswick. (2014b). Department of Energy and Mines: Annual Report 2013-2014. Retrieved from: https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/AnnualReport_2013-14.pdf
- Government of New Brunswick (GNB). (2014c). Government introduces moratorium on hydraulic fracturing in New Brunswick. [News release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2014.12.1404.html
- Government of New Brunswick (GNB), (2015). Oil and Natural Gas Licenses/Leases. Retrieved from: https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Minerals-Minerales/Oil_NB_Agreements.pdf
- Government of New Brunswick (GNB). (2016). Working together to build a water strategy for New Brunswick: Discussion paper. Department of Environment and Local Government. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Water-Eau/WaterStrategy-StrategieSurLeau/WaterStrategy-2018-2028.pdf>
- Government of New Brunswick. (2018a). A Guide to Environmental Impact Assessment in New Brunswick. Department of Environment and Local Government. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/EIA-EIE/GuideEnvironmentalImpactAssessment.pdf>
- Government of New Brunswick. (2018b). New Brunswick Economic and Fiscal Trends and Sensitivities. Department of Finance and Treasury Board. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/fin/pdf/Publications/EconomicAndFiscalTrendsAndSensitivities.pdf>
- Government of New Brunswick. (2019). Interim Proponent Guide: A guide for proponents on engaging with Aboriginal Peoples in New Brunswick. Department of Aboriginal Affairs. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/aas-saa/pdf/ProponentGuide-Excel/InterimProponentGuide.pdf>
- Government of New Brunswick (GNB). (2020a). Water Well Testing. Department of Environment and Local Government. Retrieved from: https://www2.gnb.ca/content/gnb/en/services/services_renderer.3877.Water_Well_Testing.html
- Government of New Brunswick (GNB). (2020b). Watercourse and Wetland Alteration Permit. Department of Environment and Local Government. Retrieved from: https://www2.gnb.ca/content/gnb/en/services/services_renderer.2935.Watercourse_and_Wetland_Alteration_Permit.html

- Government of New Brunswick (GNB). (2021a). Natural Resources and Energy Development: Oil and Natural Gas. Retrieved from: https://www2.gnb.ca/content/gnb/en/departments/erd/energy/content/minerals/content/Oil_Gas.html
- Government of New Brunswick (GNB). (2021b). Environment and Local Government: Local Service Districts. Retrieved from: [https://www2.gnb.ca/content/gnb/en/services/services_renderer.9495.Local_Service_Districts_\(LSDs\).html](https://www2.gnb.ca/content/gnb/en/services/services_renderer.9495.Local_Service_Districts_(LSDs).html)
- Government of New Brunswick (GNB). (2022). New Brunswick population reaches 800,000. [News Release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2022.03.0164.html
- Granberg, A. (2019). “Hydraulic Fracturing” published by ProPublica (<http://www.propublica.org/special/hydraulic-fracturing-national>). Creative Commons BY-NC-ND 3.0 US.
- Green, K. (2015). *Managing the risks of hydraulic fracturing*. Fraser Institute.
- Guest, G., MacQueen, K. M., & Namey, E. E. (2012). Applied Thematic Analysis. In *Applied Thematic Analysis* (pp. 3–20). SAGE Publications, Inc. <https://doi.org/10.4135/9781483384436>
- Gupta, K., Ripberger, J.T., Jenkins-Smith, H.C. and Silva, C.L. (2020), Exploring Aggregate vs. Relative Public Trust in Administrative Agencies that Manage Spent Nuclear Fuel in the United States. *Rev Policy Res*, 37: 491-510. <https://doi.org/10.1111/ropr.12385>
- Habermas, J. (1985). *The theory of communicative action*. Beacon Press.
- Haida Nation v. British Columbia [2004] 3 S.C.R. 511 (Haida)
- Hajer, M. A., & Wagenaar, H. (Eds.). (2003). *Deliberative policy analysis: understanding governance in the network society*. Cambridge University Press.
- Hall, P. A. (1993). Policy paradigms, social learning, and the state: the case of economic policymaking in Britain. *Comparative politics*, 275-296.
- Hardin, R. (1999). *Do we want trust in government?* In M. E. Warren (Ed.), *Democracy and trust* (p22-41). Cambridge: Cambridge University Press.
- Hardin, R. (2002). *Trust and trustworthiness*. New York: Russell Sage Foundation.
- Hardin, R. (2013). Government without trust. *Journal of Trust Research*, 3(1), pp. 3252.

- Healy, P. (1986). Interpretive policy inquiry: A response to the limitations of the received view. *Policy Sciences*, 19, 381–396
- Healey, P. (1997). Collaborative planning. London: Macmillian.
- Heclo, H. (1974). Modern Social Politics in Britain and Sweden: From Relief to Income Maintenance. New Haven: Yale University Press.
- Heikkila, T., Pierce, J. J., Gallaher, S., Kagan, J., Crow, D. A., & Weible, C. M. (2014). Understanding a Period of Policy Change: The Case of Hydraulic Fracturing Disclosure Policy in Colorado. *Review of Policy Research*, 31(2), 65-87.
- Heikkila, T., & Gerlak, A. K. (2013). Building a conceptual approach to collective learning: Lessons for public policy scholars. *Policy Studies Journal*, 41(3), 484-512.
- Heintz Jr, H. T., & Jenkins-Smith, H. C. (1988). Advocacy coalitions and the practice of policy analysis. *Policy Sciences*, 21(2-3), 263-277.
- Henry, A. D., Ingold, K., Nohrstedt, D., & Weible, C. M. (2014). Policy change in comparative contexts: Applying the advocacy coalition framework outside of Western Europe and North America. *Journal of Comparative Policy Analysis: Research and Practice*, 16(4), 299-312.
- Hesse-Biber, S. N., & Leavy, P. (2011). *The practice of qualitative research*. SAGE.
- Higgs, B. (2010). Hon. Blaine Higgs, Minister of Finance Statement for the House: Economic and Fiscal Update 2010- 2011. Retrieved from: www.gnb.ca/0024/Fiscal_Update_2011_Ministers_Statement-e.pdf
- Hill, M. FitzGerald M., and Secord, A. G. (2016). Shale Gas Royalties in New Brunswick: An Evaluation. *Journal of New Brunswick Studies*, 7(2).
- Hinton, D. D. (2012). The Seventeen-Year Overnight Wonder: George Mitchell and Unlocking the Barnett Shale. *Journal of American History*, 99(1), 229-235.
- Holzman, D. C. (2011). Methane found in well water near fracking sites. Environmental Health Perspectives. <https://doi.org/10.1289/ehp.119-a289>
- House, E. J. (2013). Fractured Fairytales: The Failed Social License for Unconventional Oil and Gas Development. *Wyoming Law Review*, 13(1). Available at: <https://scholarship.law.uwyo.edu/wlr/vol13/iss1/1>
- Howe, M. (2013). Elsipogtog Chief issues eviction notice to Texas-based frackers. Band Council Resolution to reclaim all unoccupied Crown Land. Halifax Media Co-op. Retrieved from: <https://halifax.mediacoop.ca/fr/story/elsipogtog-chief-issues-eviction-notice-texas-base/19097>

- Howe, M. (2015). *Debriefing Elsipogtog: The anatomy of a struggle*. Fernwood Publishing.
- Howlett, M., & Ramesh, M. (2003). *Studying public policy : policy cycles and policy subsystems* (2nd ed.). Oxford University Press.
- Howlett, M. (2009). Governance modes, policy regimes and operational plans: A multi-level nested model of policy instrument choice and policy design. *Policy Sci* 42, 73–89. <https://doi.org/10.1007/s11077-009-9079-1>
- Howlett, M., & Cashore, B. (2009). The dependent variable problem in the study of policy change: Understanding policy change as a methodological problem. *Journal of Comparative Policy Analysis*, 11(1), 33-46.
- Howlett, M., Ramesh, M., & Perl, A. (2009). *Studying public policy : policy cycles and policy subsystems* (3rd ed.). Oxford University Press.
- Howlett, M., McConnell, A., & Perl, A. (2015). Weaving the Fabric of Public Policies: Comparing and Integrating Contemporary Frameworks for the Study of Policy Processes. *Journal of Comparative Policy Analysis: Research and Practice*. DOI: 10.1080/13876988.2015.1082261
- Huras, A. (2012, Oct 25). N.B. prominent in pipeline plans. *Telegraph-Journal* Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/newspapers/n-b-prominent-pipeline-plans/docview/1114944707/se-2>
- Ibbitson, J. (2015). How the Maritimes became Canada's incredible shrinking region. *The Globe and Mail*. Retrieved from: <https://www.theglobeandmail.com/news/national/how-the-maritimes-became-canadas-incredible-shrinking-region/article23554298/>
- International Energy Agency (IEA). (2019). *World Energy Outlook 2019*. Retrieved from: <https://www.iea.org/reports/world-energy-outlook-2019>
- International Energy Agency (IEA). (2019a). *Oil 2019*. Retrieved from: <https://www.iea.org/reports/oil-2019>
- IHS Cambridge Energy Research Associates. (2010). *Fueling North America's Energy Future: The Unconventional Natural Gas Revolution and the Carbon Agenda – Executive Summary*, Cambridge, Massachusetts.
- Ingelson, A., & Hunter, T. (2014). A regulatory comparison of hydraulic fracturing fluid disclosure regimes in the United States, Canada, and Australia. *Natural Resources Journal*, 54(2), 217-253.
- Inman, M. (2012). Shale Gas: A boon that could stunt alternatives, study says. National Geographic News. Retrieved from: <https://www.nationalgeographic.com/science/article/120117-shale-gas-boom-impact-on-renewables>

- International Association for Public Participation (IAP2), (2021). Pillars of public participation (P2) brochure. Retrieved from:
https://www.iap2.org/resource/resmgr/Communications/A3_P2_Pillars_brochure.pdf
- Irwin, A., & Wynne, B. (1996). *Misunderstanding science? : the public reconstruction of science and technology* . Cambridge University Press.
- Irwin, D. A., & Kroszner, R. S. (1999). Interests, institutions, and ideology in securing policy change: the Republican conversion to trade liberalization after Smoot-Hawley. *The Journal of Law and Economics*, 42(2), 643-674.
- Irwin, A., Simmons, P., & Walker, G. (1999). Faulty environments and risk reasoning: the local understanding of industrial hazards. *Environment and planning A*, 31(7), 1311-1326.
- Irwin, A. (2006). The politics of talk: Coming to terms with the “new” scientific governance. *Social Studies of Science*, 36(2), 299–320.
- Jackson, R. B., Vengosh, A., Darrah, T. H., Warner, N. R., Down, A., Poreda, R. J., Osborn, S.G., Zhao, K., & Karr, J. D. (2013). Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction. *Proceedings of the National Academy of Sciences*, 110(28), 11250-11255.
- James, T. E., & Jorgensen, P. D. (2009). Policy knowledge, policy formulation, and change: Revisiting a foundational question. *Policy Studies Journal*, 37(1), 141-162.
- Jasanoff, S. (1990). American exceptionalism and the political acknowledgment of risk. *Daedalus*, 61-81.
- Jasanoff, S. (1997). NGOs and the environment: from knowledge to action. *Third World Quarterly*, 18(3), 579-594. <https://doi.org/10.1080/01436599714885>
- Jasanoff, S. (1998). *The fifth branch: science advisers as policymakers*. Harvard University Press.
- Jasanoff, S. (2003). Technologies of Humility: Citizen Participation in Governing Science. *Minerva (London)*, 41(3), 223-244. <https://doi.org/10.1023/A:1025557512320>
- Jasanoff, S. (2010). A New Climate for Society. *Theory, Culture & Society*, 27(2-3), 233–253. <https://doi.org/10.1177/0263276409361497>
- Jenkins-Smith, H. C., & Sabatier, P. A. (1994). Evaluating the advocacy coalition framework. *Journal of public policy*, 14, 175-203.
- Jenkins-Smith, H. C., Nohrstedt, D., Weible, C. M., & Sabatier, P. A. (2014). The advocacy coalition framework: Foundations, evolution, and ongoing research. *Theories of the policy process*, 3, 183-224.

- Jenkins-Smith, H. C., Nohrstedt, D., Weible, C. M., & Ingold, K. (2018). The advocacy coalition framework: An overview of the research program. *Theories of the policy process*, 135-171.
- Kahan, D. M., & Braman, D. (2006). Cultural cognition and public policy. *Yale Law & Policy Review* 24, 149.
- Kahan, D. M. (2008). Cultural cognition as a conception of the cultural theory of risk. *Handbook of Risk Theory*, 08-20.
- Kahan, D.M., Jenkins-Smith, H., & Braman, D. (2011) Cultural cognition of scientific consensus, *Journal of Risk Research*, 14:2, 147-174, DOI: [10.1080/13669877.2010.511246](https://doi.org/10.1080/13669877.2010.511246)
- Kasperson, R. E., Golding, D., & Tuler, S. (1992). Social distrust as a factor in siting hazardous facilities and communicating risks. *Journal of social issues*, 48(4), 161-187.
- Kay, A. (2011). Evidence-based policy-making: The elusive search for rational public administration. *Australian Journal of Public Administration*, 70(3), 236-245.
- Kay, A., & Baker, P. (2015). What can causal process tracing offer to policy studies? A review of the literature. *Policy Studies Journal*, 43(1), 1-21.
- Keir, L., Watts, R., & Inwood, S. (2014). Environmental justice and citizen perceptions of a proposed electric transmission line. *Community Development*, 45(2), 108-121.
- Keller, L. (2009). *Triumph of order: Democracy & public space in New York and London*. Columbia University Press.
- Kleinman, D. L., & Moore, K. (Eds.). (2014). *Routledge Handbook of Science, Technology, and Society*. Routledge.
- Knox, C. C. (2010). *Competing paradigms for analyzing policy development in Everglades restoration: case study using advocacy coalition framework and Habermas' critical theory*. The Florida State University.
- Kobayashi, Y., Peters, G. M., & Khan, S. J. (2015). Towards more holistic environmental impact assessment: hybridisation of life cycle assessment and quantitative risk assessment. *Procedia CIRP*, 29, 378-383. <https://doi.org/10.1016/j.procir.2015.01.064>
- Kramer. (2014). Horizontal drilling and trespass: a challenge to the norms of property and tort law. *Colorado Natural Resources, Energy & Environmental Law Review*, 25(2), 292-338.

- Kübler, D. (2001). Understanding policy change with the advocacy coalition framework: an application to Swiss drug policy. *Journal of European public policy*, 8(4), 623-641.
- Kübler, D. (2007). Understanding the recent expansion of Swiss family policy: An idea-centred approach. *Journal of social policy*, 36(2), 217-237.
- LaBelle, M. (2012). Constructing post-carbon institutions: Assessing EU carbon reduction efforts through an institutional risk governance approach. *Energy Policy*, 40, 390-403.
- Laird, F. N. (1989). The decline of deference: The political context of risk communication. *Risk Analysis*, 9(4), 543-550.
- Laird, F. (1993). Participatory analysis, democracy, and technological decision making. *Science, Technology & Human Values*, 18, 341-361.
- LaPierre, L. (2012). The Path Forward. Government of New Brunswick (GNB). Retrieved from: <http://www2.gnb.ca/content/dam/gnb/Corporate/pdf/ShaleGas/en/ThePathForward.pdf>
- Laurian, L. (2009). Trust in planning: Theoretical and practical considerations for participatory and deliberative planning. *Planning theory & practice*, 10(3), 369-391.
- Lawrence, D. P. (2000). Planning theories and environmental impact assessment. *Environmental Impact Assessment Review*, 20(6), 607-625.
- Lee, P. R., Estes, C. L., & Rodriguez, F. M. (Eds.). (2003). *The nation's health*. Jones & Bartlett Learning.
- Legislative Assesmbly of New Brunswick. (2011). Journal of Assembly Novermber 29. Retrieved from: https://www.legnb.ca/content/house_business/57/2/journals/04111129e.pdf
- Leonard, C. (2011, Jun 24). Strike a balance on shale gas. *Telegraph-Journal*. Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/newspapers/strike-balance-on-shale-gas/docview/873490698/se-2?accountid=14701>
- Levers, M. J. D. (2013). Philosophical paradigms, grounded theory, and perspectives on emergence. *Sage Open*, 3(4), 2158244013517243.
- Levi, M., & Stoker, L. (2000). Political trust and trustworthiness. *Annual review of political science*, 3(1), 475-507.
- Lewanski, R., & Ravazzi, S. (2017). Innovating Public Participation: The role of PPPs and institutions in Italy. In Bherer, L., Gauthier, M., & Simard, L. *The professionalization of public participation*. Routledge.
- Lewis, J. P., Bateman, T., & Desserud, D. (2018). The 2014 Provincial Election in New Brunswick. *Canadian Political Science Review*, 11(1), 113-156.

- Litfin, K. T. (2000). Advocacy coalitions along the domestic-foreign frontier: Globalization and Canadian climate change policy. *Policy Studies Journal*, 28(1), 236-252.
- Lockerby, E. (2018). Prince Edward Island Acadians in the 1760s and Beyond, and Their Ambivalence in Taking the Oath of Allegiance. *Acadiensis*, 47(2).
<https://doi.org/10.1353/aca.2018.0019>
- Lodge, M., & Matus, K. (2014). Science, badgers, politics: Advocacy coalitions and policy change in bovine tuberculosis policy in Britain. *Policy Studies Journal*, 42(3), 367-390.
- Lucas, A. & Lillies, H. (2016). Opportunities for Public Participation in the Regulation of Hydraulic Fracturing Operations in Alberta. *Alberta Law Review* 54, no. 1 (2016): 185-217. Retrieved from: <https://www.albertalawreview.com/>
- MacDougall, D. (2014). Enbridge Gas Distribution New Brunswick Decision. *Energy Regulation Quarterly*. Volume 2. Retrieved from:
<https://energyregulationquarterly.ca/case-comments/enbridge-gas-distribution-new-brunswick-decision#sthash.GHEnUoPr.dpbs>
- MacLeod, K. (2015). Emergence and Progression of Acadian Ethnic and Political Identities: Alliance and Land-Based Inter-Peoples Relations in Early Acadia to Today. *The University of Western Ontario Journal of Anthropology*, 23(1).
- Majone, G. (1989). Evidence, argument, & persuasion in the policy process. New Haven, CT: Yale University Press.
- Margerum, R. D. (1999). Integrated environmental management: the foundations for successful practice. *Environmental management*, 24(2), 151-166.
- Marsh, D., & Rhodes, R. A. W. (1992). *Policy networks in British government*. Clarendon Press.
- Martin, G.R. (2007). Municipal Reform in New Brunswick: Minor Tinkering in Light of Major Problems. *Journal of Canadian Studies*, 41(1), 75–99. <https://doi.org/10.3138/jcs.41.1.75>
- May, P. (1992). Policy Learning and Failure. *Journal of Public Policy*, 12(4), 331–354.
<https://doi.org/10.1017/S0143814X00005602>
- Mayer, I. (1997). *Debating technologies : a methodological contribution to the design and evaluation of participatory policy analysis*. Tilburg University Press.
- Mayer, I., & Tijnik (1997). Rethinking policy analysis for (post)modern governance: Scenario workshops as a communicative method for science and technology policy making. *The European Legacy, Toward New Paradigms*, 2(2), 238–245.
<https://doi.org/10.1080/10848779708579721>

- McGarr, A. 2014. Maximum magnitude earthquakes induced by fluid injection. *Journal of Geophysical Research* 119:1008–19. doi:10.1002/2013jb010597
- McKendy, M. (2017). Improving the Regional Service Commissions in New Brunswick Final Report. Submitted to the Minister of Environment and Local Government. Retrieved from: <https://umnb.ca/wp-content/uploads/2020/05/McKendy-Final-Report-Improving-Regional-Service-Commissions-E.pdf>
- Metlay, D. (1999) Institutional trust and confidence: a journey into a conceptual quagmire, in G. Cvetkovich and R. Lofstedt (eds) *Social Trust and the Management of Risk*, pp. 100–16. London: Earthscan.
- Millar, H. (2020). Problem uncertainty, institutional insularity, and modes of learning in Canadian provincial hydraulic fracturing regulation. *Review of Policy Research*, 37(6), 765-796
- Miller, K. (2000). Common Ground from the Post-Positivist Perspective: From "Straw Person" Argument to Collaborative Coexistence. In Corman, S. R., & Poole, M. S. (Eds). *Perspectives on organizational communication : finding common ground*. Guilford Press.
- Mikisew Cree First Nation v. Canada (Governor General in Council), 2018 SCC 40, [2018] 2 S.C.R. 765
- Mitchell, B. (2004). *Resource and environmental management in Canada : addressing conflict and uncertainty* (3rd ed.). Oxford University Press.
- Miyakawa, T. (Ed.). (1999). *The Science of Public Policy: Policy analysis* (Vol. 1). Taylor & Francis.
- Montpetit, É., & Lachapelle, E. (2017). Policy learning, motivated scepticism, and the politics of shale gas development in British Columbia and Quebec. *Policy and Society*, 36(2), 195–214. <https://doi.org/10.1080/14494035.2017.1320846>
- Moré, J. (2013). Come Shale Away: Navigating the Business Friendliness of Regulatory Environments in the Marcellus Shale and Albertan Oil Sands. *Northwestern Journal of International Law & Business*, 33, 393-438.
- Moyson, S. (2017). Cognition and policy change: the consistency of policy learning in the advocacy coalition framework, *Policy and Society*, 36:2, 320-344, DOI: [10.1080/14494035.2017.1322259](https://doi.org/10.1080/14494035.2017.1322259)
- Moyson, Scholten, P., & Weible, C. M. (2017). Policy learning and policy change: theorizing their relations from different perspectives. *Policy & Society*, 36(2), 161–177. <https://doi.org/10.1080/14494035.2017.1331879>

- Mulvihill, P., Winfield, M., & Etcheverry, J. (2013). Strategic Environmental Assessment And Advanced Renewable Energy In Ontario: Moving Forward Or Blowing In The Wind?. *Journal of Environmental Assessment Policy and Management*, 15(02).
- National Research Council. (2012). Induced seismicity potential in energy technologies. Washington, DC: The National Academies Press.
- National Union of Public and General Employees (NUPGE). (2021). New Brunswick Reviewing Oil and Gas Exploration Laws. Retrieved from: <https://nupge.ca/content/new-brunswick-reviewing-oil-gas-exploration-laws>
- Natural Resources Canada (2020a). Shale and Tight Resources in Canada. Retrieved November 15, 2020. Retrieved from <https://www.nrcan.gc.ca/our-natural-resources/energy-sources-distribution/clean-fossil-fuels/natural-gas/shale-tight-resources-canada/17669>.
- Natural Resources Canada (2020b). Alberta's Shale and Tight Resources. Retrieved November 15, 2020. Retrieved from <https://www.nrcan.gc.ca/our-natural-resources/energy-sources-distribution/clean-fossil-fuels/natural-gas/shale-and-tight-resources-canada/albertas-shale-and-tight-resources/17679>.
- Natural Resources Canada (NRCan). (2021a). Generation Energy Council. Retrieved from: <https://www.nrcan.gc.ca/20380>
- Natural Resources Canada (NRCan). (2021b). Geology of Shale and Tight Resources. Government of Canada. Retrieved from: <https://www.nrcan.gc.ca/energy/energy-sources-distribution/natural-gas/shale-tight-resources-canada/geology-shale-and-tight-resources/17675>
- Natural Resources Canada (NRCan). (2021c). New Brunswick's Shale and Tight Resources. Retrieved from: <https://www.nrcan.gc.ca/energy/energy-sources-distribution/natural-gas/shale-tight-resources-canada/new-brunswicks-shale-and-tight-resources/17698>
- New Brunswick Anti-Shale Gas Alliance (NBASGA). (2014a). Groups unite in shale gas opposition, launch campaign. Retrieved from: <https://www.noshalegasnb.ca/groups-unite-in-shale-gas-opposition-launch-campaign/>
- New Brunswick Anti-Shale Gas Alliance (NBASGA). (2014b). NBASGA takes legal action to stop shale gas. Retrieved from: <http://www.noshalegasnb.ca/nbasga-takes-legal-action-to-stop-shale-gas/>
- New Brunswick Commission on Hydraulic Fracturing (NBCHF). (2015). Opening perspective and terms of engagement. Retrieved from: <https://www.nben.ca/en/pub-cons-commission-on-hydraulic-fracturing-2015-2016?download=4351:opening-perspective-and-terms-of-engagement-new-brunswick-commission-on-hydraulic-fracturing-marc-leger-john-mclaughlin-and-cheryl-m-g-robertson-february-2016>

- New Brunswick Commission on Hydraulic Fracturing. (2016a). Commission's Final Reports. Retrieved from: <https://www.nbchf-cnbhf.ca/documents/>
- New Brunswick Commission on Hydraulic Fracturing (NBCHF). (2016b). Volume 2: Potential Economic, Health and Environmental Impacts of Shale Gas Development. Government of New Brunswick. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/Publications/NBCHF-Vol2-Eng-Feb2016.pdf>
- New Brunswick Energy Institute (NBEI). (2013). Energy Roundtable Summary Report: November, 2013 Meeting. Retrieved from: http://www.atlanticaenergy.org/uploads/file/energy_roundtable_summary_report.pdf
- New Brunswick Energy Institute (NBEI). (2018). Scientific Advisory Council. Retrieved from: <http://nbenergyinstitute.ca/about/scientific-advisory-council>
- New Brunswick Energy Institute (NBEI). (2021). Retrieved from: <https://nbenergyinstitute.ca/article-type/publication/amp>
- New Brunswick Environmental Network (NBEN). (2012). LaPierre Report Opinion Not Science [News release]. Retrieved from: <https://nben.ca/en/component/tags/tag/lapierre-report>
- New Brunswick Environmental Network (NBEN). (2021). Evidence supports a Shale Gas Moratorium, Jim Emberger Commentary. Retrieved from: <https://nben.ca/en/shale-gas-campaigns-media-actions/1449-evidence-supports-a-shale-gas-moratorium-times-and-transcript.html>
- New Brunswick Environmental Network (NBEN). (2022). Alward government bungles first test of so-called world class shale gas regulations. Retrieved from: <https://nben.ca/en/resources/news-from-groups/570-alward-government-bungles-first-test-of-so-called-world-class-shale-gas-regulations.html>
- New Brunswick Natural Gas Group. (2012a). Responsible Environmental Management of Oil and Gas Activities in New Brunswick. Sharing of Royalty Revenues From Natural Gas Activities in New Brunswick: A Discussion Document. Government of New Brunswick.
- New Brunswick Natural Gas Group. (2012b). Responsible Environmental Management of Oil and Gas Activities in New Brunswick: Recommendations for Public Discussion. Government of New Brunswick. Retrieved from: <https://www2.gnb.ca/content/dam/gnb/Corporate/pdf/ShaleGas/en/RecommendationsDiscussion.pdf>
- Nevitte, N. (1996). The Decline of Deference (Peterborough, ON). *Broadview Press*, 19, 51.
- Nevitte, N. (2014). The decline of deference revisited. In Dalton, R., & Welzel, C. *The Civic Culture Transformed : From Allegiant to Assertive Citizens*. Cambridge University Press.

- Noble, B.F. (2010), *Introduction to environmental impact assessment: A guide to principles and practice*, 2nd edition. Don Mills, Ontario: Oxford University Press.
- Noble, B., Gibson, R., White, L., Blakley, J., Croal, P., Nwanekezie, K., & Doelle, M. (2019) Effectiveness of strategic environmental assessment in Canada under directive-based and informal practice, *Impact Assessment and Project Appraisal*, 37:3-4, 344-355, DOI: [10.1080/14615517.2019.1565708](https://doi.org/10.1080/14615517.2019.1565708)
- Noble, B. (2021). Strategic environmental assessment in Canada, in (eds) Fischer, T.B. and González, A., *Handbook on Strategic Environmental Assessment*, Cheltenham: Edward Elgar.
- Office of the Access to Information and Privacy Commissioner, New Brunswick (2013). *Report of the Commissioner's Findings: Right to Information and Protection of Privacy Act Complaint Matter: 2012-1004-AP-508*. Retrieved from: <https://ombudnb-aip-aivp.ca/wp-content/uploads/2018/04/Report%202012-1004-AP-508.pdf>
- Office of the Chief Medical Officer of Health. (2012). Chief Medical Officer of Health's Recommendations Concerning Shale Gas Development in New Brunswick. *New Brunswick Department of Health*. Retrieved from: https://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/HealthyEnvironments/Recommendations_ShaleGasDevelopment.pdf
- Office of the Ombudsman. (2014). Report of the Ombudsman into the Department of Environment's Management of the Provincial Water Classification Program. Retrieved from: <https://www.ombudnb.ca/site/images/PDFs/EnglishWaterClassificationReport.pdf>.
- Office of the Premier (NB) (2014). Government introduces moratorium on hydraulic fracturing in New Brunswick [Press release]. Retrieved from: https://www2.gnb.ca/content/gnb/en/news/news_release.2014.12.1404.html
- Ormston, R., Spencer, L., Barnard, M., & Snape, D. (2014). The foundations of qualitative research. *Qualitative research practice: A guide for social science students and researchers*, 2(7), 52-55.
- Oyen, B. V. (2014). *Strategic Environmental Assessment on Shale Gas: knowledge gained and principal findings*. Gouvernement du Québec. Québec City: Robert Joly President of the Strategic environmental assessment committee on shale gas (2011-2013).
- Papillon, & Rodon, T. (2020). The Transformative Potential of Indigenous-Driven Approaches to Implementing Free, Prior and Informed Consent: Lessons from Two Canadian Cases. *International Journal on Minority and Group Rights*, 2019(2), 314–335. <https://doi.org/10.1163/15718115-02702009>
- Parfitt, Ben. (2011). *Fracking Up Our Water, Hydro Power and Climate: BC's Reckless Pursuit of Shale Gas*. Vancouver: Canadian Centre for Policy Alternatives. Retrieved from: <https://www.policyalternatives.ca/sites/default/files/uploads/publications/>

- Park, P. (1993). What is participatory research? A theoretical and methodological perspective. In P. Park, M. Brydon-Miller, B. Hall, & T. Jackson (Eds.), *Voices of change: Participatory research in the United States and Canada* (pp. 1-19). Toronto: Ontario Institute for Studies in Education Press.
- Peters, B. G., & Pierre, J. (Eds.). (2006). *Handbook of public policy*. Sage.
- Peters, B. G. (2019). *Institutional theory in political science: The new institutionalism*. Edward Elgar Publishing.
- Petts, J., & Brooks, C. (2006). Expert conceptualisations of the role of lay knowledge in environmental decisionmaking: challenges for deliberative democracy. *Environment and planning A*, 38(6), 1045-1059.
- Petts, J. (2008). Public engagement to build trust: false hopes?, *Journal of Risk Research*, 11:6, 821-835, DOI: [10.1080/13669870701715592](https://doi.org/10.1080/13669870701715592)
- Pierson, P. (1993). When Effect Becomes Cause: Policy Feedback and Political Change. *World Politics*, 45(4), 595–628. <https://doi.org/10.2307/2950710>
- Pijawka, K. D., & Mushkatel, A. H. (1991). Public opposition to the siting of the high-level nuclear waste repository: The importance of trust. *Review of Policy Research*, 10(4), 180-194.
- Pike, B. (2012, Aug 31). No jobs in New Brunswick? Pity. *Telegraph-Journal* Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/newspapers/no-jobs-new-brunswick-pity/docview/1037220868/se-2>
- Phillips, S.D., & Orsini, M. (2002). *Mapping the Links: Citizen involvement in policy processes*. Canadian Policy Research Networks, Discussion Paper No. F21.
- Pidgeon N., Kasperson, R., & Slovic, P. (2003). *The Social Amplification of Risk*, Cambridge University.
- Pidgeon, N., Simmons, P., & Henwood, K. (2006). Risk, environment and technology' in (eds) Taylor-Gooby, P., and Zinn, J., *Risk in Social Science*, Oxford University Press, Oxford.
- Pierce, J.J., Peterson, H.L., Jones, M.D., Garrard, S.P. and Vu, T. (2017), There and Back Again: A Tale of the Advocacy Coalition Framework. *Policy Stud J*, 45: S13-S46. <https://doi.org.proxy.bib.uottawa.ca/10.1111/psj.12197>
- Plough, A., & Krinsky, S. (1987). The emergence of risk communication studies: social and political context. *Science, Technology, & Human Values*, 12(3/4), 4-10.

- Polletta, F. (2016). Participatory enthusiasms: a recent history of citizen engagement initiatives. *Journal of Civil Society*, 12(3), 231–246. <https://doi.org/10.1080/17448689.2016.1213505>
- Poortinga, W., & Pidgeon, N. F. (2003). Exploring the dimensionality of trust in risk regulation. *Risk Analysis: An International Journal*, 23(5), 961-972.
- Prno, J., & Slocombe, D. S. (2012). Exploring the origins of ‘social license to operate’ in the mining sector: Perspectives from governance and sustainability theories. *Resources policy*, 37(3), 346-357.
- PytlikZillig, L. M., & Kimbrough, C. D. (2016). Consensus on conceptualizations and definitions of trust: Are we there yet?. In *Interdisciplinary perspectives on trust* (pp. 17-47). Springer, Cham.
- Quattrone, G. A., & Tversky, A. (1988). Contrasting rational and psychological analyses of political choice. *The American political science review*, 719-736.
- Rabe, B. G. (1992). When siting works, Canada-style. *Journal of Health Politics, Policy and Law*, 17(1), 119-142.
- Rabe, B. G., & Borick, C. (2013). Conventional Politics for Unconventional Drilling? Lessons from Pennsylvania's Early Move into Fracking Policy Development. *Review of Policy Research*, 30(3), 321-340.
- Rabe, B. G. (2014). Shale play politics: The intergovernmental odyssey of American shale governance. *Environmental science & technology*.
- Rahm, D. (2011). Regulating hydraulic fracturing in shale gas plays: The case of Texas. *Energy Policy*, 39(5), 2974-2981.
- Regional Service Commission 6 (RSC6). (2013). Meeting of the Board of Directors. Kent Regional Service Commission. Retrieved from: <https://nben.ca/en/shale-gas-municipal-motions-on-shale-gas?download=1762:meeting-of-the-board-of-directors-regional-service-commission-6-kent-co-regional-service-commission-july-18-2013>
- Reich, R. (1990). *Public Management in a Democratic Society* (Englewood Cliffs, NJ: Prentice-Hall).
- Reichel, A., & Bauer, J. (2012). *Civil Society for Sustainability*. BoD–Books on Demand.
- Rein, M., Schön, D. (1996). Frame-critical policy analysis and frame-reflective policy practice. *Knowledge and Policy* 9, 85–104. <https://doi.org/10.1007/BF02832235>
- Renn, O., & Levine, D. (1991). Credibility and trust in risk communication. In *Communicating risks to the public* (pp. 175-217). Springer, Dordrecht.

- Renn, O. (1999). A model for an analytic-deliberative process in risk management, *Environmental Science and Technology*, 33, 18, 3049-3055.
- Renn, O. (2004). The challenge of integrating deliberation and expertise. Participation and discourse in risk management. In T. MacDaniels, & M. Small (Eds.), *Risk analysis and society: an interdisciplinary characterization of the field* (pp. 289–366). Cambridge: Cambridge University Press.
- Renn, O. (2008). *Risk Governance*. Earthscan, London.
- Renn, O., Klinke, A., & van Asselt, M. (2011). Coping with complexity, uncertainty and ambiguity in risk governance: a synthesis. *Ambio*, 40(2), 231–246.
<https://doi.org/10.1007/s13280-010-0134-0>
- Riccucci, N. M. (2010). *Public administration: Traditions of inquiry and philosophies of knowledge*. Georgetown University Press.
- Richardson, T. (2005). Environmental assessment and planning theory: four short stories about power, multiple rationality, and ethics. *Environmental impact assessment review*, 25(4), 341-365.
- Rivard, C., Lavoie, D., Lefebvre, R., Séjourné, S., Lamontagne, C., & Duchesne, M. (2013). An overview of Canadian shale gas production and environmental concerns. *International Journal of Coal Geology*.
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of management review*, 23(3), 393-404.
- Rowe, G., & Frewer, L. (2004). Evaluating public participation exercises: a research agenda. *Science, Technology and Human Values*, 29 (4), 512-556.
- Rowe, G., Marsh, R., & Frewer, L. J. (2004). Evaluation of a deliberative conference. *Science, Technology, & Human Values*, 29(1), 88-121.
- Rowe, G., & Frewer, L. J. (2005). A typology of public engagement mechanisms. *Science, Technology, & Human Values*, 30(2), 251-290.
- Roy-Cesar, E. (2008). Canada's Equalization Formula. The Library of Parliament: Canada. Retrieved from:
https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/200820E
- Sabatier, P. A. (1987). Knowledge, Policy-Oriented Learning, and Policy Change An Advocacy Coalition Framework. *Science Communication*, 8(4), 649-692.
- Sabatier, P. A. (1988). An advocacy coalition framework of policy change and the role of policy-oriented learning therein. *Policy Sciences*, (21), 129–68.

- Sabatier, P. A., & Jenkins-Smith, H. (1993). Policy change and learning: An advocacy coalition framework. *Boulder: Westview.*
- Sabatier, P. A. (1998). The advocacy coalition framework: revisions and relevance for Europe. *Journal of European public policy*, 5(1), 98-130. DOI: 10.1080/13501768880000051
- Sabatier, P., Weible, C., & Baumgartner, F. (Eds.). (2015). *Theories of the policy process* (Third edition.). Westview Press.
- Sabatier, P., & Weible, C. (2007) 'The advocacy Coalition Framework. Innovations and Clarifications,' in P.A. Sabatier ed. *Theories of the Policy Process*, 2nd Ed., Boulder (Colorado): Westview Press, pp. 189-220
- Sabatier, P. A., & Weible, C. M. (2019). The advocacy coalition framework: Innovations and clarifications. In *Theories of the policy process* (pp. 189-220). Routledge.
- Savoie, D. J. (1999). *Governing from the centre: The concentration of power in Canadian politics*. University of Toronto Press.
- Schattschneider, E. E. (1960). *The semisovereign people*. New York, NY: Holt, Rinehart, and Winston.
- Schmidt, V.A. (2008), Discursive institutionalism: the explanatory power of ideas and discourse. *Annual Review of Political Science* 11: 303–326.
- Schmidt, C. W. (2013). Estimating wastewater impacts from fracking. *Environmental Health Perspectives*. <https://doi.org/10.1289/ehp.121-a117>
- Schneider, A.L., & Ingram, H. M. (1990). Behavioral Assumptions of Policy Tools. *The Journal of Politics*, 52(2), 510-529. Retrieved December 29, 2020, from <http://www.jstor.org/stable/2131904>
- Schneider, A. L., & Ingram, H. (1994). Social constructions and policy design: Implications for public administration. *Research in Public Administration*, 3, 137–173.
- Schneider, A. L., & Ingram, H. M. (1997). *Policy design for democracy*. University Press of Kansas.
- Schneider, A. L., & Ingram, H. M. (1997). *Policy design for democracy* (p. 102). Lawrence, KS: University Press of Kansas.
- Sedlačko, M., & Staroňová, K. (2015). From Knowledge Utilization to Building Knowledge Networks. *Central European Journal of Public Policy*, 9(2), 4-6.
- Shearer J.S., Abelson, J., Kouyaté, B., Lavis, J.N., Walt, G. (2016). Why do policies change? Institutions, interests, ideas and networks in three cases of policy reform. *Health Policy and Planning*. 31 (9),1200–1211, <https://doi.org/10.1093/heapol/czw052>

- Shiroyama, H., Yarime, M., Matsuo, M. *et al.* Governance for sustainability: knowledge integration and multi-actor dimensions in risk management. *Sustain Science* 7, 45–55 (2012). <https://doi.org/10.1007/s11625-011-0155-z>
- Shulock, N. (1999). The paradox of policy analysis: If it is not used, why do we produce so much of it?. *Journal of Policy Analysis and Management*, 18(2), 226-244.
- Shwed, U., & Bearman, P. S. (2010). The Temporal Structure of Scientific Consensus Formation. *American sociological review*, 75(6), 817–840. <https://doi.org/10.1177/0003122410388488>
- Siegrist, M. (2019). Trust and Risk Perception: A Critical Review of the Literature. *Risk Analysis*. <https://doi.org/10.1111/risa.13325>
- Siegrist, M., & Cvetkovich, G. (2000). Perception of hazards: The role of social trust and knowledge. *Risk analysis*, 20(5), 713-720.
- Simard, L. (2013). Environmental Governance, Public Action Tools, and Public Participation: The Bureau d'audiences publiques sur l'environnement and the Régie de l'énergie (Québec). *Canadian Public Administration in the 21st Century*, 117-140.
- Simard, L. (2018a). How to decide? Engagement: Information and Capacity (Final report #3). University of Ottawa, Positive Energy Project. Retrieved from: https://www.uottawa.ca/positive-energy/sites/www.uottawa.ca/positive-energy/files/pe_louis_simard_final.pdf
- Simard, L. (2018b). Engagement, information et capacité: une perspective à long terme pour un système décisionnel durable au Canada. *Energy Regulation Quarterly*, 6(4). Retrieved from: <https://energyregulationquarterly.ca/fr/articles/engagement-information-and-capacity-a-long-term-perspective-for-a-durable-energy-decision-making-system-in-canada#sthash.RpBeZ70S.dpbs>
- Simon, H. A. (1985). Human nature in politics: The dialogue of psychology with political science. *American political science review*, 79(2), 293-304.
- Simon v. The Queen [1985] 2 S.C.R. 387
- Simon, D. (2016). Vulnerable waters, anti-fracking solidarities, and blue theologies: toward a New Brunswick case study between the global and the local. *Journal of New Brunswick Studies/Revue Detudes Sur Le Nouveau-Brunswick (JNBS/RENB)*, 7(2), 92-11.
- Sinclair, A. J., & Diduck, A. P. (2000). Public involvement in environmental impact assessment: a case study of hydro development in Kullu District, Himachal Pradesh, India. *Impact assessment and project appraisal*, 18(1), 63-75.

- Sinclair, A. J., & Diduck, A. P. (2001). Public involvement in EA in Canada: a transformative learning perspective. *Environmental Impact Assessment Review*, 21(2), 113-136.
- Sinclair, A. J., & Fitzpatrick, P. (2002). Provisions for more meaningful public participation still elusive in proposed Canadian EA Bill. *Impact assessment and project appraisal*, 20(3), 161-176.
- Sinclair, A. J., & Diduck, A. P. (2005). Public participation in Canadian environmental assessment: Enduring challenges and future directions. *Environmental impact assessment: practice and participation*, 53-74.
- Skogstad, G. (2008). Canadian agricultural programs and paradigms: the influence of international trade agreements and domestic factors. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 56(4), 493-507.
- Slovic, P. (1987). Perception of risk. *Science*, 236(4799), 280-285.
- Slovic, P. (1993). Perceived risk, trust, and democracy. *Risk analysis*, 13(6), 675-682.
- Slovic, P. (2000). *The Perception of Risk*. Earthscan Publications, London.
- Southwestern Energy Company. (2012). Southwestern Energy Company Q2 2012 Earnings Conference Call August 3, 2012. Retrieved from: <https://www.sec.gov/Archives/edgar/data/7332/000000733212000030/exhibit991.htm>
- Small, M.J., Stern, P.C., Bomberg, E., Christopherson, S.M., Goldstein, B.D., Israel, A.L., Jackson, R.B., Krupnick, A., Mauter, M.S., Nash, J., North, D.W., Olmstead, S.M., Prakash, A., Rabe, B., Richardson, N., Tierney, S., Webler, T., Wong-Parodi, G., & Zielinska, B. (2014). Risks and Risk Governance in Unconventional Shale Gas Development. *Environmental Science & Technology*, 2014 48 (15), 8289-8297. DOI: 10.1021/es502111u
- Srebotnjak, T., & Rotkin-Ellman, M. (2014). Fracking fumes: Air pollution from hydraulic fracturing threatens public health and communities. *Natural Resources Defense Council*. Retrieved from: <https://www.nrdc.org/sites/default/files/fracking-air-pollution-IB.pdf>
- Standing Committee on Natural Resources (RNNR). (2010). Meeting No.36 Energy Security in Canada, third session, fortieth parliament. Accessed at: <https://www.ourcommons.ca/DocumentViewer/en/40-3/RNNR/meeting-36/evidence>
- Standing Committee on Natural Resources (RNNR). (2010). Meeting No.40 Energy Security in Canada, third session, fortieth parliament. Accessed at: <https://www.ourcommons.ca/DocumentViewer/en/40-3/RNNR/meeting-40/evidence>
- Statistics Canada. (2016). English, French and non-official languages by geography, 2011-2016. DOI: <https://doi.org/10.25318/1510000901-eng>

- Statistics Canada. (2017). Focus on Geography Series, 2016 Census. Statistics Canada Catalogue no. 98-404-X2016001. Retrieved from: <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-PR-Eng.cfm?TOPIC=9&LANG=Eng&GK=PR&GC=13>
- Statistics Canada. (2022a). Population Estimates, quarterly. DOI: <https://doi.org/10.25318/1710000901-eng>
- Statistics Canada. (2022b). Population growth in Canada's rural areas, 2016 to 2021. Catalogue no. 98-200-X. Retrieved from: <https://www12.statcan.gc.ca/census-recensement/2021/as-sa/98-200-x/2021002/98-200-x2021002-eng.cfm>
- Stehr, N., & Grundmann, R. (2005). *Knowledge: critical concepts. Vol. 4, Politics and knowledge*. Taylor & Francis.
- Sterling, L., & Landmann, P. (2011). The Duty to Consult Aboriginal Peoples – Government approaches to unresolved issues. Canadian Bar Association. Retrieved from: https://www.cba.org/cba/cle/PDF/Constit09_Sterling_paper.pdf
- Stephenson, D.J., & Desjardins, P. (2010). The Path Forward – Shaping New Brunswick's Energy Future: a Discussion Paper on the Establishment of an Energy Commission and Energy Plan for New Brunswick. *Government of New Brunswick*. Retrieved from: <https://www.scribd.com/doc/36418255/The-Path-Forward-1-of-2>
- Stephenson, E., & Shaw, K. (2013). A Dilemma of Abundance: Governance Challenges of Reconciling Shale Gas Development and Climate Change Mitigation. *Sustainability*, 5(5), 2210-2232.
- Stern, M.J., & Coleman, K.J. (2015) The Multidimensionality of Trust: Applications in Collaborative Natural Resource Management, *Society & Natural Resources*, 28(2), 117-132, DOI: 10.1080/08941920.2014.945062
- Stone, D. A. (1989). Causal stories and the formation of policy agendas. *Political science quarterly*, 104(2), 281-300.
- Studlar, D. (2015). E. E. Schattschneider, The Semi-Sovereign People: A Realist's View of Democracy in America. In *The Oxford Handbook of Classics in Public Policy and Administration* (Vol. 1). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199646135.013.39>
- Surel, Y. (2000). The role of cognitive and normative frames in policy-making, *Journal of European Public Policy*, 7:4, 495-512, DOI: [10.1080/13501760050165334](https://doi.org/10.1080/13501760050165334)
- Telegraph-Journal. (2014, Nov 02). Base fracking decision on facts. Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www-proquest-com.proxy.bib.uottawa.ca/newspapers/base-fracking-decision-on-facts/docview/1728596907/se-2>

- Telegraph-Journal. (2015, Sep 02). Gas appeal rings hollow. Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www-proquest-com.proxy.bib.uottawa.ca/newspapers/gas-appeal-rings-hollow/docview/1708737004/se-2>
- Thelen, K. A. (2010). Beyond comparative statics: Historical institutional approaches to stability and change in the political economy of labor. In *The Oxford handbook of comparative institutional analysis* (pp. 41-61). Oxford University Press.
- Thompson, S. C. G., & Barton, M. A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14, 149-157.
- Thorburn, H.G. (1961). *Politics in New Brunswick*. University of Toronto Press.
- Walker, J. H. (2010). The once and future New Brunswick free press. *Journal of New Brunswick Studies/Revue d'études sur le Nouveau-Brunswick*, 1.
- Torgerson, D. (1986a). Between knowledge and politics: Three faces of policy analysis. *Policy sciences*, 19(1), 33-59.
- Torgerson, D. (1986b). Interpretive policy inquiry: A response to its limitations. *Policy Sciences*, 19, 397-405.
- Trickey, K., Hadjimichael, N., & Sanghavi, P. (2020). Public reporting of hydraulic fracturing chemicals in the USA, 2011-18: a before and after comparison of reporting formats. *The Lancet. Planetary Health*, 4(5), 178-185. [https://doi.org/10.1016/S2542-5196\(20\)30076-0](https://doi.org/10.1016/S2542-5196(20)30076-0)
- Truong, D., Parkins, J.R., & Davidson, D.J. (2021). What Shapes Public Engagement in Fracking Issues?. *Society & Natural Resources*, 34:2, 149-167, DOI: [10.1080/08941920.2020.1772927](https://doi.org/10.1080/08941920.2020.1772927)
- Tsafos, N. (2020). How will natural gas fare in the energy transition?. *Center for Strategic and International Studies*. Retrieved from: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200114_Tsafos_How_Will_Natural_Gas_Fare.pdf?_oyuJJIixKn0sDY1y7ZeQ3c3C5ijhG
- Tsilhqot'in Nation v. British Columbia 2014 S.C.C. 44, [2014] 2 S.C.R. 256 (Tsilhqot'in)
- Ulriksen, M.S., & Dadalauri, N. (2016). Single case studies and theory-testing: the knots and dots of the process-tracing method, *International Journal of Social Research Methodology*, 19:2, 223-239, DOI: [10.1080/13645579.2014.979718](https://doi.org/10.1080/13645579.2014.979718)
- United Nations Declaration on the Rights of Indigenous Peoples Act. Bill C-15, Second Session, Forty-third Parliament (2021). <https://www.parl.ca/DocumentViewer/en/43-2/bill/C-15/royal-assent>

- United States Department of Energy (DOE). (2019). Natural gas flaring and venting: State and federal regulatory overview, trends, and impacts. *Office of Oil and Natural Gas*. Retrieved from: <https://www.energy.gov/sites/prod/files/2019/08/f65/Natural%20Gas%20Flaring%20and%20Venting%20Report.pdf>
- United States Geological Survey (USGS). (2021). Does fracking cause earthquakes?. Retrieved from: <https://www.usgs.gov/faqs/does-fracking-cause-earthquakes>
- United States National Research Council. (2008). Public Participation in Environmental Assessment and Decision Making, eds Dietz, T., Stern, P.C. National Academy Press, Washington, DC.
- Van de Kerkhof, M. (2006). Making a difference: on the constraints of consensus building and the relevance of deliberation in stakeholder dialogues. *Policy Sciences*, 39(3), 279-299.
- Van Der Heijden, J., Bulkeley, H., & Certomà, C. (Eds.). (2019). *Urban climate politics: Agency and empowerment*. Cambridge University Press.
- Verheem, R. A. A. & Tonk, J. A. M. N. (2000) Strategic environmental assessment: one concept, multiple forms, *Impact Assessment and Project Appraisal*, 18:3, 177-182, DOI: 10.3152/147154600781767411
- Volpé, J., and Thompson, W.M. (2011). Final Report: New Brunswick Energy Commission 2010-2011. New Brunswick Energy Commission. Retrieved from: <https://nben.ca/en/2008-2011-feedback-on-energy-commission-summary-document-2011.html?download=1681:final-report-new-brunswick-energy-commission-2010-2011-government-of-new-brunswick-2011>
- Warner, B., & Shapiro, J. (2013). Fractured, fragmented federalism: A study in fracking regulatory policy. *Publius: The Journal of Federalism*, 43(3), 474-496.
- Webler, T., & Renn, O. (1995). A brief primer on participation: philosophy and practice. In *Fairness and competence in citizen participation* (pp. 17-33). Springer, Dordrecht.
- Weible, C. & Cairney, P. (2018). Practical lessons from policy theories. *Policy and Politics*, 46(2), 183–197. <https://doi.org/10.1332/030557318x15230059147191>
- Weible, C. M., & Nohrstedt, D. (2012). Coalitions, learning and policy change. *Routledge handbook of public policy*, 125-137.
- Weible, C. M., & Sabatier, P. A. (2005). Comparing policy networks: Marine protected areas in California. *Policy Studies Journal*, 33(2), 181-201.
- Weible, C. M., & Sabatier, P. A. (2006). A guide to the advocacy coalition framework. In *Handbook of public policy analysis: Theory, politics, and methods*, (eds). Frank Fischer, Gerald Miller, and Mara S. Sidney. CRC Press.

- Weible, C. M., & Sabatier, P. A. (2007). The Advocacy Coalition Framework: Innovations and Clarifications. In *Theories of the Policy Process, 2nd ed.*, ed. Paul Sabatier. Boulder, CO: Westview Press, 189–222.
- Weible, C. M. (2008). Expert-based information and policy subsystems: a review and synthesis. *Policy Studies Journal*, 36(4), 615-635.
- Weible, C. M., & Sabatier, P. A. (2009). Coalitions, science, and belief change: Comparing adversarial and collaborative policy subsystems. *Policy Studies Journal*, 37(2), 195-212. <https://doi.org/10.1111/j.1541-0072.2009.00310.x>
- Weible, C. M., Sabatier, P. A., & McQueen, K. (2009). Themes and variations: Taking stock of the advocacy coalition framework. *Policy Studies Journal*, 37(1), 121-140.
- Weible, C., Heikkila, T., & Gerlak, A. K. (2010). Upscaling from Individual to Collective Learning in Policy Process Research. In *APSA 2010 Annual Meeting Paper*.
- Weible, C. M., Sabatier, P. A., Jenkins-Smith, H. C., Nohrstedt, D., Henry, A. D., & DeLeon, P. (2011). A quarter century of the advocacy coalition framework: An introduction to the special issue. *Policy Studies Journal*, 39(3), 349-360.
- Weible, C. M. and D. Nohrstedt. (2012). The advocacy coalition framework: Coalitions, learning, and policy change. In *The handbook of public policy* edited by E. Araral, S. Fritzen, M. Howlett, M. Ramesh, and X. Wu. New York, NY: Routledge.
- Weible, C. M., Heikkila, T., Ingold, K., Fischer, M. (Eds.). (2016). *Policy Debates on Hydraulic Fracturing: Comparing Coalition Politics in North America and Europe*, Palgrave MacMillan, New York.
- Weible, C. M., & Ingold, K. (2018). Why advocacy coalitions matter and practical insights about them. *Policy & politics*, 46(2), 325-343.
- Weible, C. M., Ingold, K., Nohrstedt, D., Henry, A. D., & Jenkins-Smith, H. C. (2020). Sharpening advocacy coalitions. *Policy studies journal*, 48(4), 1054-1081.
- Weiss, C. H. (1977). Research for policy's sake: The enlightenment function of social research. *Policy analysis*, 531-545.
- Weiss, C. H. (1982). Policy research in the context of diffuse decision making. *The Journal of Higher Education*, 53(6), 619-639.
- Wellstead, A. (2017). Plus ça change, plus C'est La Même chose? A review of Paul Sabatier's "an advocacy coalition framework of policy change and the role of policy-oriented learning therein". *Policy sciences*, 50(4), 549-561.

- White, L. (1994). Policy Analysis as Discourse. *Journal of Policy Analysis and Management*, 13(3), 506–525. <https://doi.org/10.2307/3325389>
- Winter, J., S. Dobson and S. Lorefice (2016). *Hydraulic Fracturing and Public Policy*. Knowledge Synthesis Report prepared for the Social Sciences and Humanities Research Council.
- Wood, C., & Dejedour, M. (1992). Strategic environmental assessment: EA of policies, plans and programmes. *Impact Assessment*, 10(1), 3-22.
- Wood, J. (2012). The Global anti-fracking movement: What it wants, how it operates and what next. *Control Risks Group, London*.
- Wynne, B. (1992). Uncertainty and Environmental Learning. *Global Environmental Change*, June:111-127.
- Yanow, D. (2000). *Conducting interpretive policy analysis* (Vol. 47). Sage.
- Yanow, D. (2003). Practicing Discipline. *PS, Political Science & Politics*, 36(3), 397–399. <https://doi.org/10.1017/S104909650300252X>
- Yin, R. (2009). *Case study research : design and methods* (4th ed.). Sage Publications.
- Young, R.A. (1987). Remembering Equal Opportunity: clearing the undergrowth in New Brunswick. *Canadian Public Administration*, 30(1), 88–102. <https://doi.org/10.1111/j.1754-7121.1987.tb00068.x>
- Zafonte, M., & Sabatier, P. (1998). Shared beliefs and imposed interdependencies as determinants of ally networks in overlapping subsystems. *Journal of theoretical politics*, 10(4), 473-505.
- Zito, A. R., & Schout, A. (2009). Learning theory reconsidered: EU integration theories and learning. *Journal of European public policy*, 16(8), 1103-1123.
- Zoback, M., Kitasei, S., & Copithorne, B. (2010). *Addressing the environmental risks from shale gas development*. Worldwatch Institute.

Appendix A: Interview Guide

What are the most important things to know about New Brunswick for an outsider like me to understand the responses to fracking here?

What do you think are some of the unique characteristics of the debate on fracking in New Brunswick?

This study seeks a range of viewpoints from key actors like yourself, each with different views of fracking and shale gas development in New Brunswick. Generally, how would you characterize your initial point of view when you first learned about fracking?

Different people have different beliefs that can influence their response to fracking in their regions. What would you say are your main values concerning shale gas development proceeding? Are there some values that take precedence over others?

What are your views on fracking? Why would you say you hold these views?

Have you tried to impact government decisions about fracking? What activities/strategies did you undertake with respect to influencing policy?

Who are the main people or groups in New Brunswick that share your views? Have you engaged with them? How would you characterize your relationship to them?

How would you characterize your level of knowledge about fracking?

Where do you go to get information about fracking? How did you use it to further your goals?

Over the course of the last 10 years that fracking in New Brunswick has become a prominent issue, have your views with respect to the practice evolved? and if so, how have they evolved?

Can you provide an example of when you felt you were given the opportunity to learn about fracking? and if so, what did you learn?

In your view, what role could information/knowledge have in the decisions to allow/ban fracking to proceed in the province?

How would you describe the role of professional policy analysts, citizen activists and interest group activists in the policy change process? Give some examples where you think you had an influence. Some where you did not. What do you think was the reason(s) for these differences?

How have you communicated your views with regards to shale gas development? Do you think your views have changed? If so, why do you think that might be?

Did you participate in any public participation processes (such as public forums and town hall meetings) on fracking? If so, did public participation processes meet your expectations? If not, what do you think could have been done differently?

Did you feel heard during the process? If so, when and why? If not, when and why not?

How has the government responded to concerns raised by different citizens? Do you trust authorities to make fair decisions about fracking in the province?

Do you understand why decisions were made the way they were? What do you think are the key factors that ultimately impacted government decision-making for fracking?

I would like your advice on other people to speak with. Who is the most appropriate person to talk to about fracking in the province?

[At conclusion of interview, researcher thanks participant and asks if they have any questions about the research or would like to add anything further.]

Appendix B: Research Ethics Board Approval

File Number: 03-16-21

Date (mm/dd/yyyy): 04/12/2016



Université d'Ottawa **University of Ottawa**
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice

Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Monica	Gattinger	Social Sciences / Political Science	Supervisor
Laura	Nourallah	Social Sciences / Political Science	Student Researcher

File Number: 03-16-21

Type of Project: PhD Thesis

Title: Shale Gas Development in Canada and the United States: Do policy processes shape social acceptance or opposition to fracking?

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
04/12/2016	04/11/2017	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:

N/A



Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Ethics Approval Notice

Social Sciences and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Monica	Gattinger	Social Sciences / Political Science	Supervisor
Laura	Nourallah	Social Sciences / Political Science	Student Researcher

File Number: 03-16-21

Type of Project: PhD Thesis

Title: Shale Gas Development in Canada and the United States: Do policy processes shape social acceptance or opposition to fracking?

Renewal Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
04/12/2018	04/11/2019	Renewal

Special Conditions / Comments:
N/A