A SEARCH FOR SUSTAINABLE ENERGY FUTURE FOR THE NORTHWEST TERRITORIES: THE ROLE OF POLICY INTEGRATION

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ABSTRACT

This study seeks to contribute to the knowledge about policy integration, and to investigate the capacity of consensus governments for integrated policymaking using the Northwest Territories renewable energy policy framework as a case study. The practical purpose is to contribute to the promotion of renewable energy by providing policy recommendations based on the study results.

The specific research objectives are: 1) to test the Northwest Territories renewable energy policy against the criteria for policy integration, and identify the key factors behind the apparent success in introducing renewables to the overall energy portfolio, and 2) to explore how the consensus nature of the Northwest Territories government contributes to integrated policymaking. Policy process stages were examined to find out if the resulting policies met the criteria for policy integration, and if the type (style) of policymaking in the Northwest Territories supported integrated policymaking. Research methods included document analysis and semi-structured qualitative interviews.

Research findings demonstrate that the Northwest Territories renewable energy policy framework satisfies the criteria for policy integration – comprehensiveness, aggregation, and consistency, and that consensus government has an increased capacity for integrated policymaking due to these factors: 1) greater policy stability than in a party-based system, which makes long-term policy solutions possible (important for issues requiring a long-term approach, e.g. renewable energy), and 2) better information exchange that contributes to policy comprehensiveness, consistency, and acceptance. Since policy solutions supported by the cabinet end up being upheld in most cases, a policy entrepreneur acting in a consensus government setting can facilitate the adoption of a specific policy through finding allies among cabinet members.

Main recommendations include: 1) to the Government of the Northwest Territories – to introduce renewable portfolio standard for the mining industry and increase Aboriginal and community engagement in renewable energy projects, 2) to provincial and territorial governments – to emulate the mechanism of Energy Charrettes, 3) to the federal government – to ensure long-term financial support for renewable energy.

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[1] Positions of interviewees indicated as of the time of research interviews.

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LIST OF ABBREVIATIONS

GHG	Greenhouse gases
GNWT	Government of the Northwest Territories
GW	Gigawatt
kW	Kilowatt
kWh	Kilowatt hour
MLA	Member of the Legislative Assembly
MW	Megawatt
NWT	Northwest Territories
NWT LA	Northwest Territories Legislative Assembly
NTPC	Northwest Territories Power Corporation

CHAPTER 1
INTRODUCTION

1.1. Northwest Territories Energy Challenge

Energy is one of the key issues in the life of northern communities. In a sense, everything depends on energy there. The Canadian North, defined as Yukon, Nunavut, and the Northwest Territories, accounts for only about 0.3 per cent of Canada's population and energy use, but with a population of just over 100,000 dispersed over 3.5 million square kilometres, the costs and logistics of energy distribution is a major issue (Government of Canada 2011). Per capita energy use in the North is twice the Canadian average, and Energy costs are a major contributor to the high cost of living in the North. In some communities, the cost of kilowatt-hour has been over 10 times the Canadian average (ibid). As a result, even with the high retail rates, energy costs have to be subsidized by territorial governments. For instance, the Government of the Northwest Territories (GNWT) has announced a leveling of electrical energy costs throughout most of the territory that started in October 2010 (ibid).

At the same time, renewable resources, only a tiny fraction of which have been developed, show enormous potential in the North (Government of Canada 2011). Some communities (e.g. Yellowknife) have access to a high-quality hydro resource, and thus have a more affordable supply of energy than other communities (NTPC, n.d.b). Yet smaller and more remote communities, as well as remote industrial sites such as mines, suffer from the high costs of imported fossil-fuel based energy and have been willing to consider all options that could reduce their energy expenditures (Government of the Northwest Territories, Government of Nunavut, and Yukon Government, n.d.).

Economically, renewables can be less expensive than diesel fuel in some cases, particularly in remote locations, and once a power generation facility has been built, renewables are not affected, or are less affected by price volatility that characterises oil-based fuels and natural gas (NT Energy 2013). Thus, renewables can provide both environmental and economic benefits, especially in a situation when fossil fuels are expensive and their supply is unreliable. In

addition to reducing the costs of energy, the Northwest Territories (NWT) are interested in exploring new business opportunities such as the production of wood pellets for the domestic market and potentially for export, which is not surprising given their vast and easily available biomass resource (Arctic Energy Alliance 2009; BW McCloy & Associates 2009).

The main drivers behind renewable energy projects in the NWT are clearly economic. However, other considerations exist. Climate change is perceived as an actual and real threat, with its impacts highly visible across the North, such as winter roads being operational for shorter periods of time, permafrost thawing threatening the foundations of industrial and residential structures, new threats to ecosystems such as southern pine beetles (who's habitats expand northward due to climate change) potentially destroying boreal forests, etc. (GNWT 2008a, 27).

The GNWT aims at contributing to the mitigation of greenhouse gas ("GHG") emissions by developing new renewable energy projects, and although this contribution will be of mostly a symbolic nature due to the fact that the NWT generate less than 0.2 percent of Canada's overall GHG emissions (David Suzuki Foundation, 2012), the power of example should not be underestimated.

In addition to greenhouse gas mitigation efforts, developing local sources of renewable energy potentially can serve as one of the ways to adapt to the threats brought about by climate change. If most energy is generated locally, a community becomes less dependent on the external supply of diesel fuel or LNG, hence this community (or a resource development project) becomes less threatened by the shortening of periods during which winter roads are operational or by the thawing of permafrost that complicates the construction of oil and gas pipelines.

1.2. Study Rationale

In Canada, the future of renewable energy depends on the decisions made by provinces and territories. Only some very limited renewable energy policies exist at the federal level. It has been argued that constitutional separation of powers that underpins Canada's federal system impedes the creation of a national renewable energy development strategy, because constitutional authority over electricity governance belongs to the provinces; and although the federal government could use certain strategies to overcome these constrains, so far it has been reluctant to play a more proactive role in the area of renewables (Liming, Haque, and Barg 2008; Valentine 2010).

Therefore, it becomes important to study successful provincial and territorial policy initiatives that are aimed at integrating renewables into the Canadian economy, thus making the necessary first steps towards sustainable energy future. Existing research on Canadian renewable energy policy deals primarily with the renewable energy policies of Canada's provinces, in particular, with Ontario's controversial feed-in tariff program (Heagle, Naterer, and Pope 2011; Mabee, Mannion, and Carpenter 2011; Stokes 2013; Winfield and Dolter 2014; Yatchew and Baziliauskas 2011). There has been very little academic research on renewable energy policies of Canadian territories (see Section 2.7. below).

The factors described above have stimulated the GNWT to develop a broad policy framework for the promotion of renewables, which includes the following documents:

- Greenhouse Gas Strategies enacted in 2001, 2007, and 2011,
- Energy Action Plan in 2013,
- A Vision for the NWT Power System Plan in 2013,
- Biomass Energy Strategies in 2010 and 2012,
- Solar Energy Strategy for the years 2012-2017, etc.

In addition to adopting a number of important strategic documents, the GNWT has taken a number of actions aimed at identifying and solving their energy problems, such as high energy costs, unreliability of supply, and dependence on imported diesel fuel:

- Organized the creation of The Vision for the NWT Power System Plan, containing a 20-year outlook for power systems development in the NWT (NT Energy 2013),
- Held two Energy Charrettes (in 2012 and 2014) in order to engage the public, stakeholders, and experts in the discussion of the NWT's current energy challenges and in the search for solutions,
- Established Small Renewable Energy Fund, Medium Renewable Energy Fund and Community Renewable Energy Fund, etc.

At present, the NWT have the most elaborate renewable energy policy framework among all Canadian territories. The policies adopted by the Territory have already translated into some success stories: dramatic increase in the use of biomass (instead of heating oil) in communities throughout the NWT; detailed plans for a large (4.6 MW to 9.2 MW) wind power project at Storm Hills outside of Inuvik (Pinard, Maissan and Trimble 2015); a 104 kW photovoltaic

system has been installed at Fort Simpson (GNWT 2013a), another 54 kW photovoltaic installation at Colville Lake (NTPC, n.d.a), and a number of other projects and initiatives. An effort is evident on the part of the Government of the NWT to diversify energy sources within the territory by tapping into the Territory's impressive renewable energy potential.

Renewable energy policy is just one of the many policy areas in which the North – defined as the Canadian territorial North – ranks among the most understudied and yet the most promising fields of enquiry for policy scientists. Certain issues such as devolution, treaties, Aboriginal rights, self-government, and land claims, have attracted some attention of researchers due to their centrality to life and socio-economic development in the North; however, other areas of public policy in the Territorial North have received little attention from political scientists (White 2011). Specifically, there has been a limited amount of academic research about how policies are made in the North, particularly by consensus governments (ibid).

Interestingly, the NWT renewable energy policy framework exhibits some unexpected features – namely, a certain degree of policy integration. Successful policy integration could normally be expected from much larger structures such as the European Union (EU), although the EU has gone much further in terms of policy integration compared to the NWT, where integrated policymaking is less pronounced and has a shorter history. The reasons why NWT managed to achieve a certain degree of integration or, at the very least, policy coherence, are particularly interesting, since the NWT, being small and remote, is a polity that is vastly different from the juggernaut of the EU, where the idea of a "Green Europe" is used for generating legitimacy for EU politics and for building a European identity (Lenschow and Sprungk 2010), and where the idea of integrated policymaking has gained more influence than anywhere else in the world (see Section 2.2. below). Presumably, there have been factors that have made coherent and consistent policymaking possible in the NWT. One such factor could be the consensus nature of the GNWT. Being non-partisan and therefore less politicised and more cooperative than party-based Westminster model, NWT's consensus government may have contributed to policy integration in the NWT.

Finally, it should be noted that this research is not looking to address the technological and economic feasibility of transitioning to a renewable energy-based economy in the NWT. The author's view is that without a major technological revolution in the field of energy storage such transition – whether in the NWT or elsewhere – would be unrealistic to expect in the near future.

At the same time, the difficulty of achieving the future based on renewable energy does not meant that we should not make an effort to increase the share of renewable energy to as much as it is economically and technologically feasible.

Renewable energy sources are not without their shortcomings, which will be considered (in application to the NWT) in Chapter 4 of this thesis. Among those shortcomings, arguably the most significant are the intermittency of wind, solar, and in some cases, small hydro. In the NWT, harsh climate conditions add to the challenge by making it necessary to have a reliable back-up option capable of producing baseload power on demand. Currently two such options available for the NWT include diesel (widely used, but has multiple shortcomings described below in detail) and liquefied natural gas (LNG), which has a good potential to replace diesel for many communities as a cheaper and cleaner burning fuel (NT Energy 2013).

1.3. Statement of Research Objectives

Based on the need to contribute to the knowledge about policy integration and the operation of consensus government, and also in order to make a contribution to the practical goal of investigating policy tools that could better serve the promotion of renewable energy, the present research aims to carry out an exploratory study of policymaking in the NWT using their recently developed renewable energy policy framework as a case study. The unit of analysis (case) in this study will be the process of development, adoption, and implementation of renewable energy policy framework in the NWT. In particular, this study intends to:

1. Test NWT renewable energy policy against the criteria for policy integration and identify the key factors behind the apparent success of the NWT in introducing renewables to the overall energy portfolio by means of consistent policy innovation.
2. Explore how the consensus nature of the Government of the Northwest Territories contributes to integrated policymaking.

Finding answers to the following questions will help achieve these research objectives:

- What were the key factors that triggered policymaking process? Who was setting the agenda initially?
- What mechanisms were used to formulate the policies and who was involved in policy formulation? Did all key stakeholders have a chance to participate in policymaking?

- Was there much controversy within the government in the process of considering and approving these policies?
- What are the practical outcomes (actual and projected) of these policies? How well do they manage to achieve their goals?
- What mechanisms are used for policy evaluation? Is there any iterative process for policy improvement?

1.4. Thesis Structure

This thesis consists of six chapters. Chapter 1 provides a statement of research problem, a rationale for the study, and research objectives. Chapter 2 contains an overview of relevant literature and determines the theoretical framework guiding this research. Chapter 3 describes research methodology and elaborates on the possible limitations of chosen methods. Chapter 4 contains a detailed review of alternative energy options the NWT could have used to overcome their energy challenge, and includes an overview of current and potential renewable energy projects in the Territory. Chapter 5 analyses NWT renewable energy policy using the theoretical framework described in Chapter 2. Finally, Chapter 6 summarises the results obtained through this study, makes recommendations based on the experience of the NWT, and suggests possible directions for future research.

CHAPTER 2
THEORETICAL BACKGROUND

2.1. Effects of Incrementalism and Policy Layering on Policy Innovation

Traditionally policy regimes have been developing incrementally in a "disjointed" ad hoc fashion over relatively long periods (Lindblom 1959, 1979). Although these regimes sometimes follow a unifying overall logic, more often policy instruments and programs end up being stacked on top of each other in a process known as "policy layering" (Hall and Thelen 2009; Kickert and van der Meer 2011; Moe 2005; Peters, Pierre, and King 2008; Thelen 1999, 2004, 2009; Weyland 2011). Over time, continued multiple layering processes result in the arrangements of policy instruments that are complex, costly to administer, and often contradictory, with counter-productive instrument mixes and incoherent goals (Rayner and Howlett 2009).

Attempts at policy innovation in the fields of the environment, sustainability, climate change mitigation, and renewable energy provide numerous examples of policy layering. New instruments and targets tend to be added to existing policy regimes, which are based on the paradigm of prioritising economic growth, which is hardly compatible with the goals and instruments of the new policies (Cato 2009, 2012; Worldwatch Institute 2013). The problem of policy layering can be illustrated by the Kyoto Protocol, which has seen little success in reducing GHG emissions "because it has relied on a mix of ethical and environmental rationales rather than economic ones" (Schiermeier 2012). In other words, the Protocol has attempted to superimpose a new policy regime over the existing one; moreover, the old and the new regimes were based on different paradigms and thus were largely incompatible. In contrast, an integrated strategy can be seen as a particular type of governance arrangement, in which conscious design has attempted to overcome the limitations on policy effectiveness caused by layering (Howlett and Rayner 2006).

Small, slow, and gradual change is certainly possible and sometimes can accumulate, in the long run leading to significant policy shifts (Atkinson 2011, Kickert and van der Meer 2011; Thelen 2009). However, it is hardly the best approach for dealing with urgent matters such as

preventing the worst effects of climate change and transitioning to sustainable development, especially since strategies based on incremental change can be easily subverted by the government that is unwilling to take substantive action (Howlett 2014). Even when the government is not interested in preventing or undermining change, outcomes of incremental policymaking tend to produce a pattern of change that stabilizes the status quo (with some adjustments), and is inherently not suitable for large-scale reform. As Lafferty and Howden (2003, 10) put it:

> The increasing recognition and acceptance of the fact that we are facing potentially irreversible damage to life-support systems clearly implies that, as far as some environmental objectives are concerned, these cannot simply be 'balanced' with the objectives of other policy sectors.

Consistent failure of multiple attempts to address the problems of climate change, environmental degradation, and sustainable development through gradual, incremental policy adjustment has caused a number of scholars to define a new class of problems – "super wicked" problems, which comprise four key features: limited amount of time available to resolve the problem (and the longer it takes to address the problem, the harder it gets); those who cause the problem also control solutions and are the ones with the least immediate incentive to act; the central authority needed to address the problem is weak or non-existent; and irrational discounting occurs that pushes responses into the future (Lazarus 2009; Levin et al. 2009, 2012). A "super wicked" nature of climate change has caused significant pessimism among environmentalists, and made the Worldwatch Institute doubt whether sustainability is still possible (Worldwatch Institute 2013). However, there may be a way to address the deficiencies of incrementalism through policy integration.

2.2. Attempting to Overcome Incrementalism: Policy Integration

The problem of introducing renewables is closely interconnected with economics (energy prices and subsidies, job creation, etc.), environment (reducing greenhouse gas emissions and air pollution, effects on local ecosystems, etc.), community governance (building technological, educational, and managing capacity, land allocation, connection to grids, etc.), and culture (acceptance of, and attitudes toward alternative energy sources). Therefore, due to its complexity, renewable energy policy is likely to be highly susceptible to problems caused by policy layering. One way to address complex interconnected problems is through the development and

implementation of integrated policy strategies. It has been argued that sustainable development is essentially inconceivable without successful policy integration (Lafferty and Hovden 2003).

An integrated policy is defined as a policy "in which, first, multiple policy goals can be coherently pursued at the same time, and, second, policy instrument mixes are consistent, in the sense of being mutually supportive in the pursuit of policy goals" (Rayner and Howlett 2009). Another important aspect of integrated policy strategies is that such strategies are not just policy documents, but rather cyclical governing processes and capacity building efforts aiming to better coordinate sectoral policies (Casado-Asensio and Steurer 2013).

According to Underdal (1980, 162), who was the first to describe the concept of policy integration:

> A perfectly integrated policy can therefore be defined as one where all significant consequences of policy decisions are recognized as decision premises, where policy options are evaluated on the basis of their effects on some aggregate measure of utility, and where the different policy elements are consistent with each other. In other words, a policy is integrated to the extent that it recognizes its consequences as decision premises, aggregates them into an overall evaluation, and penetrates all policy levels and all government agencies involved in its execution.

Underdal determined three criteria for an integrated policy:

- *Comprehensiveness* (at the input stage of policymaking process) – the requirement that space, time, actors, and issues are given sufficient attention. For instance, integrated policies should adopt a long-term view and all significant consequences and implications of policy decisions should be recognized as premises in the making of those decisions.
- *Aggregation* (at the inputs processing stage) – policy alternatives should be evaluated from an 'overall' perspective rather than from the perspectives of separate actors or sectors.
- *Consistency* (at the output stage) – in the resulting policies, specific implementation measures should conform to more general guidelines and to policy goals.

There is a certain theoretical challenge associated with policy integration: the theory of policy integration is anything but settled and has been approached from different perspectives – as an overarching principle, as a policy process, and as a policy outcome (Dupont and Oberthür 2012). Even the term "*integrated policy-making*" is not yet commonly accepted in the literature and is being used alongside with various more or less synonymous concepts such as *coherent*

policy-making, *policy coordination*, *holistic government*, etc. (Meijers and Stead 2004). More importantly, there is no common view about what are the basic requirements for policies to be qualified as "integrated" (Ishii and Langhelle 2011). However, the numerous variations in understanding what policy integration is, roughly follow two main approaches that could be described as *"strong"* or *"hard,"* and *"weak"* or *"soft"* integration (Jordan and Lenschow 2010).

The "strong" approach is more common in the literature on environmental and climate policy integration in the EU, especially in the recent publications. This approach originates in the 1987 Brundtland Report (WCED 1987), which called to systematically connect the seemingly incompatible goals of economic competitiveness, social development, and environmental protection, and hence to ensure sustainable development (Jordan and Lenschow 2010). Strong integration can be viewed as the integration of key policy objectives (such as climate change mitigation or adaptation) into the policy process on the local and regional scales and "mainstreaming" of certain objectives into new and existing sectoral policies (Biesbroek et al. 2010), or as a process that goes even further and establishes a joint policy for all involved sectors (Meijers and Stead 2004). A strong approach to integration requires a particular goal to become an *overarching societal objective* guiding policymaking process (Lafferty and Hovden 2003), and that such overarching goal is given priority over sectoral policies (Briassoulis 2004). In practical terms, strong integration would require including specific targets and measures (for example, aimed at mitigating emissions) into all sectoral policies, or developing a single mitigation policy for all relevant sectors, which in case of inconsistency would override any sectoral policy. Finally, "hard" integration includes a strong element of international cooperation and coordination of policies through the mechanisms provided by international agreements and intergovernmental organizations (Steurer, Berger, and Hametner 2010). This view of policy integration is shared by the Brundtland Commission (WCED 1987), the OECD (1996), the Intergovernmental Panel on Climate Change (IPCC 2013), and the above-mentioned authors.

There are some obvious advantages to the strong integration approach: primarily, that it has the potential to produce impressive results. For example, in the EU, where attempts at strong integration of environmental objectives into various policy areas have been ongoing at least since the start of the Cardiff process in 1998, GHG emissions have been slowly going down since early 1990s – in sharp contrast to the other parts of the world (US EPA, n.d.). The idea of the Cardiff Process was that all relevant configurations (policy areas) of the Council of the EU must develop

their own strategies for integrating environment and sustainable development into their respective policy areas (Kraemer et al. n.d., 3). Although the actual success of environmental policy integration in the EU has been moderate at best (Adelle and Russel 2013; Casado-Asensio and Steurer 2013; Dupont and Oberthür 2012; Jordan and Lenschow 2010; Kraemer et al., n.d.), the reduction in emissions nevertheless took place. Therefore, even relatively unsuccessful attempts at hard policy integration tend to produce better policy outcomes than when no such attempts are made. Besides, a strong standard of policy integration provides a clear methodological benchmark against which the real extent of integration can be measured (Dupont and Oberthür 2012; Lafferty and Hovden 2003).

However, a strong approach arguably sets a standard of policy integration that would be too high to be useful for studying integrated policy-making outside the EU. Europe is currently involved in a historically unprecedented integration experiment – the European Union. An important part of this experiment is "the story of a Green Europe" that is appealing to present and future generations, and is used to generate legitimacy for the EU and to build a common European identity (Lenschow and Sprungk 2010). Environmental policy is being used by the European institutions – the Commission and the European Parliament – to expand the mission of European integration, and therefore stands high on the agenda, even though EU's actual environmental performance is less impressive than its rhetoric (ibid).

Some authors have argued that EU's strong integrated policy strategies tend to fail as comprehensive governing processes (Adelle and Russel 2013; Casado-Asensio and Steurer 2013; Dupont and Oberthür 2012; Jordan and Lenschow 2010; Kraemer et al., n.d.). Limited and inconsistent success of integrated environmental and climate policies in the EU has led some to believe that policy integration should be essentially limited to providing direction and raising awareness of various issues in order to build capacity over time (Casado-Asensio and Steurer 2013). In their view, a "soft" approach to policy integration may end up being a more realistic option.

A "soft" approach to policy integration is more evident in the works of earlier scholars (Collier 1994; Underdal 1980), and in the research on the early stages of policy integration (Peters 1998), or on policy integration taking place outside of the EU (Rayner and Howlett 2009). Others have concluded that integrated policy-making should focus on building capacity over time by rising awareness (Casado-Asensio and Steurer 2013), or on ensuring win-win outcomes and

mutual gains between environmental and development objectives by means of promoting broad stakeholder participation and co-operation in the policy-making process (Liberatore 1997). Yet others have stated that integration is fraught with risks and can still create policy layering due to the remarkable resilience of pre-existing policy instruments and the general complexity of the task, and called for developing a better understanding of issues surrounding integrated policy design (Rayner and Howlett 2009).

The main weakness of the "soft" approach is that "soft" policy integration can easily fall into the trap of disjointed incrementalism (Lindblom 1959, 1979). In particular, if policy instruments are limited to "capacity building" and "rising awareness," things essentially continue in accordance with the status quo, even though over time the public may be getting more informed – and concerned – about the issues at hand. The only distinction between "soft" integration and incrementalism would be that the former eventually leads to the accumulation of a certain "critical mass" of change in public and policymakers' opinion, which in its turn may lead to policy change. Therefore, the only real way to distinguish between "soft" policy integration and incrementalism or agenda management policymaking (see Section 2.6. below), would be by looking at the policy outcomes, i.e. whether the supposed capacity building efforts have eventually led to real change. It is also not clear if there is any difference between "soft" policy integration and progressive incrementalism, where cumulative change – incremental changes moving in the same direction over time – results in paradigmatic policy shifts (Cashore and Howlett 2007).

It has been suggested that from a realistic standpoint a more narrowly defined approach – *sectoral policy integration*, such as climate policy integration or biodiversity integration (or renewable energy integration) – may be more effective in terms of achieving coordinated policy outcomes than an overly broad concept of environmental policy integration (Adelle and Russel 2013). Such narrower or "softer" concepts can be more readily grasped by policymakers, and produce outcomes that are easily measurable and therefore are easier to evaluate and communicate to the media (ibid). At the same time, this approach is still sufficiently "hard" and focused within the confines of a particular sector to produce meaningful change, and to mitigate the danger of falling back into disjointed incrementalism.

Since sectoral policies are easier to deal with for policymakers, a strong and comprehensive approach to environmental policy integration in the EU "may be evolving into a

number of discrete narrower exercises, each of which seeks to integrate narrow environment-related policy objectives into other non-environmental sectors in isolation from each other" (Adelle and Russel 2013, 9). This approach faces an obvious risk of policy fragmentation while trying to address closely interconnected environmental problems; however, it is apparently more capable to produce desired policy outcomes (ibid); and even partial success at addressing the problems of climate change, renewable energy, biodiversity loss, etc. would be better than policy reversal caused by the initially unrealistic expectations.

Sectoral policy integration also makes it easier to set a clear, uniformly accepted definition of a problem to be resolved by an integrated policy. Trying to find a single overarching problem definition that would make it possible to integrate environmental objectives into a variety of policies may end up being an overwhelmingly difficult task. For instance, EU's energy sector has been striving to achieve a high level of climate policy integration, but has largely failed to do so because consideration of climate policy objectives in the policy-making process was "crowded out by a dominant energy security discourse" (Dupont and Oberthür 2012).

The differences between types of policy integration, and between integration and incrementalism, can be summarised in a table:

Feature	**Strong integration**	**Sectoral integration**	**Soft integration / "progressive" incrementalism**	**"Disjointed" incrementalism**
Overarching objective	Yes	Yes	Yes	No
Objective applies to	Polity as a whole	Individual sectors	Individual programs	N/A
Building capacity over time	Yes	Yes	Yes	No
Cumulative change over time	Yes	Yes	Yes	No

Table 2-1: Types of Policy Change.

As Table 2-1 shows, the strength and comprehensiveness of policy objectives essentially determine what path policy change takes. Successful policy integration requires a clear and strong definition of policy objectives. However, the lack of clearly defined objectives of environmental policy integration becomes evident from the literature, where multiple competing definitions have been discussed, proposed, and criticized (Briassoulis 2004, 9-12). For instance, Lafferty and Hovden (2003) criticized the view that in the process of integrated policymaking, environmental and non-environmental objectives should be "balanced", or that any conflicts

between the objectives can be resolved to the satisfaction of all affected interests, and insisted instead on a definitive formulation of an overarching societal objective – the protection of the long-term carrying capacity of nature – that must be treated as an absolute priority. This problem definition clearly claims to be based on the scientifically established truth (limits to carrying capacity), and therefore to be superior to definitions based on the narrow private or societal interests. Others however have argued that sustainable development is just another "politically constructed concept," which allows policymakers to develop "different interpretations and operational definitions of the concept" (Casado-Asensio and Steurer 2013). This lack of a shared problem definition may have been one of the reasons why "strong" environmental policy integration in Europe has been less successful than intended.

Underdal's (1980) criteria of policy integration can provide a convenient way of estimating the degree of integration of actual policies. The *comprehensiveness* requirement can be measured along the issue dimension: the more related issues policymakers take into account as policy input, the higher the level of comprehensiveness (Ishii and Langhelle 2011). *Aggregation* can be estimated by looking at the depth and scope of a systematic analysis of the consequences of a policy and its alternatives. Such analysis does not necessarily have to be done by the policymakers, but at least they should give serious attention to the results of such aggregated evaluation (ibid). Finally, *consistency* means ensuring that individual government policies are not internally contradictory, and avoiding policies that conflict with reaching a given policy objective (Jones 2002). Therefore, consistency can be estimated by looking at the contradictions a policy has with itself or with other relevant issue areas: the more contradictions, the lower is the level of consistency of that policy (Ishii and Langhelle 2011).

This research will be relying primarily on the "soft" approach to integration based on the general notions of policy consistency and coherence along with the criteria set by Underdal. This approach is justified, because even in the EU integrated policymaking has not arrived at the point where "strong" integration comes without much effort. In other words, policy integration has to start somewhere, and it is logical to expect different degrees of integration when looking at polities that have been down that road for quite some time, and those that have started their integration efforts just recently (like the NWT).

Finally, even though integrated strategies have sometimes had little success in addressing sustainability-related issues, this does not mean that integrated policy approach should be

discarded. Logically, a complex problem that has its roots in various sectors of the economy, as well as in politics and culture, cannot be addressed by disjointed ad hoc changes to existing policy regimes. Even if the ambitious goals of strong policy integration turn out to be unattainable at the moment, limiting policy-making to disjointed incrementalism and policy layering is not a wise option. "Soft" integrated strategies could serve as a valuable tool if they are focused on providing direction, building capacities, and raising awareness by "systematically building knowledge bases, educating and training public administrators, informing and convincing the public in general and non-state decision-makers in particular" (Casado-Asensio and Steurer 2013).

Moreover, a "soft" approach may provide a more realistic option that is not limited just to raising awareness, but also allows to successfully achieve coordinated policy outcomes within more narrowly defined sectoral areas such as greenhouse gas mitigation or renewable energy (Adelle and Russel 2013). As a result, renewable energy could start with taking a firm foothold among other sources of energy; having proved its usefulness, it will become more and more acceptable for decision-makers and desirable by the general public, necessary institutional and technological capacities will be built, eventually leading to a burst of rapid policy and economic change through the process described by Frank Baumgartner and Brian Jones in their seminal article (Baumgartner and Jones 1991). Eventually, renewables could become mainstream.

2.3. The Choice of Theoretical Instruments

The choice of a theoretical lens used to look at the problem is determined by the subject matter and purpose of the study. The present research aims to study a particular set of policies that were developed in the NWT in response to their specific circumstances, from the inception of these policies and up to the present moment. Thus, it becomes necessary to choose theoretical instruments that are suitable for tracing policy development throughout the policy cycle, and for testing for the evidence of policy integration.

This research is primarily based on the theory of policy integration, which was described in the previous section. The process of creating NWT renewable energy framework will be traced throughout the policy cycle and tested against Underdal's criteria of *comprehensiveness*, *aggregation*, and *consistency*.

Scholars who study the policy cycle describe it as a process that goes through a sequence of stages (Brewer 1974; Howlett and McConnell 2013; Howlett, McConnell, and Perl 2015;

Lasswell 1956; Weible et al. 2012). Looking at a policy at every stage of its policy cycle will help to determine whether the policy meets the criteria of comprehensiveness, aggregation, and consistency. This research will be using Anderson's (1975, 26) classification of policy cycle stages which is both simple and logical:

- *Agenda setting* (problem definition) – the recognition of a certain subject as a problem that needs government's attention. At the agenda setting stage of the policy process the formulation of a problem directly determines policy objectives. Such objectives have to be sufficiently comprehensive and long-term to create a need for policy integration.
- *Policy formulation* – exploring various options available for addressing (or ignoring) the problem. At this stage, it is important to evaluate policy alternatives from an 'overall' perspective rather than from the perspectives of separate actors or sectors, and to make sure that chosen policy instruments end up being compatible with each other and consistent with general policy goals.
- *Decision-making* (adoption) – the government makes a definitive choice between options, including whether to act at all, and if yes, what actions to take. This stage is arguably of less interest for research on integrated policymaking, since policy's essential features (including whether it demonstrates some amount of integration) get defined during other stages of the policy process.
- *Implementation* – putting the government's decision into practice. Implementation has to be consistent (no part of an integrated policy is disregarded), otherwise, policy integration can start eroding. Various factors at this stage can undermine integration – for example, the new government may attribute lower importance to environmental concerns, causing the erosion of a previously adopted integrated policy that deals with environmental issues such as climate change, renewable energy, or pollution.
- *Evaluation* – assessment of the effectiveness and efficiency of a public policy in terms of its intentions and outcomes. Evaluation may lead to the changes of the whole policy or of some of its parts, thus either strengthening or undermining policy consistency.

Sometimes these stages are named differently, and sometimes additional stages such as "Termination" are added to the list, but on the whole the policy process can be boiled down to

these distinctive elements. In real life stages of policy cycle rarely happen in perfect logical sequence, which makes the idea of policy cycle essentially a metaphor (Howlett and McConnell 2013). However, this metaphor allows to bring order into the chaos of policymaking, providing an indispensable structural framework for describing and analysing the proposals and actions of policymakers, resulting policies, and their outcomes. Therefore, "… the notion of a policy process composed of a cyclical series of 'stages' … remains a dominant way of describing policy-making in contemporary policy science" (ibid).

NWT renewable energy policy framework is relatively new and has not been through the whole policy cycle yet, and decision-making was relatively simple and straightforward once agenda had been set and policy formulated. Therefore, the present research will be primarily focused on agenda setting, policy formulation, and implementation stages; information on decision-making and evaluation stages will be analysed where available.

In order to be able to fully analyse the process of integrated policymaking in the NWT, I will be utilizing certain other theoretical concepts in addition to policy integration theory. Each of these concepts will be discussed in detail in the following sections of the present chapter.

First, since one of the objectives of this research is to explore the effect that consensus government has on policy integration, this research will draw on the findings of other studies of consensus governments in the NWT and Nunavut.

Second, the efforts of policy entrepreneurs have played an important role in the development and adoption of the NWT's renewable energy policy framework. Therefore, I will be using the theory of policy entrepreneurship pioneered by John Kingdon (1984, 1995) and further developed by Michael Mintrom (Mintrom 1997, 2013; Mintrom and Norman 2009) and other researchers.

Third, integration cannot be achieved without a conscious intentional effort to solve an existing problem, however, not all ways of making policy are characterised by policymakers' rationality or by their efforts to solve actual problems. Different styles of policymaking exist, some of which may be more likely to lead to policy integration than others. This research will be taking into consideration the recent findings on policymaking styles (Howlett and McConnell 2013; Howlett, McConnell, and Perl 2015).

Finally, I will be using the findings from existing academic research on renewable energy in the Canadian territories.

The theoretical framework used for this study is summarised in Figure 2-1:

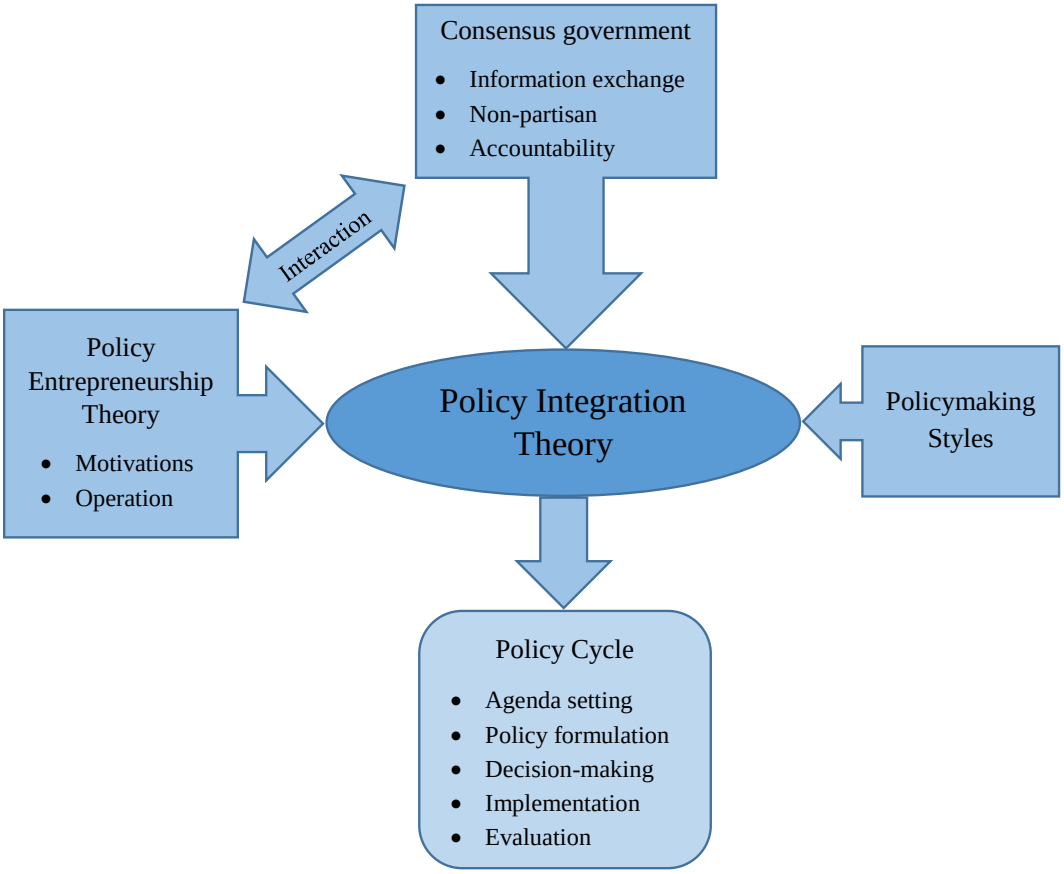

Figure 2-1. Theoretical Framework Flowchart.

2.4. The Role of Consensus Government in Integrated Policymaking

Policy incoherence can be expected when institutional framework is highly politicized; on the contrary, when institutional norms and procedures establish equality among actors, and when deliberation takes place in a non-politicized environment, coherent policymaking becomes more likely (Selianko and Lenschow 2015). Researchers working within the framework of discursive institutionalism have noticed that discourses have a varying influence on policy coherence depending on the mode of argumentation. The "soft mode" refers to the "argumentation that entails the mutual adjustment of preferences" (ibid, 6-7). Using this mode of discourse, "policymakers refrain from threats and aim to integrate policy views in a coherent manner" (ibid). Therefore, it may be fair to assume that for a non-partisan ("consensus") government, mutual adjustment of preferences comes easier. Therefore, such government may have a higher

potential for ensuring *comprehensiveness* and *aggregation*, and as a result – policy *consistency*, even without creating overarching societal objectives that guide policy-making process.

Being highly politicised by design, Westminster system may be the least effective system of democratic government in terms of producing integrated policy outcomes. Not surprisingly, the best examples of policy integration come from continental Europe with coalitional systems based on proportional representation. Being non-partisan and therefore less politicised and more cooperative than Westminster model, NWT's consensus government may have contributed to policy integration in the NWT.

According to Arend Lijphart's 1984 work "Democracies: Patterns of Majoritarian and Consensus Government in Twenty-One Countries" (quoted in White 1991), consensus democracies:

> … aim at restraining majority rule by requiring or encouraging the sharing of power between the majority and the minority ... the dispersal of power (among executive and legislature, two legislative chambers, and several minority parties), ... the delegation of power… and a formal limit on power (by means of minority veto).

This generic list of consensus government's features, however, does not say much about the consensus government in the NWT, which presents "an unusual, indeed unique, blend of traditional British Parliamentarism and northern political culture" (Cameron and White 1995, 53).

White (1991, 510) described a classic Westminster government model as "characterized by the domination of cabinet; whatever other political divisions exist, a fundamental chasm separates the powerful few – ministers – from the relatively powerless majority – ordinary members."

Unlike a Westminster government, NWT Legislative Assembly is formed and functions on a non-partisan basis: "All candidates for territorial office – even ministers seeking re-election – run as independents. After the election, … MLAs gather to select a Speaker, a Premier and the Cabinet" (Cameron and White 1995, 54). In this respect, the GNWT is similar to most municipal governments; however, unlike them (and just like the provincial governments and the House of Commons), the GNWT is based on the Westminster principle of *responsible government*: "the territorial cabinet retains office only so long as it maintains the "confidence" of the House" (ibid).

It is hard to say to what extent consensus government in Canada is based on the traditional Aboriginal style of decision-making by consensus. According to Cameron and White (1995, 56):

> Consensus government, as practiced in the territorial legislature, owes more to the absence of political parties than to traditional Aboriginal influences. At the same time, it is no accident that political parties failed to take hold in the NWT, for they are widely viewed among Aboriginal people as alien, counterproductive institutions.

However, regardless of the origins of consensus government in the NWT, some of its unique features may help integrated policymaking. First, "in the NWT, MLAs exercise an unusual degree of policy influence and generally command far more power over the Cabinet than do elected members in southern Canada" (Cameron and White 1995, 53-54). Such increased control extends to all cabinet members, including the Premier (ibid, 55). "Consensus government features a remarkable and salutary degree of accountability of the cabinet to the legislature," even though "accountability of government to the people is weak" because voters have no possibility of passing judgment on the performance of the government as a whole (White 1991, 2011). In other words, the cabinet is more directly and genuinely accountable to the elected Members of the Legislative Assembly (MLAs) than is usually the case in Westminster parliaments (O'Brien 2004).

Another factor that could be contributing to a better interaction of actors within consensus government at agenda-setting and policy formulation stages, may be the fact that information exchange in consensus government is significantly less constrained, as there is no reason for the cabinet to withhold information from the opposition. This distinction between consensus and party-based government has been described by Kevin O'Brian, Speaker of the Legislative Assembly of Nunavut (O'Brian 2004):

> …there are distinctive twists to the operation and influence of our [Nunavut] committees. First, they are routinely provided by cabinet with confidential information that committees in Ottawa and the provincial capitals could only dream of receiving. This includes draft government legislation, departments' draft expenditure budgets and other confidential documents. Cabinet does not share everything with the committees, but the practice of providing MLAs with important policy documents before they are finalized and made public offers cabinet an opportunity to determine and respond to MLA input and gives MLAs genuine influence – though by no means the final say – in important government decisions.

Better information exchange, in its turn, may affect policymaking by making the cabinet more inclined to listen to regular members and to take into account their criticisms and suggestions. It also has the potential to create incentives for political actors (in particular, for the cabinet and regular MLAs) to cooperate with each other during the policy process.

Both increased accountability of the cabinet and better information exchange within the government stimulate cooperation between the cabinet and regular MLAs, thus potentially contributing to policy acceptance, coherence, and stability. Consensus government may have a significantly lower potential for conflict and is more likely to produce long-lasting policy outcomes compared to a traditional party-based Westminster government model.

Finally, within every government there are legislators and cabinet members who are willing to invest time, energy, and reputation in order to achieve particular policy goals – *policy entrepreneurs* (Kingdon 1995, 122-123). The role and of policy entrepreneurs, and the strategies used by them within the framework of consensus government, may differ from how they act within other types of government, such as a party-based Westminster model.

2.5. Policy Entrepreneurs and Their Ideas

American political scientist John W. Kingdon believed that issues appear on the agenda in a random manner described as a "garbage can" model, depending on events (sometimes cyclical, but often random) that open windows of opportunity, often unexpectedly (Cohen, March, and Olsen 1972; Kingdon 1984, 1995). The very nature of the "garbage can" model means that, although the problems are often real and require attention, solutions have a life of their own, largely disconnected from problems, and organizations produce behavior that can be called a solution without necessarily solving the problem at hand (Cohen, March, and Olsen 1972).In this framework, policy entrepreneurs are the ones who "hook solutions to problems, problems to political momentum, and political events to policy problems" (Kingdon 1995, 182). By "coupling" solutions to problems, they promote policy change. Without necessarily accepting the "garbage can" model (as will be shown below, it is not universally applicable), one can agree that policy change often requires the catalyst of a policy entrepreneur (Weible et al. 2012). And although change is not impossible without entrepreneurs, their presence significantly raises the probability and legislative approval of policy innovations (Mintrom 1997). Literature suggests that policy entrepreneurship is most likely to be observed in cases where action requires creativity, energy, and political skill – usually when the challenges are so significant, that

established incremental ways of dealing with them are no longer adequate (Mintrom and Norman 2009). Moreover, according to Mintrom and Norman (ibid), "in any given instance of policy change, it is usually possible to locate an individual or a small team that appears to have been a driving force for action."

So, who are policy entrepreneurs? Kingdon defined them as advocates for proposals or for the prominence of an idea, whose defining characteristic is their willingness to invest their resources to achieve a desired policy change (Kingdon 1995, 122). However, Kingdon's definition does not necessarily distinguish entrepreneurs from other political actors and bureaucrats. Mintrom gave a more precise definition of policy entrepreneurs as "political actors who seek policy changes that shift the status quo in given areas of public policy" (Mintrom 2013). This definition implies that policy entrepreneurs are not just those who simply work to achieve incremental improvements, but rather are those who "seek to significantly change current ways of doing things in their area of interest" (Mintrom and Norman 2009).

Since they are seeking to change status quo instead of preserving it, policy entrepreneurs act differently from ordinary politicians and career bureaucrats. So how do they operate?

According to Weible et al. (2012, 17):

> There are no guarantees for influencing the policy process. The best individuals can do is to place themselves in a position to have a chance to make a difference, which includes developing the following strategies: (1) developing deep knowledge, (2) investing in networks, and (3) participating for long periods of time.

This description of policy entrepreneur's mode of operation is echoed by Mintrom (2013, 443):

> Policy entrepreneurs tend to work hard at (1) defining and framing problems, (2) building powerful teams that tap relevant knowledge networks, (3) amassing evidence to show the workability of their proposals; and (4) creating strong coalitions of diverse supporters.

These are the main requirements for a policy entrepreneur who wants to put a particular policy on the agenda and to see it through to decision-making and implementation stages of the policy process.

Policy entrepreneurs also require significant strategic vision and the ability to negotiate and trade policy positions with their colleagues, as well as excellent communication skills and what Kingdon calls "some claim to a hearing," since they often have to "soften up" both policy communities, which tend to be inertia-bound and resistant to major changes, and larger publics,

getting them used to new ideas and building acceptance for their proposals (Kingdon 1995). This "softening up" is required because governments do not act on ideas quickly, which may be frustrating for those who promote the idea, but reassuring to those who value stability (ibid, 129). If both policy community and the general public have been prepared in advance to expect and accept change, then "when a short-run opportunity to push their proposals comes, the way has been paved, the important people softened up" (ibid, 128).

Finally, policy entrepreneurs must develop their ideas, expertise, and proposals well in advance of the time the window of opportunity opens. Without that earlier consideration and softening up, they cannot take advantage of such window when it opens, so they need to be prepared to seize any crisis as an opportunity (ibid, 181-182).

Of course, sheer tenacity and efforts to soften up decision-makers and the public do not guarantee the acceptance of entrepreneur's idea. For an idea to survive and become a policy, it has to meet several criteria identified by Kingdon (1995, 131-139):

- *Technical feasibility*, which in Kingdon's terms means that the idea needs to be sufficiently "worked out," i.e. it should be possible to implement from administrative and technological standpoints,
- *Value acceptability* – proposals have to be compatible with the values of the specialists, policymakers, and the general public, and
- *Anticipation of future constraints*, which includes taking into account *budget constraints* – a proposal has to be financially acceptable, and *public acquiescence* – ultimately, proposals must be acceptable to the public – sometimes a broad, general public, and at other times, a more specialised public.

Why do entrepreneurs advocate policy change? According to Kingdon (1984, 1995), there are three main reasons:

- Promotion of personal interests, such as keeping one's job, expanding one's agency, promoting one's personal career,
- Promotion of one's values, and
- Solidarity with colleagues.

One of these factors is of particular importance for the present study – values. Values are among the key motivators for policy entrepreneurs, and also play a big role in determining the

acceptability of a proposal to policymakers and the general public. Besides, "coherent policymaking becomes more likely when policymakers share normative and cognitive ideas" (Selianko and Lenschow 2015). Some factors determining policymakers' mindsets may include resource economy, social problems, attitude to resource extraction as a way to resolve social problems, etc. Since Canadian Territories have a much larger proportion of Aboriginal population than anywhere else in Canada except Nunavut, cultural differences between First Nations, Inuit, and newcomers, may have affected policy decisions in unexpected ways.

The difference in values can be illustrated not only by the traditional left-right dichotomy, but also by the adherence to cultural paradigms that may be described as "Sustainability" and "Consumerism" (Worldwatch Institute 2010). These two sets of deep core beliefs can be summarised, on the one hand, as viewing nature as possessing inherent value that cannot be expressed in purely economic terms, and on the other hand, as an "underlying belief that … the primary role of Earth is to serve as 'natural resources' for humans to consume" (ibid, 144). This difference inevitably informs divergent policy choices. For instance, an "environmentalist" policy-maker would be much more likely to take a long-term outlook and would be willing to make innovative policy choices aimed at changing the status quo, even though such choices are not guaranteed to "pay out" in the short run.

This research will test various energy alternatives proposed or considered by the GNWT, for meeting Kingdon's criteria for policy acceptability, will identify policy entrepreneurs involved in making NWT renewable energy policy, the factors that motivated entrepreneurs to take this role, and the strategies and actions taken by them to promote policy change.

2.6. Styles of Policymaking and Policy Integration

According to Kingdon (1984, 1995), policy solutions often exist independently of problems and politics, and do not necessarily represent a rational effort on the part of policymakers to address an actual problem. However, policy integration cannot be achieved without a conscious intentional effort to solve an existing problem. Therefore, if the analysis of policymakers' behavior shows the lack of such effort, or demonstrates that policies are in fact aimed at other objectives than solving the declared problem, a conclusion may be drawn that integrated policymaking is not taking place.

Recent findings by Howlett and McConnell (2013) and by Howlett, McConnell, and Perl (2015) show that, depending on policymakers' priorities, different types or styles of policymaking can exist:

- *Problem-focused policymaking*, which "in its pure form … would be a comprehensively rational search for a solution to a problem, unencumbered by factors such as economic pressures and political ideology that might otherwise compromise such a process…" (Howlett, McConnell, and Perl 2015, 429).
- *Solution-focused policymaking*, where "…a preferred policy intervention marshals the entire policy process towards this end" (Howlett and McConnell 2013, 18).
- *Agenda management policymaking*, aimed at "creating a high 'feelgood' factor, helping keep a difficult issue down or off a crowded and politicised policy agenda, even at the expense of tackling the problem itself" (ibid). This type of policymaking leads to 'placebo' policies intended to create an impression that the government is doing something about complex, wicked problems, and could best be illustrated by the international "efforts" to cut down greenhouse gas emissions, where risk averse governments routinely "engage in … procedural strategies intended to downplay the problem and deny the need for substantive action … rather than act towards problem's remediation" (Howlett 2014).
- *Deal-focused policy making*, in which stakeholders attempt to promote (or stall) the deal in the environment where there are various competing definitions of the problem and, respectively, various proposed solutions. Deal-focused policy making usually takes place in peace processes and in coalition governments, "where there is a premium placed on reaching agreement among the various participants" (Howlett, McConnell, and Perl 2015, 428).

Figuring out which style of policymaking characterised the creation of the NWT renewable energy policy will help to determine whether policy integration has indeed taken place. It will also help understand whether and how consensus government contributed to the creation of an integrated policy.

For example, although *problem-focused policymaking* by itself does not necessarily lead to policy integration, this style would be more likely to produce policy outcomes that meet the criteria of comprehensiveness, aggregation, and consistency. A rational search for the best

solution to a problem would stimulate policymakers to pay sufficient attention to the relevant aspects and implications of policy decisions, and also would encourage a long-term approach in order to ensure that the problem does not re-emerge soon. It will also stimulate good faith efforts to evaluate policy alternatives from an overall perspective rather than from the perspectives of separate actors or sectors; and since consistent, non-contradictory policies have a better chance to solve the problem at hand, problem-focused policymakers will likely make an effort to ensure policy consistency. In general, clear and strong (universally accepted by various policymakers and the public) problem definition should be expected to help policy integration, while weak or contested definitions could undermine integration efforts.

The potential of *solution-focused* environment to contribute to policy integration is less clear, however, it is conceivable that policymakers could choose an integrated policy as their preferred solution in some circumstances. For example, the need to promote an idea of "Green Europe" as part of a larger agenda of constructing a new European identity may have stimulated environmental policy integration in the EU (Lenschow and Sprungk 2010). If so, environmental policy integration would be a solution chosen by the political elites to address the problem of gaining and maintaining public legitimacy for the European project.

Finally, it would be highly improbable to expect an integrated policy outcome of *deal-focused policymaking* or *agenda management policymaking*, since the former style is by its nature contextual and opportunistic, and the latter is essentially just a way to sabotage policy change – the very opposite of integrated policymaking.

Based on the above, if this study shows that NWT's renewable energy policy is the product of problem-focused policymaking (i.e. that the policy in question resulted from a comprehensive rational effort to solve an actual problem), this would increase the likelihood that integrated policymaking has taken place. However, the final decision on whether the NWT renewable energy policy framework demonstrates any signs of policy integration, will be made on the basis of Underdal's (1980) criteria detailed in Section 2.2. above.

2.7. Existing Research on Renewable Energy Policy in the Canadian Territories

In addition to general theoretical concepts, this work draws on existing research on renewable energy policies and programs in the Canadian North. In 2012 and 2013, McDonald and Pearce carried out two studies of perspectives and attitudes towards renewables in Nunavut. Their research has directly connected the lack of renewable energy policy in Nunavut with the

current human condition in that territory. In their first study, McDonald and Pearce explored the perspectives of government policy-makers, energy consultants, and NGOs in order to figure out why Nunavut, which is entirely dependent on diesel power, is lagging behind in the use of renewable energy. The study identified the following categories of gaps and challenges to introducing renewables in Nunavut:

1. Capacity-related challenges, such as the lack of skilled workers,
2. Cost-related challenges – high costs of renewables in the North,
3. Technology-related challenges caused by extreme environments,
4. Path dependency: Nunavut communities are locked into current methods of energy generation, and
5. Bureaucratic and institutional challenges – utility companies, who have a lot of influence over politicians, are skeptical about renewable energy, while politicians are unwilling to take long-term commitments required to get the projects going.

As a result, these challenges summed up to an "overwhelming organizational gap in program delivery and development." McDonald and Pearce (2012) also identified a number of opportunities for introducing renewable energy in Nunavut, and proposed certain organizational solutions.

In their second article, McDonald and Pearce studied community perspectives on renewable energy in Nunavut. This study differs from the one described above in that it deals with the perspectives of ordinary residents, who are neither decision-makers nor energy experts. The study shows that Nunavut residents are seriously concerned about environmental, health, and economic impacts of diesel power, and therefore most of them would like to see an increase in renewable energy generation. Interestingly, respondents identified similar challenges to, and solutions for the introduction of clean energy in Nunavut, as did decision-makers and experts (McDonald and Pearce 2013).

The Government of the Northwest Territories has also been doing its own research that has relevance for the development of renewable energy in the Territory. The GNWT produced or commissioned multiple reports that not only estimated existing renewable resource potential and technology, but also provided detailed data on energy conservation and renewable energy projects, for example:

- Report on the State-of-the-art and Economic Viability of Wind Power Development in Arctic Communities (Aurora Research Institute 2006),
- Reports on Public Works and Services Energy Conservation Projects, which also contain data on renewable energy projects (GNWT 2011b, 2012d, 2013b),
- Report on Greenhouse Gas Emissions Assessment, and Substitution of Fossil Fuels with Woody Biomass in the NWT (Manuilova and Johnston 2011), etc.

These reports provide a detailed in-depth account of the implementation of alternative energy projects, and possibly demonstrate that the Government of the Northwest Territories has a serious intention to promote renewables, especially biomass energy.

Finally, in September 2015, the research team at Carleton University School of Public Policy and Administration presented Report on the State of Alternative Energy in the Arctic (Cherniak et al. 2015). The Report provided a snapshot of energy usage in Yukon, Northwest Territories, Nunavut, Nunavik, and Nunatsiavut with a focus on electricity and space heating. Specifically, the research team made an overview of available energy alternatives as well as energy conservation and efficiency measures, and included financial analysis and a concise review of governance and policies. It also included case studies of eight projects in the field of northern alternative energy or energy efficiency technologies.

Policy-wise, the Report stressed that "a unified approach to policy is key," a "unified approach" being one where "high-level political commitments [are] coupled with a coordinated, overarching policy." The Report then cited the NWT energy policy as the best example of a coordinated sustainable energy policy in the Canadian Arctic (Cherniak et al. 2015, 139):

> Strong, clear policy signals spur interest and concrete actions towards sustainable energy projects. An example of a coordinated approach to sustainable energy policy can be found in the Northwest Territories where the NWT Energy Action Plan, the NWT Greenhouse Gas Strategy, the NWT Power Systems Plan, the NWT Solar Energy Strategy and the NWT Biomass Energy Strategy all combined to signal interest by the government, which has in turn sparked development of the renewable energy and energy efficiency sectors, while reducing greenhouse gas emissions as mandated by the NWT Greenhouse Gas Strategy.

Cherniak et. al. were among the first to note the coordinated and overarching (i.e. integrated) nature of the NWT sustainable energy policy. However, the Report did not provide any further analysis of the NWT energy policy from the perspective of policy integration theory,

nor did it contain a rigorous proof that the NWT renewable energy policy was indeed an integrated one. This is exactly what the present thesis will seek to achieve.

CHAPTER 3
METHODOLOGY

3.1. Introduction

This chapter describes research methodology, methods of data collection, and an approach to data analysis used in the current study. It starts with the justification for choosing a qualitative case study methodology. The next section describes of the process and methods of data collection, which include document analysis and interviews. A section on data analysis that presents coding techniques as well as the software used for transcribing, coding, and analyzing collected data is also included.

3.2. Qualitative Case Study Methodology

Qualitative methodology has been extensively used by social scientists and policy researchers in the field of renewable energy. Qualitative, open-ended interviews offer an opportunity to learn participants' judgments and terminology, and to explore the complexities of their perceptions and experiences (Patton 1990). McDonald and Pearce (2012, 2013) used qualitative semi-structured interviews with policy makers, energy community and NGO employees, and open-ended qualitative interviews with community members, in order to figure out opinions and perspectives on renewable energy in Nunavut. In addition to interviews, Painuly (2001) recommended carrying out literature surveys and site visits. Others combined semi-structured interviews with questionnaires, which allowed to obtain both qualitative and quantitative data (Rogers et al. 2008; Musall and Kuik 2011; Schaefer, Lloyd, and Stephenson 2012).

This research is based on qualitative case-study analysis. The case study methodological approach provides an intensive, in-depth method of enquiry focusing on a single real-life case while using a variety of sources of evidence to generate theories and hypotheses (McGloin 2008; Yin 2014). Case study methodology is particularly suitable for investigating social issues (Yin 2014), because it provides tools for researchers to study complex phenomena within their

contexts (Baxter and Jack 2008). In case of policy research, choosing case study methodology would allow to identify the institutional and political context where stakeholder interactions took place, as well as to detect narratives that were shaping these interactions.

An additional reason for choosing qualitative case study methodology for this particular research is the limited size of the energy policy community in the NWT: there are very few policy-makers, public servants, energy experts, and NGO and industry employees who are involved with renewable energy issues in the NWT on a regular basis. Unlike when quantitative methodology is used, small sample size in a qualitative case study does not by itself result in less complete or reliable research outcomes; in fact, even with a small sample it is possible to generate in-depth data on the subject (Crouch and McKenzie 2006; Yin 2014).

Another strong point of a qualitative case study approach is that it facilitates exploration of a phenomenon within its context using a variety of data sources (Baxter and Jack 2008; Yin 2014), which helps to provide a more complete picture and leads to more objective findings (Patton 1990). As opposed to other qualitative or quantitative research strategies, such as grounded theory or surveys, there are few specific requirements guiding qualitative case study research, which allows tailoring the design and data collection procedures to the research questions (Meyer 2001). The application of case study methodology is straightforward and consists of four stages: design the case study, conduct the case study, analyze the case study evidence, and develop the conclusions, recommendations, and implications to be shared with stakeholders (Tellis 1997; Yin 2014).

Case study design involves choosing the unit of analysis (case) – i.e. determining what exactly is going to be analysed, and making a decision on how many cases to include (Meyer 2001). In this research, the unit of analysis (case) will be the process of development, adoption, and implementation of renewable energy policy framework in the NWT, seen through the lens of policy integration theory. Systematic evaluation of the policy process stages will be performed in order to find out if the resulting policies meet the criteria for policy integration. Based on the posed research questions and other characteristics of this research, a single case study is sufficient; in other words, this is not a comparative study. This approach is valid, since the rigor of qualitative research does not necessarily depend on the sample size (Yin 2014).

This case study will utilise process tracing approach in order to identify chains of events and organise data in a systematic way (Bennett and Checkel 2015; Collier 2011). The term

"process tracing" refers to the examination of steps in a process in order to make inferences about hypotheses on how that process took place and whether and how it generated the outcome of interest (Bennett and Checkel 2015, 6). Process tracing focuses on the unfolding of events or situations over time, identifies key steps in the process, and draws conclusions from the diagnostic evidence collected in the course of this largely descriptive procedure (Collier 2011). Importantly, process tracing begins not with observing change or sequence, but rather with "taking good snapshots at a series of specific moments," because "to characterize a process, we must be able to characterize key steps in it, which in turn permits good analysis of change and sequence" (ibid, 824). In other words, process tracing is not a historic chronological account of events, but rather an analysis of key turning points in a process.

3.3. Diagnostic Evidence for the Analysis

Process tracing is an analytic tool for drawing descriptive and causal inferences from diagnostic pieces of evidence, often understood as "part of a temporal sequence of events or phenomena" that provides the basis for descriptive and causal inference (Collier 2011). How does the researcher establish that a given piece of evidence is diagnostic? According to Collier, identifying evidence that can be interpreted as diagnostic depends centrally on prior knowledge, which includes conceptual frameworks, recurring empirical regularities, and theory understood both as inferences from recurring regularities, and statements explaining why these regularities occur (ibid).

In the present research, diagnostic evidence will be determined on the basis of the general conceptual framework of policy process theory. Recurring empirical regularities within the evidence will be identified and tested against policy integration indicators determined by policy integration theory, including the criteria defined by Underdal in his 1980 work on integrated marine policy.

As a general guideline, the following factors will be taken into account when analysing the process of development of NWT renewable energy framework: key drivers behind the development of a strategy, arguments used by the proponents and opponents of various energy solutions, coherency between policy objectives and policy instruments, the hierarchy of policymakers' priorities, progress measurement under these strategies, and the actual results of policy implementation.

3.4. Data Collection and Analysis

The following methods will be used to collect and analyse data:

- Extensive literature review on policy process theory, policy integration and coordination, and on the operation of consensus governments in the NWT and Nunavut.
- Document analysis of relevant policy documents, articles, reports, Hansards, and media sources on the topic of renewable energy in the NWT, and
- Semi-structured qualitative interviews with decision-makers, public servants, energy experts, and industry executives in the NWT.

3.4.1. Document Analysis

Organisational and institutional documents have been a staple in qualitative research for many years (Bowen 2009). Document analysis is a systematic procedure for reviewing or evaluating documents – both printed and electronic, and is often used in combination with other qualitative research methods as a means of triangulation (ibid). Triangulation means that the qualitative researcher is expected to use multiple (at least two) sources of evidence, that is, to seek converging evidence through the use of different data sources and methods (Yin 2014). In this research, document analysis will be supplemented by semi-structured qualitative interviews (see Section 3.4.2. below).

In this research, document analysis included academic sources; official policy papers such as various energy-related strategies developed or commissioned by the GNWT; reports, feasibility studies and other studies conducted or commissioned by the GNWT; official websites of the GNWT departments, the NWT Legislative Assembly, and NWT NGOs; articles and news items in online and printed media, and occasionally other online sources. An effort was made to collect the full spectrum of data related to renewable energy in the NWT and to the operation of the GNWT as consensus government. Among other things, all transcripts (Hansards) of Parliamentary Debates that took place in the NWT Legislative Assembly (NWT LA) between January 1, 2000, and December 31, 2015, were analysed.

Academic literature, such as peer-reviewed journals and academic books, was used to collect information on the topics of policy change, policy process theory, consensus government, sustainability theory, renewable energy policy, and research methods.

3.4.2. Interviews

The interview is one of the most important and commonly used methods in qualitative research (DiCicco-Bloom and Crabtree 2006; Myers and Newman 2007; Qu and Dumay 2011). Interviews provide in-depth information pertaining to participants' experiences and viewpoints of a particular topic (Turner 2010).

In addition to document analysis described above, this research relies on the in-depth semi-structured qualitative interviews for data collection. The semi-structured interview involves prepared questioning guided by identified themes in a consistent and systematic manner interposed with probes designed to elicit more elaborate responses (Qu and Dumay 2011). The focus is on a series of broad themes to be covered during the interview to help direct the conversation toward the topics and issues about which the interviewer wants to learn (ibid). The format of a semi-structured interview was chosen because semi-structured interviews are at the same time specific and flexible enough, and allow the interviewer to direct the conversation toward the topics and issues about which the interviewers want to learn (Myers and Newman 2007; Qu and Dumay 2011). The list of interview topics, which was used as a guideline for the interviewer during research interviews, is attached as Appendix A.

Respondents were selected by snowball sampling, where existing research participants were asked to refer to other potential participants among their acquaintances who met certain criteria (Goodman 1961). Although snowball sampling in some research designs can lead to a bias since it is not a random sampling technique, a limited number of people engaged in the renewable energy field in the NWT meant that the pool of respondents unavoidably was limited, thus limiting bias (McDonald and Pearce 2012).

Initial contacts were established, and a network of respondents was developed based on their recommendations. Respondents were chosen based on their field of work from among policy-makers, public servants, NGO employees and environmental community. All respondents were directly involved in some capacity in the development, implementation, or evaluation of NWT renewable energy policy framework, including by means of making decisions, participating in energy or environmental planning, assessment, or regulation. Interviewees included the Minister of Environment and Natural Resources of the NWT, two Members of the NWT Legislative Assembly, Director of Energy Policy and Planning for the GNWT, Manager of Climate Change Programs with the Department of Environment and Natural Resources of the

GNWT, the President and CEO of the NWT Power Corporation, public servants, and NGO employees.

In total, 13 interviews were conducted, 9 in person in the city of Yellowknife, NT, and 4 by phone with people who were unavailable for a meeting at the time of research visit to Yellowknife. The duration of interviews varied from 27 to 93 minutes. All interviews were digitally recorded in .mp3 format and subsequently analysed. The use of phone interviews was justified, because phone and Skype interviews allow more flexibility in terms of time and location, while offering data collection effectiveness comparable to that of a face-to-face interview (Janghorban, Roudsari, and Taghipour 2014; Peters and Halcomb 2015). The disadvantage of other than face-to-face interview methods, namely, that the interviewer has no view on the situation that surrounds the interviewee (Opdenakker 2006), is unlikely to affect the quality of obtained data in this research because interviewee's situation is unrelated to the subject-matter of the research.

The respondents were interviewed either in person at the respondent's place of work (in one case at respondent's home), or by phone. In all cases except one the interview meeting or phone call was arranged in advance through email correspondence and/or preliminary phone calls. In one case the interviewee (a Member of the Legislative Assembly) introduced me to his colleague immediately after the interview, which resulted in an interview with his colleague without a prior arrangement. All participants signed consent forms (consent form template is attached as Appendix B), which offered them an opportunity to speak in confidence (waived by most respondents).

3.4.3. Technical Aspects of Data Analysis

Qualitative data analysis software QSR NVivo 10 was used for document analysis. NVivo allows to code large data sets and organise coded data in various ways, making it possible to analyse large massifs of text. Coding provided identification of themes and sub-themes in the categories. Data was categorised using a hierarchical structure of codes, each describing a specific issue that is either directly related to energy, such as "Wind," "Solar," "Hydro," and "Diesel," or is otherwise relevant to the subject, such as "Greenhouse gas," "Diavik," and "Taltson". Nodes with the large number of sources and references in them were subdivided by year, which not only made it easier to analyse a large number of references, but also allowed to estimate how many times a topic was discussed each year. In particular, this structuring of nodes

made visible a significant rise in interest in alternative energy options since 2008, and also showed a significant simultaneous rise in the discussion of climate change related issues.

3.4.4. Ethics and Licensing

This research was exempt from ethics review by the University of Saskatchewan Ethics Review Board (a copy of REB exemption letter is attached as Appendix C). Since scientific research in the NWT is subject to licensing, a NWT Scientific Research License was obtained (a copy of the License is attached as Appendix D).

CHAPTER 4

OVERVIEW OF ENERGY ALTERNATIVES FOR THE NWT

4.1. Introduction

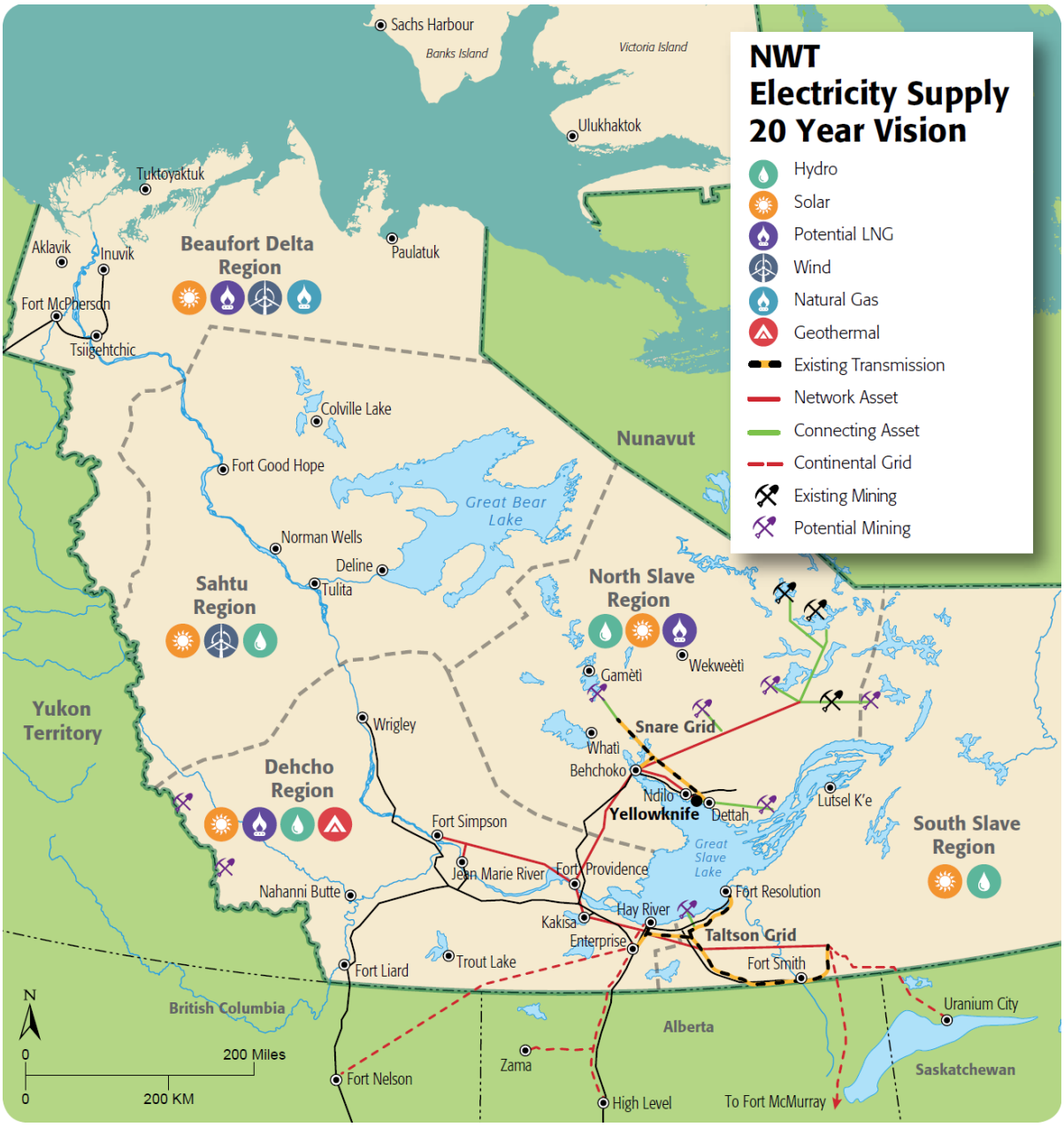

Figure 4-1. Map of NWT Electricity Supply: 20 Year Vision (NT Energy 2013, iii).

The GNWT has been considering various solutions that could serve as alternatives to fossil fuel-based energy. This chapter will describe those alternatives and the extent to which they are being applied in the NWT, and where possible, will make conjectures regarding their future potential. It will address the question of how and why certain alternative energy sources were accepted by the GNWT as solutions to the problem of high energy costs and low energy security.

In the policy primeval soup, quite a wide range of ideas (potential solutions that can be attached to existing problems) is possible and gets considered to some extent (Kingdon 1984, 1995). Ideas become prominent and then fade. Before an idea is accepted, there is a long process of "softening up," when proposals are made, introduced, changed in response to reaction, and made again (Kingdon 1995, 116-117). Moreover, not all ideas survive in this "primeval soup." For an idea to be accepted, it needs to be technically feasible, acceptable in terms of values, and take into account potential constraints within the policy community, such as budgetary costs, politicians' approval, and public acceptance (ibid, 131-139). Naturally, these requirements apply to alternative energy solutions being considered, and in some cases accepted, in the NWT.

4.2. Hydroelectricity: Reliable and Familiar, but High Up-front Costs

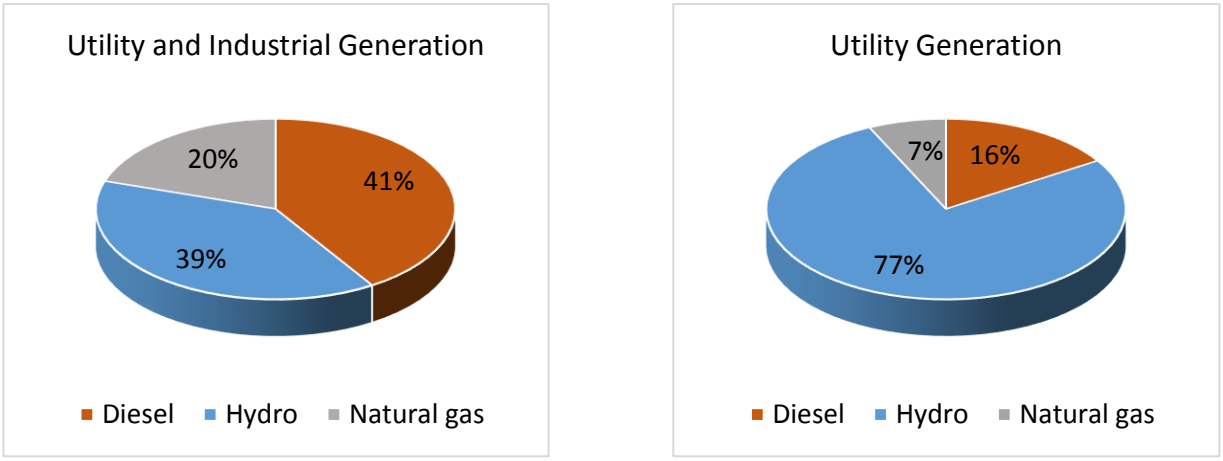

Figure 4-2. NWT Power Generation, by Source (NT Energy 2012a).

Hydroelectricity has always been viewed as the main alternative to diesel fuel. According to the Premier of the NWT Hon. Bob McLeod, hydroelectricity is "the most promising renewable energy opportunity available in the Northwest Territories" (NWT LA 2008, June 11). The NWT has an enormous hydro potential of 11.52 GW – more than the NWT could ever conceivably need (NT Energy 2012a). In contrast, only 55 MW (less than 0.5 percent) of this potential have been developed (ibid). The first hydroelectric plant in the NWT was created in 1941 by Cominco

Ltd. to supply power to Con Mine (ibid). As of 2007, six medium-scale hydroelectric plants were in operation with a total installed capacity of 54MW. All of them were originally developed to supply power to industry, but currently supply power to communities as well (ibid).

According to the Draft NWT Hydro Strategy, hydro provides 39 percent of all electric energy in the NWT (77 percent of utility generation) and is one of the main power sources, next only to diesel (41 percent), with natural gas being third at 20 percent (NT Energy 2012a, 6). The NWT Energy Priorities Framework has set a long-term commitment to the development of hydroelectric resources as one of the priority initiatives aimed at reducing NWT dependence on imported diesel fuel (GNWT 2008b).

The need to develop a specialized hydro strategy was addressed multiple times in legislative debates. In June 2008, Hon. Bob McLeod called for "a comprehensive Hydro Strategy that would quantify the resources available, identify the opportunities and the challenges of development, and also create a long-term vision…" (NWT LA 2008, June 11). According to him, in the next ten to fifteen years a Hydro Strategy could result in over $1 billion of investments in the NWT (NWT LA 2008, October 15). Hon. Bob McLeod called on communities and residents to consider the Hydro Strategy and to provide input and comments with the aim to finalize the strategy by April 2009 (ibid), and the need to develop a Hydro Strategy for the NWT remained high on the energy agenda of the GNWT in 2009 (NWT LA 2009, February 24). Eventually, a draft Hydro Strategy was made in 2012, but has never been officially endorsed and exists only as a draft (NT Energy 2012a).

Hydro was and continues to be viewed as a renewable technology of choice in the NWT. Medium and large-scale hydro is the only renewable energy technology that is uniformly viewed by the GNWT as an economical and reliable source of energy, while other renewables are still viewed with at least some skepticism despite receiving support from the GNWT.

First, hydro is considered as a source of power for remote northern communities that depend on extremely expensive diesel fuel, and often have diesel generators installed in the centers of communities with the resulting negative impacts on the health of the residents (NWT LA 2000, November 9). Second, hydroelectricity was viewed as a potential source of energy for mining sites, especially those that were new at the time, such as Diavik and Winspear (ibid). It was noted that one such mine had the need for power equivalent to the entire city of Yellowknife, and various plans were proposed on how to satisfy this demand from the local sources, e.g. by

building grids to deliver power produced by the Dogrib Power Corporation or by Taltson Hydropower Station to diamond mines (ibid).

The largest hydropower initiative that figured prominently in the plans but has not yet come to fruition, was the Taltson Hydroelectric Expansion Project – a proposed 36 MW hydroelectric expansion of the 18 MW Twin Gorges plant on the Taltson River. Total power available for sale was expected to be in the neighbourhood of 45 MW (NWT LA 2008, June 10).

However, despite NWT's impressive hydro potential, hydroelectricity has not become a universal renewable energy solution for the Territory. Hydroelectric projects, even small-scale ones, tend to have very high up-front costs. According to the estimates of the GNWT, life-time economic characteristics of small (below 1MW) run-of-the-river hydro projects are similar to those of diesel, although of course there is an undeniable benefit of carbon-free energy generation (NT Energy 2013, 29). Due a relatively high cost of energy generated by small-scale hydro, there is little economic incentive for communities to go off diesel, which shows similar economic performance.

Transmission lines are also expensive. Proposed transmission lines from Taltson dam to the diamond mines would have been 690 kilometers long (NWT LA 2008, June 10). The need to build a long and costly transmission line clearly had a negative impact on the project's economic feasibility. According to the Vision for the NWT Power System Plan, the cost of building transmission lines in the NWT ranges between $ 350,000 and $600,000 per kilometer (NT Energy 2013, 32), with some of the interviewees giving much higher estimates of at least $750,000 a kilometre (NWT LA 2013, February 20; NWT LA 2013, October 18), $800,000, and even $1 million per kilometer (Bob Bromley, pers. comm.; Dave Nightingale, pers. comm.). The source of the difference in cost estimates is uncertain and would require further research to determine.

Moreover, the costs of hydro projects are sunk costs. Unlike a solar array, a diesel power system, or even a wind farm, as a rule it is not possible to move a hydroelectric installation to a new place when it is no longer needed at its current location. Therefore, hydroelectric power may be a good choice for communities, which normally exist for long periods of time, but usually is not the best option for an industry that wants to generate power locally, unless there is an opportunity for the industry to connect to an already existing power transmission line.

High up-front costs also make it challenging for communities to finance the construction of hydroelectric power plants on their own, and the establishment and operation of local power companies required for community-owned power projects runs into numerous other organizational, financial, and capacity issues (Dave Nightingale, pers. comm.). Therefore, local small-scale hydro becomes non-feasible unless such projects are financed and operated by the GNWT. As a result, small hydro risks running into political problems, for instance, if the government chooses one community over others, this may cause the displeasure of other communities who were not selected for the project. And it would be unrealistic to expect the GNWT to simultaneously finance small hydro in every diesel-powered community that has access to a good enough hydro resource (Anonymous, pers. comm.; Emanuel DaRosa, pers. comm.). Besides, the GNWT may have been "afraid to give too much to one community," because other communities would likely be unhappy about the situation where "one community wins the jackpot, and nobody else," which could lead to undesirable political consequences for the government (Anonymous, pers. comm.).

The economics of medium (up to 10 MW) hydroelectric projects are significantly more favourable, and become particularly attractive in case of large hydro (NT Energy 2013, 30), however, there are simply very few communities in the NWT that may need more than a few hundred kW of installed capacity, and the largest of those are already using hydroelectricity as the main source of energy (such as Yellowknife).

Finally, large hydro tends to have significant local environmental impact and is very likely to face serious opposition from Aboriginal and environmentally minded NWT residents. Similar to small nuclear,[1] large hydro is not likely to pass the value acceptability test, although public acceptance is apparently much less of a concern in case of small- and medium-sized hydro (McDonald and Pearce 2013). One of the interviewees compared the attitude towards hydro with the attitudes towards other renewable sources such as solar and wind (Anonymous, pers. comm.):

> Hydro is very different [from other renewables]. Because once you are impacting waterways in Aboriginal communities, that water is really sacred. And so, hydro aside, there is tremendous support from Aboriginal communities for renewables, there are Sun and wind resources, that are part of this Earth, provided as gifts from the Creator. …those are seen as very much aligned with Aboriginal philosophy and principles. I know I am really generalising, but from the micro-grid conference, that was definitely a sentiment that was shared when community members got up and spoke, and were

[1] See Section 4.6. below for details.

> feeling very passionate about renewables and their benefits, and those being in alignment with their own values.

On the other hand, environmental arguments were passionately invoked in support of Taltson Hydroelectric Expansion Project by one of the members of the Legislative Assembly (NWT LA 2005, October 18):

> [We need to be] more aggressive in finding agreeable solutions that will keep the Northwest Territories at the helm when developing environmentally sound and respectful solutions that do not lead to the demise of what this last great frontier personifies: … respect for the environment, respect for the wildlife, and a continued traditional northern way of life.

The call for the implementation of the Taltson expansion project was framed as an urgent need to reduce GHG emissions that "will be directly attributable to the extinction of one of our true northern icons, the polar bear" (ibid). However, taking into account that the reduction of emissions in the NWT could not in any measurable way affect worldwide effects of global warming, it may be presumed that appeal to the environmental advantages of hydroelectricity was used primarily as an argument in favour of Taltson Expansion Project.

Again, since the biggest energy users in the NWT are mines and not communities (with the obvious exception of Yellowknife), medium- and large-scale hydro potentially could have been of interest for them, however, limited lifespan of mines combined with the long payback periods and sunk nature of hydroelectricity costs, make this option less attractive for the industry, unless there is an opportunity to connect to an already existing power transmission line (CBC 2011; Kevin O'Reilly, pers. comm.). Currently most mines are located in remote places with no access to the grid (see Figure 4-1). Therefore, at present NWT's impressive hydro potential is of little interest to the industry. However, this might change if the NWT eventually goes ahead with the Unified Grid initiative of the NWT Power System Plan (see Section 4.5.).

For instance, Taltson Hydroelectric Expansion Project was repeatedly criticized in the Legislative Assembly for spending substantial amounts of money (e.g. $1 million on an engineering study and another $1 million on an environmental study) before having any confirmed customers (NWT LA 2004, March 29; NWT LA 2006, February 3). The cost of putting a power transmission line from Taltson to diamond mines was estimated in the neighbourhood of $170 million as of 2004 (NWT LA 2004, March 29), and the overall costs of

the project were supposed to be even higher: Taltson Expansion was described by MLA Michael Miltenberger as a "half billion dollar project" (NWT LA 2009, February 25).

The 2008-2009 economic downturn further increased the skepticism of NWT MLAs in respect of the Taltson Hydro Expansion Project. They started expressing serious doubts in the economic feasibility of the project, which by 2009 had already been underway for five years, significant funds had already been spent, and yet the Project had not resulted in a power purchase agreement (NWT LA 2009, February 24). These factors were coupled with the concerns that "if the economy continues to slump, the mines aren't going to be interested in signing off on a purchase power agreement" and the calls "to look elsewhere on that Taltson expansion … to look at running lines into communities" (ibid). This idea was expressed by MLA Tom Beaulieu when he explained the slowness of progress with larger hydroelectric projects in the NWT: "…we don't get too far into the expenditures … to find out at the end of the day that we are not going to do the project, because it is not feasible, that we are not able to sell the hydro to the mines" (NWT LA 2009, February 24).

Besides the interests of the diamond industry, the discussion of the hydro expansion in the NWT was also linked to the plans to build pipelines across the NWT. Hydroelectricity was viewed as the main source of energy for the construction and operation of these pipelines, with power transmission lines following the pipeline and serving communities along its route (NWT LA 2006, February 3). The NWT Energy Priorities Framework expressly states that "oil and gas development will provide the foundation for the NWT economy for decades to come", and that "leveraging this development to expand … hydro … is a clear priority" (GNWT 2008b). However, since major pipeline-building projects such as Mackenzie Valley Pipeline have not so far got traction, there was no economic reason to engage in large-scale hydro development as a way to power up the pipelines in the NWT.

By 2008, the approach that had previously been mainstream for the GNWT – namely, considering energy generation in the context of big business – started to change. The GNWT started to realise the importance of developing mini hydroelectric projects that could be more convenient and reliable in addressing local needs. Even though large-scale projects can make it easier to tap into the advantages offered by the economies of scale, small-scale local hydro allows to avoid the biggest uncertainty associated with major projects – namely, the need for a sufficiently large, long-term market for energy. As MLA David Krutko put it when advocating

transition from fossil fuels to hydro in remote northern communities, "it doesn't have to be large-scale hydro projects which are going to cost us hundreds of millions of dollars" (NWT LA 2009, February 9).

According to the Budget Address regarding 2008–2009 budget, in addition to $3 million provided to the NWT Energy Corporation to conclude the regulatory process for the proposed Taltson Hydro Expansion Project, another $900,000 has been allocated to advance three mini hydro projects for Deline, Whati and Lutselk'e. Finally, $400,000 were provided to develop a NWT Hydro Strategy in order to find ways to reduce the cost of energy for northerners. (NWT LA 2008, May 22). According to the Budget Address for the years 2009-2010, it was proposed to spend an additional $1.5 million in 2009-2010 fiscal year to implement the Hydro Strategy, which still was at a draft stage; $2.5 million were allocated "to bring the proposed Taltson Hydro Expansion Project to the point where a decision can be made regarding the project's economic feasibility," and $800,000 were allocated to plan mini hydro projects in Lutselk'e and Whati (NWT LA 2009, February 5). In addition to the last two projects, MLA Norman Yakeleya demanded to put on high priority Deline mini hydro project in order to reduce the cost of living in the community by creating a community-owned mini hydro station (NWT LA 2009, February 9). Mr. Yakeleya has expressed disappointment with the fact that "this project has been in the books with Deline and the government 16 years and yet we're not seeing too much … in terms of construction of the Deline mini hydro" (ibid).

The focus on larger hydroelectric projects started to meet with increasing criticism from various Members of the Legislative Assembly. MLA David Krutko has expressly criticized the "unfair regulatory power program in the Northwest Territories" that is "helping … only big business," and insisted on implementing solutions aimed at reducing high energy costs for the ordinary residents of the NWT (NWT LA 2008, May 29). MLA Robert Hawkins came forward with a similar criticism just a few days later (NWT LA 2008, June 10):

> I find it odd that we're expanding the Taltson project specifically to meet the demands only of the diamond companies, which means we're building an expansion of the hydro facility just for them. … Have I understood that correctly, that there will be nothing really left over for any potential, you know, northern residences or businesses …?

And while recognising that "there'd be a reduction, a serious reduction, in greenhouse gas emissions, which would be a positive thing," MLA Jane Groenewegen criticized the idea of "creating a capacity that is going to be totally consumed by the diamond mines" (ibid). These are

just a few examples of MLAs' general dissatisfaction with projects that apparently would not provide sufficient immediate benefits to the residents of the NWT.

Sometimes large-scale hydro was framed as being mutually exclusive with mini hydro, such as in the statement of MLA David Ramsay: "…$2.5 million that we are looking at spending this year on the Taltson expansion ... it would make more sense to me if we took that $2.5 million and spent it in Whati and Lutselk'e and got those mini-hydro systems up and running sooner rather than later" (NWT LA 2009, February 25). He also argued in favour of setting up a wind farm at Tuktoyaktuk and "getting more alternative energy devices and infrastructure on the ground and in communities where they can make a difference," insisting that $2.5 million should be spend on smaller, local alternative energy projects rather than on Taltson Expansion that depends too much on volatile diamond market (ibid).

Mini hydro projects in Lutselk'e, Whati, and Deline have something in common – they have not been implemented yet. The question relevant to this research is why there has not yet been much success in developing NWT's impressive hydroelectric potential, especially taking into account that a mini hydro low-head and run-of-the-river turbines allow for a much greater choice of potential locations compared to large-scale hydro. One of the possible explanations was offered by MLA Bob McLeod, who stated (with regards to Deline mini hydro project) that the delay was caused by the lack of proven technology (NWT LA 2009, February 24). However, in reply to this, MLA Norman Yakeleya argued that this particular technology was viable and had been applied successfully in B.C. and in the U.S. state of Mississippi.

MLA David Krutko articulated a concern that mini hydro projects were not getting sufficient government funding. He noted that in the "Grants and Contributions" section of the budget the line item called "mini-hydro for communities" was missing, although it used to be there before (NWT LA 2009, February 24). The lack of governmental support may be further evidenced by the fact that less financing was allocated to mini hydro projects in 2009 than had been previously planned. MLA Tom Beaulieu, for instance, expressed surprise that instead of $5 million (as allegedly planned), the budget of only $250,000 had been allocated to Lutselk'e mini hydro in 2009 (ibid). Taking into account the timing, it may be presumed that the development of hydroelectric resources by the NWT communities was adversely affected by the economic downturn rather than by the unwillingness of the GNWT to support community hydro.

Another reason was more objective in a sense that it was related to the intrinsic features of hydroelectric technology rather than to policymakers' ideas about the proper role for hydro. One of the most pro-renewable and pro-hydro MLAs in the NWT legislature, Bob Bromley, described this obstacle as "long, long time frames and the significant dollars that go into developing any kind of hydro" when referring to Manitoba's experience in developing their hydroelectric potential (NWT LA 2009, February 24).

The benefits to the residents of the local communities was a recurring theme in the discussions related to hydroelectricity, and to the Taltson project in particular. The residents of the NWT had a hard time agreeing with projects that did not provide any immediate benefits to their communities (NWT LA 2008, June 16).

Eventually, despite all the obstacles that arose in the way of mini hydro development in the NWT, this form of renewable energy slowly started getting traction. In 2009, $250,000 were allocated to Lutselk'e mini hydro project, and another $250,000 – to Whati mini hydro transmission line. $200,000 were allocated to the planning work on the Fort Providence transmission line. Finally, $100,000 went to Bear River in-stream hydro project feasibility study (NWT LA 2009, February 24).

During summer seasons of 2010 and 2011, Fort Simpson Hydrokinetic Turbine Pilot Project was installed in Mackenzie River (NT Energy 2012b). This pilot project received financing from the Government of the Northwest Territories Energy Priorities Investment Plan. Hydrokinetic technology produces electricity in the free flow of the river without dams or diversions, and has a near-zero environmental impact. There are some limitations to the technology on which this project is based: these turbines cannot operate in shallow rivers (less than 25 feet deep), in slow current, or under ice, which significantly limits the applicability of this technology to the conditions prevalent in the NWT (ibid).

While remote communities do, as a rule, satisfy the "longevity" requirement, they are usually too small to justify the construction of a medium- or large-scale hydroelectric power plant. On the contrary, mines are major industrial consumers of energy, but their lifespans are usually too short to justify high sunk costs of hydroelectric projects. Finally, large hydro facilities produce a much greater environmental footprint compared to small run-of-the-river systems. Therefore, small local hydroelectric projects and other renewable energy alternatives may be recommended both for the industry and for remote communities.

Medium scale hydro has received more support due to better economics of such projects compared to diesel power generation, and also due to the ability to impound water, thus making power plants able to store energy, and therefore being more reliable than mini hydro (NT Energy 2013, 30). North Slave Resiliency Study, prepared by Manitoba Hydro for the GNWT, recommended to "sustain and enhance existing hydro system capability and operation where feasible, and assess options and criteria for developing the next new renewable generation capacity" (Manitoba Hydro International 2016, iii). This is noteworthy, since otherwise the Study was skeptical about renewables, stating that "continued reliance on diesel and/or new natural gas thermal generation to meet any demand that exceeds existing hydro system capabilities is currently the most cost-effective option to ensure reliable performance" (ibid, ii).

As for recent medium-scale hydro developments, in 2012 a new Bluefish hydro dam replaced the 70-year-old timber crib dam at the headwaters of the Yellowknife River. The new 7.5 MW dam has expected life of at least 100 years, and can supply up to 20 percent of Yellowknife's electricity needs, equivalent to about 11 million litres of diesel fuel each year (NTPC, n.d.c). The $37.4 million dam was NTPC's biggest construction project ever (CBC 2012).

4.3. Biomass: The Challenges of Creating a Local Industry

The GNWT started actively discussing the potential of biomass as a source of energy in 2008. Before that date biomass had been mentioned in the Hansards on rare occasions and has never been discussed at the Legislative Assembly in detail. By 2008 the NWT had already had a successful experience of using a 1.5 MW biomass heating system at North Slave Correctional Facility (NWT LA 2008, February 8). Savings for the period of January 1, 2007 to December 31, 2007 totaled $57,719 in reduced fuel costs because of the lower price of wood pellets compared to fuel oil, and emissions of greenhouse gases dropped by a total of 1,554 tonnes in one year of operation (ibid). Plans to install wood pellet boilers instead of heating oil boilers in schools, in correctional facilities, and in places where boilers were in need of replacement, were discussed in detail in the legislature, and arguments were made about potential long-term benefits of conversion to biomass, such as creating a local biomass industry and jobs (NWT LA 2008, February 18).

Intensive discussions continued in the Legislative Assembly throughout 2009. For instance, the 2009-2010 budget included $15 million in energy investments, where $1 million

was budgeted specifically to install wood pellet boilers in some government buildings (NWT LA 2009, February 5). In addition, Minister Miltenberger proposed to provide $2.5 million in capital retrofits to install wood pellet boilers in government buildings in order to reduce the NWT's reliance on diesel fuel in order to "make a critical difference in the cost of living and sustainability of our smaller communities" (ibid). On the whole, biomass energy was discussed 153 times in 26 hansards during the year 2009.

Based on these discussions, the GWNT adopted its first Biomass Energy Strategy in 2010 (GNWT 2010). The Strategy expressly names "rising prices for conventional fossil fuels, along with efforts to reduce greenhouse gas emissions that cause climate change" as the main reasons for promoting biomass. Another major motivation behind the GNWT's drive for biomass is the job creation potential of the biomass industry. Job creation was often stressed during the discussions in the NWT legislature, as well as by some interviewees (Kevin O'Reilly, pers. comm.; Shauna Morgan, pers. comm.).

The 2010 Biomass Strategy aims to build on the momentum towards greater use of biomass by helping to establish conditions for the increased use of biomass, as well as for local biomass production. The Strategy is consistent with the broader goals of the NWT Energy Plan and Greenhouse Gas Strategy such as the development of other clean energy sources, energy efficiency and broader energy supply questions.

The Strategy sets specific objectives and defines actions required to promote the use of biomass as a source of heat and power in the NWT. It also defines the institutional actors responsible for each objective, such as the GNWT Department of Environment and Natural Resources, the Arctic Energy Alliance, and the Department of Public Works and Services. These objectives and actions include:

1) Increasing education and awareness of biomass as a heating option for residents and businesses by promoting the use of wood pellet stoves, furnaces, and boilers;
2) Developing air quality guidelines for biomass burning in the NWT to address local air quality concerns;
3) Promoting biomass heating options such as efficient biomass burning technologies for residential use through the Energy Efficiency Incentive Program, which provides rebates on the purchase of efficient stoves, and working with communities to assess the potential for new district heat systems using biomass;

4) Promoting greater stability in the supply of biomass, including locally produced biomass, by working with the private sector and Aboriginal development corporations to identify viable business models to produce pellets and/or woodchips; also, valuating and quantifying wood resources around select communities and determine potential harvesting areas;
5) Promoting combined heat and power technologies, and installing a combined heat and power pilot project in one community by 2012.

As one can see, some of these actions are consistent with a "soft" approach to policy integration, while others are highly specific and indicate that renewable energy technologies are viewed as an important tool in reaching an overarching societal goal of reducing the cost of living in the NWT. The Strategy tends to take a "pilot project" approach to the problem, for instance, "larger boilers, possibly servicing loads on district heating systems, will be selected for pilot projects that use biomass to generate electricity" (GNWT 2010, 1).

The 2010 Biomass Strategy recognises a number of challenges to expanding the use of biomass and to the creation of the wood pellet industry in the Territory:

First, wood pellets are currently being purchased from northern Alberta, where a large volume of waste wood is available from the forestry industry at extremely low cost. The NWT does not have a similar low-cost supply of waste wood and would be forced to harvest trees to produce pellets, however, currently the NWT do not have any major forestry activities which creates a unique challenge to developing biomass energy (GNWT 2010, 2).

Second, concerns exist about the impacts of biomass harvesting on wildlife habitats and forest sustainability. Forest sustainability concerns were mentioned in several GNWT documents, in particular, in both NWT Biomass Energy Strategies, and in the 2013 NWT Energy Action Plan. However, for the most part, they included vaguely formulated commitments to "sustainability" in connection with biomass harvesting: the GNWT is obviously too interested in biomass development to assume obligations that might stand in the way. However, one notable exception – a specific obligation on the part of the GNWT – was included in section 7.4.3. of the 2013 NWT Energy Action Plan (GNWT 2013a, 38):

> The GNWT is committed to the development of the industry while ensuring that harvests remain sustainable. To achieve this, a coordinated effort is required to bridge the inter-connections between forest inventories and planning, community engagement and industry development. ENR [Ministry of Environment and Natural Resources] has

committed to spend $900,000 over the next three years to support these initiatives. The Federal Government has invested $1.40 million in 2013-14 supporting this work with ongoing discussions to expand on their investment.

An additional challenge is created by the fact that trees in the NWT grow slower than in the south, so the increased use of wood as energy source will require careful management of the forest to ensure the harvest is sustainable and carbon neutral (GNWT 2010, 1). Besides, it may be argued that in subarctic conditions biomass, although technically renewable, is not an optimal source of energy in terms of climate change mitigation. It would take about 70-75 years of regrowth (estimates for the Dehcho Region in the southern NWT) to sequester the annual emissions from bioenergy production, although the use of faster growing planting stock and proper forest management practices may shorten this period (Manuilova and Johnston 2011, 37). This factor may limit the acceptance of biomass among those people who adhere to environmental values.

Finally, transportation and distribution systems for wood pellets and conventional firewood are still underdeveloped, thus leading to high prices in many communities and vulnerability to supply chain interruptions (GNWT 2010, 1).

Despite these challenges, significant progress has been made in the use of biomass energy in the NWT since 2008 (see Figure 4-3 below). This growth coincided in time with the GNWT's efforts for the promotion of biomass as a source of heat and power, and is likely attributable to the government's efforts.

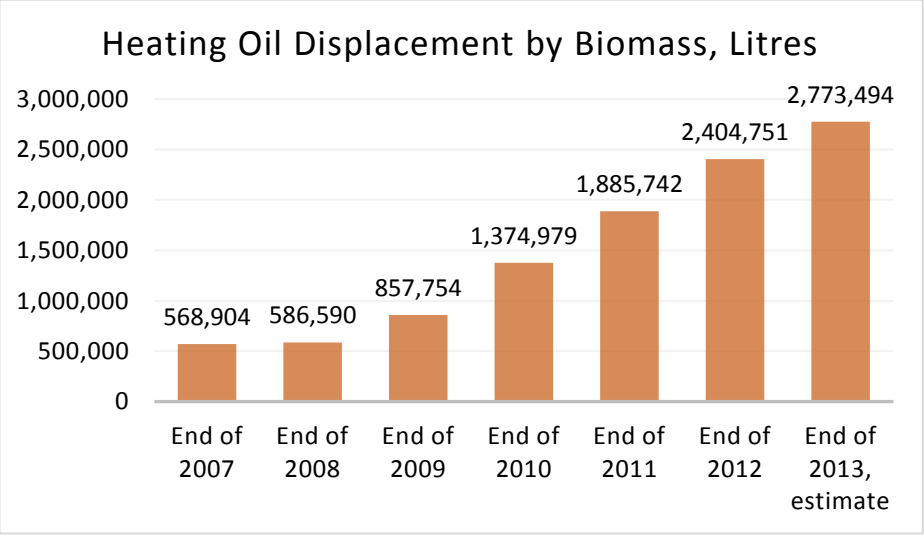

Figure 4-3. Heating Oil Displacement by Biomass (GNWT 2013a, 47).

Inspired by the success of its early efforts, the GNWT set a quantifiable target for biomass use in the 2011-2015 Greenhouse Gas Strategy: to increase biomass heating capacity in residential, commercial, and institutional sectors by 100 percent by 2015 (GNWT 2011a, 26). Achieving this target would have increased the total demand for wood pellets to about 30,000 tonnes by 2015 (GNWT 2012b, 9). A dramatic increase in the use of biomass necessitated the adoption of the next version of the Biomass Strategy.

The goals of the 2012-2015 Biomass Energy Strategy remained similar to those of the previous Strategy. The 2012-2015 Strategy also specified more instruments ("actions") for the promotion of biomass energy, including:

1. Increasing the use of biomass to heat public buildings and examining the potential for integrating biomass in public housing, in particular in large housing complexes.
2. Examining models for supply and distribution of biomass fuels in all communities and identifying potential clusters of buildings which could be converted to wood pellet heating systems.
3. Promoting biomass programs to residents and small businesses. The existing Energy Efficiency Incentive Program (EEIP) has been successful in supporting conversions to biomass systems in homes by providing rebates to consumers. Rebates for larger systems were transferred to the Alternative Energy Technology Program (AETP) in 2012. Community biomass initiatives have also received support from Community Renewable Energy Fund (CREF) and the Energy Conservation Program (ECP).
4. Expanding forest inventories in regions with expected increased forest use to ensure sustainability of biomass development in the NWT, and working with First Nations and communities to develop forest resource management agreements.
5. Promoting distribution and use of clean burning biomass technologies and developing guidelines for the regulation of biomass burning technologies by municipalities.
6. Supporting businesses and communities in developing biomass supply and distribution, and helping them to create a NWT Biomass Industry Association, etc.

The final evaluation of the performance of the 2012-2015 Biomass Strategy has not yet been performed. The interviewees directly involved with the implementation or evaluation of the NWT Biomass Strategies estimated the Territory's efforts in increasing biomass capacity as generally successful, but noted that building a local biomass industry remained outstanding and

constituted the main challenge for bringing biomass energy to the NWT (Anonymous, pers. comm.; Bob Bromley, pers. comm.; Michael Miltenberger, pers. comm.; Shauna Morgan, pers. comm.; Dave Nightingale, pers. comm.).

Some of the informants expressed certain doubts in the carbon neutrality and economic viability of biomass production in the NWT due to the length of time required for the trees to grow in the North, low mass of wood per acre, the near complete lack of infrastructure (such as roads) required to facilitate logging operations, and competition from the Alberta and BC biomass industry that has access to extremely cheap wood waste from logging operations (Anonymous, pers. comm.; Shauna Morgan, pers. comm.; Kevin O'Reilly, pers. comm.; Craig Scott, pers. comm.).

4.4. Wind, Solar, and Geothermal

Wind, solar, and geothermal energy are grouped together because they demonstrate similar economic, social, environmental, and technical characteristics according to a comprehensive overview of various energy options available for the NWT (NT Energy 2013, 27-29):

- High environmental benefits: no GHG emissions during power generation, and a small overall environmental footprint. For example, contrary to a popular misconception, wind turbines do not present any significant hazard to birds or other wildlife if restrictions such as placing outside of migratory birds' paths are observed (Government of Canada 2004, 14).
- High social benefits: they contribute to energy self-sufficiency of communities by reducing dependency on imported fuels.
- Medium (low in case of geothermal) level of technical viability: these are reliable and proven technologies; however, wind and solar are intermittent and can't provide baseload power, and geothermal availability is very limited geographically.
- Negative economic benefits: as a rule, subsidies are required. These sources can be cost competitive with diesel power, but most northern communities are too small to achieve sufficient economies of scale.

At a sufficient scale, wind can be more economically efficient than diesel. Diavik Diamond Mine became the first mine in the Canadian North to demonstrate that the industry in the NWT was open to the idea of using locally produced energy instead of energy that had to be

transported from other locations in the form of diesel fuel. Diavik Diamond Mine brought utility-scale wind energy development to Canada's North: 9.2 MW Diavik Wind Farm came online in late 2012. It is a private industrial power plant, which is not subsidized by, or associated with, the GNWT. Diavik Wind Farm is integrated with diesel due to the intermittent nature of wind energy, and is estimated to save the company $5-6 million a year in fuel costs (Canadian Wind Energy Association 2013). This farm alone was estimated to displace about 5 million litres of diesel fuel per year (ibid). Diavik expects the $33 million project, which is the world's most northern large-scale wind-diesel hybrid power system, to reduce its reliance on diesel by around 10 per cent and lower the mine's carbon footprint by about 6 per cent (ibid). This project, however, was developed independently by the industry and was not attributable to the NWT's renewable energy policy framework.

It is not entirely clear why other mining enterprises in the NWT did not follow Diavik's example. During research interviews, interviewees offered various explanations as to why Diavik was the only mine that used alternative energy to power its operations. Some attributed this to the limited lifespans of the mines, which makes it pointless for older mines to invest in renewables, but also admitted that some mines had lifespans comparable to that of Diavik (Kevin O'Reilly, pers. comm.). Others expressed some degree of doubt in the accuracy of Diavik's numbers and also suggested that since the economies of various diamond mines differed, for some there was less economic sense in using renewables (Dave Nightingale, pers. comm.). The most probable answer may be that Diavik's innovative approach could be attributed to the fact that the mine was operated by Rio Tinto company Diavik Diamond Mines Inc. Rio Tinto Group is a major multinational metals and mining corporation that is publicly traded on world's largest stock exchanges, and tries to maintain a "green" image. Therefore, it has more financial resources to invest in what may be viewed by some as "risky" projects, while at the same time having an added incentive to improve company's image internationally (Kevin O'Reilly, pers. comm.; Jim Sparling, pers. comm.). Finally, one interviewee harshly criticized the executives of local Canadian mining companies, describing them as men in their fifties, who were unable and unwilling to innovate as long as their own positions were secure (Anonymous, pers. comm.). Unfortunately, attempts to establish contact with the representatives of Diavik were unsuccessful, so their views on why other mining companies did not follow Diavik's example remain unknown.

The GNWT could stimulate other mining companies to use renewables by means of setting renewable portfolio standards for the industry; however, such action on the part of the GNWT so far seems unlikely for the reasons discussed in more detail in Section 5.7.2. on renewable portfolio standards.

Another large wind power project was proposed at Storm Hills between Inuvik and Tuktoyaktuk. The location was described by Minister Miltenberger as having potential for "world-class wind development" (NWT LA 2013, March 11). The potential installed capacity of this project was estimated between 4.6 MW and 9.2 MW (Pinard, Maissan and Trimble 2015, 2). At this scale, the project becomes cost competitive with diesel power generation and, in some circumstances, with liquefied natural gas power generation (if the capacity is fully utilized), although at present electricity loads, the utilization would be limited and the costs would slightly exceed the long-term cost of diesel generation (ibid). Depending on the installed capacity and the location of wind turbines, the overall cost of the project was estimated between $26.6 million and $55.3 million (ibid, 19). Construction has not yet started, but pre-project feasibility studies are actively going on (Carmichael 2015).

Wind was also considered as a potential power source for the city of Yellowknife that could help compensate for low water in the Snare hydroelectric system caused by draught conditions (Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.). Recently, water levels in the Snare system were at a 64-year low, which forced NTPC to apply for a 3.7 cent rate rider to pay for the additional 16 million litres of fuel to be burned until June 2015 – at a cost of about $20 million that was covered by the GNWT, which recognized that customers could not afford any further increases of their power bills (Miltenberger, n.d.). Yellowknife is sufficiently large to justify the construction of a wind power plant that could benefit from the economies of scale; however, several interviewees estimated the quality of wind resource in the vicinity of Yellowknife as mediocre (Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.). Therefore, the use of wind power for Yellowknife seems unlikely in the near term.

As for solar energy, a 104 kW photovoltaic system installed at Fort Simpson is saving rate payers $31,000 and reduces GHG emissions by 72 tonnes per year (GNWT 2013a, 39). Besides, there is a recent 54 kW photovoltaic installation at Colville Lake (NTPC, n.d.a), and a constantly

growing number of smaller solar arrays on schools and other public buildings, and community and business-owned solar installations.

Besides, as of January 31, 2014, the Public Utilities Board approved the implementation of net metering by the utilities in the Northwest Territories (NTPC 2014). The program is open to electricity customers who own small, commercially-proven renewable energy generators, and it allows customers to accumulate energy credits monthly for any excess electricity they produce. The credits can then be used against those months when their energy usage exceeds their production. Customers can use excess generation up until March 31 of each year which allows them to use the credits in the winter months when they are most needed. Customers are responsible for all costs associated with purchasing and installing renewable energy systems (NTPC 2014). In an interview to CBC, Louis Azzolini, Executive director of the Arctic Energy Alliance, estimated the start of the program as a success: "Of the $200,000 in rebates available, about $180,000 is committed. Almost exclusively it's going toward solar energy, solar technology" (Gleeson 2015).

Solar technology is particularly attractive for small remote communities due to the undeniable advantages of being easily scalable, not requiring heavy equipment for installation, and being easier to install or repair compared to most other renewable energy technologies. According to the GNWT, solar charging systems, combining PV panels with battery storage and generator back-up, are now the most economical way to provide reliable electricity in remote camps, lodges, and off-grid homes (GNWT 2012e, 1). The GNWT recognised the potential of solar energy, and in the 2012-2017 Solar Strategy it has set a target to install solar systems with the capability to supply up to 20 percent of average loads in NWT diesel communities (ibid).

One renewable technology that has been considered and the feasibility of which has been studied but which has not been applied in the NWT, is geothermal energy. The Legislative Assembly started actively discussing geothermal energy in 2008. In March 2009, the Assembly held hearings on the potential for the production of geothermal energy. Among other things, it was noted that private business “would very much like to get involved in the installation of geothermal heat technology and equipment … in Hay River” (NWT LA 2009, March 12).

Subsequently the GNWT has commissioned EBA Engineering Consultants Ltd. “to advance the understanding of the potential for geothermal energy production in the NWT” (EBA Engineering Consultants Ltd. 2010). According to the resulting report, the Dehcho and South

Slave Regions appear to have the best geothermal potential in the NWT. However, the estimated costs of geothermal resource development for Fort Liard showed that geothermal is not an economic option for this community without subsidy, and by extension not likely economic in other communities with less favourable geothermal potential (NT Energy 2013, 53). The likelihood of finding and developing a source of geothermal energy suitable for electricity production over the 20-year planning horizon was estimated as very low. As a result, geothermal electricity generation is not considered a viable generation option for electricity resource planning purposes by the GNWT (ibid, 29).

4.5. Creating a Unified Grid

By far the largest energy initiative of the GNWT is the NWT Power System Plan, which includes interconnecting the existing Snare and Taltson Grids, creating an intertie with the continental grid through Saskatchewan and/or Alberta, and extending the grid north and northeast of Yellowknife, all the way to the diamond mines of the North Slave region (NT Energy 2013).[2] The possibility to set an industrial scale wind farm in the northern tundra and to interconnect it with the NWT grid and the mines was also once considered by the GNWT (Jim Sparling, pers. comm.), although it was not specifically mentioned in the Vision for the NWT Power System Plan. The NWT Grid Project, if realised, will provide relatively low-cost, reliable hydroelectric power to remote locations where main deposits of diamonds and some other natural resources are located, and will open up these areas to natural resource development. Besides, this project would have a positive side-effect of drastically reducing the industry's emissions of greenhouse gases, thus significantly improving NWT's environmental record and image both domestically and internationally.

However, according to some interviewees, the NWT Grid Project would cost between $1 billion and $1.2 billion (Michael Miltenberger, pers. comm.; Jim Sparling, pers. comm.). Even though the industry would definitely benefit from the NWT Grid Project, industry likely would not be ready to share these costs with the GNWT, while the government may not be able to carry out an infrastructure project of this magnitude on its own, even with the recent increase of the NWT borrowing limit to $1.3 billion (GNWT 2015b). The 2014 Energy Charrette Report

[2] See Figure 4-1 above for details.

admitted that "the potential transmission line build-out … cost (well over $1 billion) is beyond the financial capacity of the GNWT" (GNWT 2014, 1).

Interestingly, while the idea of connecting Snare and Taltson Grids received support from some of the strongest advocates of renewable energy in the GNWT, the idea of connecting NWT's grid to the continental grid faced opposition from the same people for both environmental and economic reasons (NWT LA 2013, February 20; NWT LA 2013, October 18; NWT LA 2013, October 28; NWT LA 2014, February 25). The main concern was that connecting to the South would result in "importing primarily coal power, the dirtiest possible fuel, and the most inefficient … to generate electricity, and the most damaging of the fuels to climate change" (NWT LA 2013, October 18), that would "replace our local clean hydro power … with the dirtiest power in the world" (NWT LA 2013, October 28). Additionally, concerns were raised about high cost of connection to Saskatchewan, and plans to export power to Saskatchewan were criticized as economically "nonsensical" (NWT LA 2013, February 20), since "power in Saskatchewan costs one-quarter of that in Fort Smith, so we will sell our power at a steep loss" (NWT LA 2013, October 28).MLA Bromley insisted instead that the best way – economically and environmentally – was to use the money required to build the connection to the continental grid to support local energy producers in the NWT (NWT LA 2013, February 20).

This is an example of how a policy entrepreneur keeps a preferred solution – renewable energy – on the agenda, and works to prevent the choice of alternative solutions that would be incompatible with renewables. By doing this, MLA Bob Bromley also contributed to policy integration by ensuring policy consistency – otherwise the choice of an incompatible solution would have undermined the future of renewables in the NWT.

In Kingdon's terms, grid unification as an energy option has failed the *anticipation of future constraints test*, in particular, budget constraints. Besides, it encountered problems with value acceptability once it became clear that connection to the continental grid would result in purchasing massive amounts of coal-generated electricity.

4.6. Small-Scale Nuclear: Hindered by Values and Legacy

There have been calls to start using nuclear energy in the Canadian North as a way to counter growing fuel prices; small and very small modular reactors were proposed (Brusilow 2011; Waters and Didsbury 2012). Isotopic batteries have also been considered for communities too small to host even the smallest of nuclear reactors (Jim Sparling, pers. comm.). However, the

proponents of nuclear solutions for remote northern communities tend to ignore the history and legacy of relationships between Aboriginal peoples and uranium companies in the NWT and elsewhere. These relationships far too often have been deeply unfair, exploitative, and in many cases left long-lasting legacies of health and environmental problems for Aboriginal communities, well-studied in literature (Dawson and Madsen 2011; Graetz 2014; Hiesinger 2002; Jensen-Ryan 2014; La Duke 1981; Salverson 2011).

Taking into account that over half of the population in the NWT are Aboriginal (Statistics Canada 2006), and also that values, viewpoints and stories are often shared between Aboriginal and non-aboriginal residents, the future of nuclear energy in the NWT is highly questionable. One of the interviewees expressly addressed this history and the lack of understanding of its implications on the part of the nuclear industry (Anonymous, pers. comm.):

> Nuclear is a hard sell in the North, in particular, because of radium history. And when technology providers come up North, and they start talking about nuclear, they do not even recognise the history and health impacts… And … those "perceived health issues," that wording, you know, when you have Aboriginal communities at the table, it is just, I think, irresponsible.

Minister Miltenberger has also expressed skepticism about the perspectives of nuclear energy in the NWT, admitting that long timeframes for permitting, high costs, and public reservation all create obstacles for nuclear power in the NWT (Michael Miltenberger, pers. comm.). In particular, public distrust of nuclear energy was mentioned by all interviewees who addressed nuclear energy during the interviews, and can be summarised in the words of MLA Bisaro: "the general public here in the North is against nuclear just because it's nuclear" (Wendy Bisaro, pers. comm.). Perhaps not coincidentally, nuclear is the only energy option that has not even been mentioned in the Vision for the NWT Power System Plan (NT Energy 2013), which shows that nuclear energy has not been seriously considered by the GNWT.

Using Kingdon's framework, one could say that, like large-scale hydro, nuclear energy as a potential solution does not meet the *value acceptability criterion*. The negative perception of nuclear energy may be even more pronounced in the NWT compared to large hydro due to an unfortunate legacy of uranium and radium mining in the North.

4.7. "Soft" Policy Measures

4.7.1. Building Capacity Over Time

The simplest, least expensive and most politically acceptable actions lie in area of rising awareness and building capacity over time, promoting positive experiences and solutions from the NWT and other jurisdictions (e.g. wind energy in Alaska), and sharing data in order to get industry involved into using more renewables. In other words, the government could (1) demonstrate how industry could save money through renewable energy using examples such as Diavik wind farm, (2) inform and educate the public about renewable energy, and (3) promote broad stakeholder participation and co-operation in the policy-making process. As described in more detail in Section 2.2. above, one of the key functions of "soft" policy integration is building capacity over time by means of "systematically creating knowledge bases, educating and training public administrators, informing and convincing the public in general and non-state decision-makers in particular" (Casado-Asensio and Steurer 2013, 460).

Research interviews showed that NWT decision-makers tend to understand the importance of measures that allow to build capacity over time, such as government informing industry about renewable options for generating energy, promoting positive experiences, and sharing technical data, instead of a "hard" regulatory approach (Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.; Kevin O'Reilly, pers. comm.).

As early as June 2008, MLA Bob Bromley advocated the installation of renewable energy systems and energy efficiency solutions in schools in a manner that would make these solutions visible to students, holding up as an example a photovoltaic array at Sir John Franklin High School, which had monitoring equipment in the classroom and allowed students to get hands-on experience. He also argued that the installation of renewable or energy efficiency solutions at schools should be viewed as an opportunity to include renewables in the programming, which is "fundamental to the long-term well-being of our territory" (NWT LA 2008, June 9). Mr. Bromley has also complained about certain resistance by the Department of Education, Culture and Employment, which was "quite reluctant to change the look of its schools" (ibid). This reluctance shows that even a simple habit that is not necessarily based on rational considerations, could pose additional challenges to innovation. Conversely, the efforts to make solar power visible, interesting, and familiar to high school students, showed an understanding that transition towards

the future based on renewable energy required a long-term effort, the success of which would largely depend on the attitudes and beliefs of tomorrow's voters and policymakers – today's youth and children.

NWT Solar Strategy takes capacity building one step further, including into its action plan the installation of solar output displays in public buildings with solar collectors, where data from inverters showing power generated from PV panels would be visible for the public, as well as on the Internet (GNWT 2012e).

In addition to measures referred to above, the Department of Public Works and Services of the GNWT is developing the NWT Energy Communications Strategy in order to more efficiently inform the industry and the general public about the best practices in the area of energy, including energy efficiency and renewables (Dave Nightingale, pers. comm.).

Finally, one of the most important innovative instruments used by the GNWT to ensure wide engagement and cooperation between experts, decision-makers and the general public in the discussion of, and finding solutions to the territory's energy issues, are the NWT Energy Charrettes, held in 2012 and 2014 (GNWT 2012a; GNWT 2014).

4.7.2. Energy Charrettes

The GNWT held its first Energy Charrette in November 2012 to gather public and stakeholder input on the development of the NWT Energy Action Plan and the NWT Power System Plan (GNWT 2012a). The Charrette took place in Yellowknife on November 20-23, 2012. The format for the Charrette involved the provision of background information followed by facilitated discussions in four group sessions, the results of which were recorded. The first session involved the identification and discussion of current energy issues; the second determined the key objectives to be reflected in the NWT Energy Plan based on the issues identified in the first session; the third was an "energy game" about the development of energy plans on the basis of previously determined issues and objectives (for 5 and 10-year planning horizons) for NWT communities; and the fourth focused on the preparation and implementation of the NWT Energy Action Plan (ibid, 1-2).

It should be noted that although the Charrette report referred to gathering public input, in practice it was an event oriented primarily at energy experts, government employees, and community representatives (ibid, 5-6). The Charrette participants were divided into two main groups. First, the Charrette was planned, organized, and facilitated by the Charrette Working

Group, which included representatives from communities, various GNWT departments, and other stakeholders. The Working Group did not include anyone who could be considered a representative from "the general public" (ibid, Appendix B). The second group was the Charrette Participant Group – 125 representatives of communities, Aboriginal governments, NGOs, power utilities, industry, the GNWT, and energy experts from across Canada (ibid, 6, Appendix C).

In preparation for the Charrette, the GNWT conducted interviews with stakeholders from a number of communities, agencies, government units, utilities and business organizations, and also conducted an online survey open to all NWT residents, which aimed to define the values and objectives that should be driving NWT energy planning process. Over 280 NWT residents participated in the survey. They named several objectives for the NWT energy policy, the most important of which was to stabilize energy costs, followed by reducing greenhouse gas emissions and ensuring a reliable energy supply (ibid, 8).

How did the Charrette operate? According to the 2012 Charrette Report (ibid, 9):

> The basic approach for the Charrette was for participants to A) identify issues, B) from those issues *create overarching objectives* [emphasis added] for the GNWT; C) with those objectives in mind, engage in a mock planning exercise (or 'energy game'), and then D) give the GNWT suggestions on policies, programming and projects it should pursue to meet the overarching objectives.

The Charrette process resulted in defining six overarching ("macro") energy objectives of the NWT (see Section 5.4.1. below for details). Charrette participants also developed short-term (5 years) and long-term (20 years) energy plans for two fictitious but "typical" NWT communities: one in the Arctic and one in the Great Slave Lake area. Finally, they provided highly detailed and structured recommendations, possible measures, and other input for the subsequent development of the 2013 NWT Energy Action Plan by the GNWT.

Released in 2013, the Energy Action Plan is a detailed, $31 million plan for GNWT investment in energy programs and projects (GNWT 2013a). The Power System Plan presented a long-term vision for the development of the NWT electricity system, including the potential build-out of the NWT transmission grid (NT Energy 2013).

Based on the outcomes of the 2012 Charrette, the Charrette Working Group advised that "the GNWT should continue to use … collaborative public engagement activities … in its future energy planning and implementation efforts" (ibid, 23). In line with the Working Group's recommendation, the practice of holding Energy Charrettes was continued in 2014.

The 2014 NWT Energy Charrette continued the trend set by the 2012 Charrette, and sought to discuss the NWT's current energy challenges with account for changing circumstances, and to propose new solutions, including revisions to the NWT Energy Action Plan, and potential long-term actions that could be considered for implementation by the 18th Legislative Assembly (GNWT 2014).

The 2014 Charrette was organized in two parts: a public event, and an invitational stakeholder meeting. This Charrette was more open to the general public compared to the first one: it started with a public kick-off event in Yellowknife (attended by over 200 people), and continued with an invitational stakeholder session held in Dettah, where approximately 100 representatives and energy experts participated (ibid, 4-5). The second Charrette was more in-depth in its discussion of the economics of energy and available technological options. This approach logically followed from the Charrette's objectives, which changed from what could be described as setting the agenda in 2012 to a combined policy formulation and evaluation exercise in 2014.

A list of short-term and long-term actions was determined based on the results of discussions (ibid, 15-18). Recommendations regarding short-term actions (defined as being "implementable" in a few months) were divided into several groups, which included actions to improve energy efficiency and conservation, finding ways to use excess power generated at Taltson Hydro Facility, building biomass energy initiatives, increasing development of small-scale renewable energy projects, examining the potential benefits of increased private sector and community involvement in energy projects, and other suggestions.

Long-term actions were defined as "actions that could be considered by the 18th Legislative Assembly and implemented in the next 2-5 years" (ibid, 17), and divided into four categories: "energy efficiency," "energy supply," "policy," and "other". Many of the long-term actions were aimed at the development of renewable energy sources in the NWT. For instance, such actions included:

- Development of biomass combined heat and power systems,
- Focusing on small-scale solar and biomass projects for diesel communities,
- Examining potential to produce energy from waste in larger communities,
- Developing new markets for hydro power from Taltson, including charging electric vehicles,

- Setting medium and long-term targets for the use of local and renewable energy, and
- Implementing feed-in-tariffs and renewable portfolio standards for industry.

In 2015, the GNWT provided detailed feedback and commentary to the recommendations of the 2014 Energy Charrette in the document entitled "GNWT Response to the 2014 NWT Energy Charrette Report" (GNWT 2015a). Based on the recommendations of the Charrettes, the GNWT added many of the short and long-term actions to the list of policy measures and projects for consideration by the 18th Legislative Assembly. The most important of the short-term actions accepted by the GNWT included consolidation of government energy functions within the Department of Public Works and Services, improving the collection of fuel use data at the community level, encouraging the use of renewable energy in industrial development, assessing options for using surplus capacity in the Taltson hydro system, establishing a clear net metering policy, and a variety of actions intended to promote the use of biomass and to help create NWT biomass industry.

The GNWT also selected a number of long-term "transformative energy projects," including (ibid, v):

- Inuvik wind turbine project,
- Taltson transmission line extension to Fort Providence and Kakisa,
- Mini-hydro in Deline,
- Snare transmission line extension to Whati,
- Mini-hydro in Lutselk'e,
- A 56 megawatt (MW) Taltson hydro expansion project, and
- A 13 MW La Martre River hydro project.

The Response also detailed the actions that the GNWT intended to take, or had already taken in pursuance of each of these "transformative projects," and/or briefly described some of the key economic characteristics of the projects. It should be noted, however, that "transformative projects" were described as "potential." The GNWT did not assume any obligations to develop these projects, but rather will keep them on the table in order to be able to proceed with some of them under favorable economic circumstances. Also, the lengths to which the GNWT was willing to go in pursuit of the actions identified in the Response varied significantly. For instance, as shown in more detail in Section 5.7.2., GNWT's "encouragement" of the use of renewables by

industry didn't extend to imposing any obligations; instead, the GNWT was only going to "ensure that companies consider the use of renewable energy" (ibid, 13).

On the whole, although the GNWT Response to 2014 Energy Charrette Report demonstrates a certain reluctance of the GNWT to accept binding obligations as well as to impose such obligations on the mining and other industries, the Response is a very detailed and informative document. It contains a deep analysis of NWT energy projects, challenges, and opportunities, and shows that the GNWT took the need to ensure a wide participation of experts, community representatives and other stakeholders in energy policy making very seriously. Same is true for existing policy alternatives – the GNWT made an effort to consider a wide variety of measures, actions, and solutions through the Charrette process, and provided a detailed, in-depth response to resulting recommendations. In terms of policy integration theory, the Charrette process – in which the need to develop renewable energy sources figured prominently – contributed in a major way to the comprehensiveness, aggregation, and consistency of the NWT energy policy.

4.7.3. Aboriginal Engagement

The NWT is one of the two jurisdictions in Canada (the other being Nunavut), where Aboriginal residents are a majority; in the NWT, Aboriginal population makes just over 50 percent of all residents (Statistics Canada 2006). With the exception of Yellowknife, Hay River, Norman Wells, and Enterprise, NWT communities are predominantly Aboriginal (NWT Bureau of Statistics 2008). Therefore, increased Aboriginal engagement has a lot of potential to contribute to the development of renewable energy projects in the NWT through.

Representatives from Aboriginal governments and communities actively participated in both Energy Charrettes (GNWT 2012a, 2014). The 2012 Charrette Report recognized the need to increase community and Aboriginal involvement in decision-making in the area of energy, and identified the following challenges in this area:

- The fact that most of infrastructure was not community or Aboriginally owned,
- The lack of flexibility regarding financing options, in particular, the lack of Aboriginal partnerships and P3 options, and
- Poor relationships between GNWT and Aboriginal governments and communities.

The 2012 Charrette recommended:

- To elevate the priority of community and Aboriginal initiatives, including partnerships with Aboriginal organizations,
- To create a firm public policy on the development of independent power producers (IPPs) in the NWT, with local and Aboriginal ownership as priorities, and
- To increase Aboriginal investment opportunities.

Strangely, 2014 Energy Charrette did not focus on Aboriginal involvement to the same extent as the previous one. The only place where Aboriginal engagement was mentioned, was a short passage urging the GNWT to increase the involvement of the private sector and to "develop creative project financing mechanisms that would provide opportunities for community governments, Aboriginal development corporations and residents to participate in the ownership of local and/or regional energy projects" (GNWT 2014, 16).

The GNWT's 2015 Response to 2014 Energy Charrette Report paid limited attention to the potential for Aboriginal involvement in the development of renewable energy projects. It did however mention the need to "stabilize or reduce electricity rates for Aboriginal governments, communities and businesses" through measures such as Taltson hydro expansion (GNWT 2015a, 23), and included a commitment on the part of the GNWT to "work with the public, stakeholders, the Public Utilities Board, community and Aboriginal governments, … amongst others," in the course of making NWT energy policy (ibid, 26).

Other strategic documents adopted by the GNWT identified various forms of potential Aboriginal involvement in renewable energy development, as well as in addressing climate change. For instance, both Biomass Energy Strategies (GNWT 2010, 2012b) acknowledged the need to involve community and Aboriginal governments. However, only the first (2010) Biomass Strategy included a specific action measure aimed at ensuring Aboriginal involvement, namely to "work with the private sector and Aboriginal development corporations to identify viable business models to produce pellets and/or woodchips in the NWT" (GNWT 2010, 9).

NWT's Greenhouse Gas Strategies (GNWT 2001, 2007) expressly acknowledged the negative impacts of climate change on Aboriginal health, lifestyle, and communities. In addition, the 2007 GHG Strategy stated the need to cooperate with Aboriginal governments on mini-hydro and other local renewable energy projects. In a jointly created Pan-Territorial Renewable Energy Inventory, the GNWT, the Government of Nunavut, and Yukon Government also stressed the need to create "strong partnerships" with Aboriginal governments and organizations (along with

industry and all levels of government) for the development of renewable energy resources in the interests of all residents (GNWT, Government of Nunavut, and Yukon Government, n.d.).

One strategic document that contains specific obligations in respect of Aboriginal engagement, is the 2013 NWT Energy Action Plan. In the Plan, the GNWT made several important commitments: to engage community and Aboriginal governments in energy planning decision-making on a continuous basis, to develop hydroelectric generation projects in partnership with Aboriginal governments when such projects are located on Aboriginal lands (with a caveat that there has to be a business case for the project), and a less-clearly defined promise to hold "further discussions with Aboriginal governments … on ways to work together to transform NWT energy systems over the long term" (GNWT 2013a). Finally, and perhaps most importantly, the 2013 NWT Energy Action Plan includes the commitment to collaborative policy development:

> The [2012] Energy Charrette Final Report requested that the GNWT continue involving stakeholders in policy dialogue. As such, when new energy policies are being developed, the GNWT commits to ensuring that affected stakeholders are involved in the development process. This will involve Aboriginal governments, communities, industry, NGOs and government personnel from all levels, and will help chart the course forward for future Legislative Assemblies.

The analysis of the NWT's strategic documents shows that on one hand, GNWT understands the importance of Aboriginal involvement for the future of renewable energy in the territory, but on the other hand, the government tends to avoid outlining specific measures that could facilitate such involvement. This might have been caused by "poor relationships between GNWT and Aboriginal governments" cited in the 2012 Energy Charrette report (which however didn't provide any further details of these relationships), or by the fact that the devolution of decision-making powers for the management of lands, water and natural resources to the GNWT had not been finalized until April 1, 2014 (GNWT, n.d.a). The second explanation seems more likely, since the GNWT clearly understands the need for Aboriginal engagement, and made the commitment to collaborative policy development in the 2013 Energy Action Plan.

From the overview of existing renewable energy projects, it appears that the potential for Aboriginal engagement in the development of renewable energy sources in the NWT has not been fully utilized. This may have been caused by the GNWT's reluctance to more actively engage Aboriginal governments and development corporations, but one should also remember that energy projects are in essence infrastructure projects and as such are characterized by high

up-front costs. As will be shown in Section 5.7.3., limited availability of funding is one of the key limitations to renewable energy development in the NWT. Obtaining funding is a challenge for the GNWT, and an even bigger challenge for Aboriginal governments and communities.

However, the NWT could potentially benefit from adopting an Aboriginal and Community Energy Strategy, which could set the groundwork for small, community-owned energy projects, in particular, in the area of renewable energy. Such a strategy would address the recommendation of the 2012 Charrette "to create a firm public policy on the development of independent power producers … with local and Aboriginal ownership as priorities." It would also be a logical continuation of the provisions of the 2013 NWT Energy Action Plan related to Aboriginal engagement. The Aboriginal and Community Energy Strategy could rely on Aboriginal development corporations, or on public-private partnerships between such corporations and the GNWT, to unlock the NWT's impressive renewable energy potential. Research shows that such corporations can be highly successful due to their "unique enterprise-to-region development model, which incorporates consideration for the natural environment and social and cultural values," provided they use proper corporate governance approaches (Curry, Donker, and Krehbiel 2009).

Finally, a policy developed in a collaborative manner by a consensus government would be preferable to other, less-cooperative, mechanisms of ensuring Aboriginal engagement such as the duty to consult, that depends on the strength of potential adverse impact of the proposed project on Indigenous rights and interests (Charowsky 2011). In practice, the duty to consult is usually triggered by negative environmental impacts of non-renewable resource development projects (ibid). Unlike projects in the area of oil and gas extraction or mining, renewable energy installations usually have a small impact on the environment; therefore, the scope of duty to consult in case of renewable energy development would also be minor. Large, industrial-scale facilities (in particular hydro) have the potential to cause environmental impacts sufficient to trigger a wide-scope duty to consult, but such projects are unlikely to ever take place in the NWT due to small size and dispersed nature of the NWT energy market.

It should be noted that the above conjectures about the reasons why the potential for Aboriginal involvement in the field of renewable energy remains underutilized, are not final. Existing research has identified a number of barriers that interfere with Aboriginal involvement in renewable energy generation in Canada, such as limited access to capital, insufficient technical

and human capacity, and economic inequality (Krupa 2012). However, it is not clear to what extent these Canada-wide issues apply to the NWT, and what other challenges and opportunities for Aboriginal engagement exist locally. Research interviews did not provide data that would have allowed to make definitive conclusions, probably because the interviews took place in Yellowknife, and because interviewees were selected from among the members of the GNWT, territorial public servants, and NGO employees. Interviewing members of Aboriginal governments, public servants, and residents in Aboriginal communities, would have provided more data on this matter but was not feasible due to the high cost of travel to multiple remote communities.

Aboriginal involvement in renewable energy development in the northern Canada and elsewhere remains an exciting opportunity for future research. Potential may also exist for a future research on how Aboriginal sovereignty and rights interact with renewable energy development, in particular in community energy projects.

CHAPTER 5
ANALYSIS OF THE NWT RENEWABLE ENERGY POLICY

5.1. Introduction

The previous chapter contained an overview of various solutions applied to the problem apparently existing in the area of energy in the NWT. But what is this problem exactly, and how did renewables become accepted as part of an answer to this problem?

In order to achieve this study's research objectives, I will investigate in detail why the process of sectoral policy integration started in the NWT, how it unfolded, and why it resulted in a particular policy mix. Policy integration theory, supplemented by findings on policy entrepreneurship, will be used to analyse the process of policy innovation that has led to the development of a renewable energy policy by the GNWT and to determine if the resulting policy meets the criteria for policy integration. The type (style) of policymaking in the NWT will be taken into account. Finally, specific features of the non-partisan consensus government will be considered in terms of their effect on integrated policymaking.

5.2. Historical Perspective

Establishing a historical perspective can help to understand how and when the problem was initially recognised, why the problem was framed in a certain way, how it has been developing, what solutions have been offered and why, etc. One of the interviewees gave an excellent summary of the history of energy policy in the NWT, including key motivations and driving forces behind the development of renewable energy programs (Jim Sparling, pers. comm.):

> [Renewable energy] has always been an issue for policymakers in the Northwest Territories, just because we are so remote. So, in getting energy supplies into the Northwest Territories, the government always had a role. The energy crisis in the 1970s led to some price shocks, and there were already programs we developed then, and in the 80s there was an energy policy that had been created, where energy efficiency was already recognised. The government would buy bulk fuel and bring it up, and then distributed it, so when I started in 1990s, there were still the vestiges of the early programs that had been created in the late 70s. There were regional energy management

> advisors, they were at one point with the Department of Public Works and Services, they were based in the region and provided advice. Government operating a lot of facilities wanted to make sure they were operated as efficiently as possible. So, there has been a long history of energy involvement.
>
> In the 1990s all the energy crises programs were winding down, then prices started go back up. So, the government was trying to get its costs in order even then. And then when the price shocks came around when hurricane Katrina hit, and prices skyrocketed, that just made it much more important. At that time, we were trying to do energy efficiency to reduce our overall costs, we had targets like to get 10 per cents below in savings, and the price of oil doubled.
>
> … Also, when I served in 1990s, climate change was becoming part of the equation and has remained so. So, when you look at it, you know, because the cost is so high, that makes a lot of renewable energy technologies cost effective much more so than where you have natural gas supply, cheap hydroelectric power… But the recognition that climate change is an issue is very much a part of what the discussion is now in the Northwest Territories. … We need to mitigate, we need to be contributing to the global effort, we need to be contributing to national and international actions, we need to be taking our own responsible actions in the Northwest Territories.

5.3. Factors that Brought Renewable Energy to Policymakers' Attention

According to Kingdon (1985), problems come to the attention of decision-makers through *indicators, focusing events, personal experiences of policymakers, emergence and diffusion of powerful symbols,* and *feedback* about the operation of existing programs, including failures to meet stated goals.

The cost of energy in the NWT serves as a very clear quantitative *indicator* showing that there is a problem by comparing energy prices in the NWT to the energy prices south of 60th parallel. Another indicator that is closely related to energy costs would be the amount of money spent by the GNWT on energy subsidies. Costs and subsidies are particularly good as problem indicators because they allow to monitor change over time. For instance, the overall amount of the GNWT's energy subsidization for the period of 2006-07 was $21.93 million, and went up to $29.83 million for the period of 2012-13 (GNWT 2013a, 57). These figures represent 2.05 percent of the NWT's 2006-07 Budget expenditures (GNWT 2006), and 2.11 percent of the NWT's 2012-13 Budget expenditures (GNWT 2012c), respectively.

Power costs are much higher in the NWT than in the provincial south. According to CBC, in 2014 the territory's residents were facing the highest power bills in the country – with an average cost of $8.39 a day, more than double the national average of just under $4 (CBC 2014).

The situation with costs caused considerable tension in the city of Yellowknife, even though the city enjoys the lowest power rates in the Territory due to its access to Snare Hydro System. As an illustration, here is a commentary left by a reader on the CBC website:

> I'm a third generation Yellowknifer. It's likely my family's Northern legacy will end with me. My family truly can't afford the $400-$500 power bill every month. Let alone the cost of water delivery, property taxes, and the high cost of food. It's all too much. I really don't know how anyone works at places like wal-mart (sic) and McDonalds for $12 an hour and survives here. It used to be that an honest days (sic) work was enough to raise a family. Not anymore. Not in Yellowknife.

As of October 2015, the end costs payable by residential customers in Yellowknife were 28.53 cents per kWh (NTPC, n.d.b). In remote diesel-powered communities, the costs are much higher: in Colville Lake, which has one of the highest costs of power in the territory (and only winter road access for fuel delivery), the costs were just under $2 per kWh in 2014 (NT Hydro 2014, 11). And in 2008 at the peak of fuel prices, costs were as high as $2.85 (NWT LA 2008, October 23). The plan for this community currently is to meet the electricity needs with 350 kW of diesel generation along with up to 200 kW of renewables (solar and potentially wind) and a battery system (NT Hydro 2014, 11-12). According to the NTPC, with the currently available technology there is a potential to fulfill close to 40 per cent of the community's electricity requirements from alternative energy sources (ibid). With costs these high, the GNWT has no choice but to subsidise power rates through the Territorial Power Support Program to keep residents being able to pay for energy (NTPC, n.d.d).

Focusing events have also played a role in bringing policymakers' attention to renewable energy as a viable energy alternative. Anomalously low water levels during the last two years in the Snare Hydro System that provides power to Yellowknife were mentioned by the majority of interviewees as an important reason for the City to start considering the diversification of its energy portfolio, e.g. by adding a large-scale wind and/or solar installation (Anonymous, pers. comm.; Bob Bromley, pers. comm.; Wendy Bisaro, pers. comm.; Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.; Emanuel DaRosa, pers. comm.). Currently Yellowknife is powered by hydro with diesel back up, but because of low water in the Snare hydroelectric system the share of diesel has become unusually large, which caused a sharp increase in the City's energy costs (Miltenberger, n.d.).

Besides, some of the interviewees have also linked the initial growth of interest in renewables in the NWT to the 1970s oil embargo and resulting oil price shocks, which at the time

acted as a focusing event (Anonymous, pers. comm.; Jim Sparling, pers. comm.). However, although the growth of energy costs and of the subsidies in the 2000s was substantial, it certainly was more gradual compared to 1970s.

Personal experiences of policymakers also had an effect on the formulation of the policy problem. NWT MLA Bob Bromley, for instance, referred enthusiastically to having taken part in an international fact-finding mission during which he visited Norway and was impressed with how much renewable energy was used in that country, and in particular with the fact that, as a rule, small remote communities were powered by biomass. He also noted that the biomass industry in Norway was far ahead of the same in Canada and in the NWT, in particular (Bob Bromley, pers. comm.). Among other things, the visit to Norway was an example of a typical behavior of a policy entrepreneur, where an entrepreneur invests a lot of time and effort into developing deep knowledge of the problem (Weible et al. 2012), and gathers evidence that shows the feasibility of the entrepreneur's proposal and can be used as an argument to "sell" the proposal to policymakers and to the general public (Mintrom 1997, 2013).

Emergence and diffusion of powerful symbols also contributed to bringing renewable energy to the attention of policymakers and the general public within the NWT. Environmental ideas have become commonplace and have gained a firm and prominent foothold within the public discourse, even though in reality sustainability and environmental values exist predominantly in the realm of rhetoric and have a relatively minor impact on actual policymaking (Engelman 2013). Global warming has become one of the main symbols of the world's environmental problems. Accordingly, renewable energy, as a way to prevent dangerous levels of climate change, has in itself acquired a significant symbolic value. As such, renewables could not have escaped the attention of policymakers.

All interviewees were highly aware of the importance of renewable energy for solving the problem of climate change. Most of them have mentioned the need for the NWT to contribute to global mitigation efforts (Anonymous, pers. comm.; Bob Bromley, pers. comm.; Michael Miltenberger, pers. comm.; Shauna Morgan, pers. comm.; Kevin O'Reilly, pers. comm.; Craig Scott, pers. comm.; Jim Sparling, pers. comm.). Some have referred to the importance of renewables for the "future of your children and mine" (Michael Miltenberger, pers. comm.),

while others have expressly addressed the prisoner's dilemma of greenhouse gas mitigation,[1] stating that the argument that NWT's emissions are negligible on a global scale, and therefore there is less pressure on the NWT in terms of greenhouse gas mitigation, is invalid, because, as some interviewees put it, everyone could say that (Bob Bromley, pers. comm.; Jim Sparling, pers. comm.). Thus at least some NWT policymakers and public servants recognise the power of example for the diffusion of renewable energy solutions.

Both the symbolic value of participating in the global efforts to mitigate climate change, and a potential for long-term economic benefits of such actions, are recognised in the NWT Greenhouse Gas Strategy for the years 2011-2015 (GNWT 2011a):

> Emissions from the NWT are an extremely small fraction of the global total. It is recognized that controlling those emissions will not prevent continued warming in the NWT. Setting territorial targets does, however, serve two purposes. First, targets will allow us to demonstrate to the international community we are serious about this issue and prepared to make our contribution to reducing the future impacts of a warming climate. Second, it makes long-term sense to develop local renewable energy businesses and prepare for a future economy where carbon-based fuels are constrained.

Finally, *feedback about the operation of existing programs including failure to meet stated goals* was the least significant factor in putting renewables on the agenda in the NWT, since the GNWT has started setting specific quantifiable targets just recently, and has so far been successful in achieving those.

That said, the role of feedback mechanisms in the implementation of NWT renewable energy policy has been increasing over time. NWT Greenhouse Gas Strategy for the years 2001-2007 contained a section entitled "Goals and Objectives," which were formulated in a general manner, such as: "to reduce negative impacts on health and the environment," "minimize negative impacts on the economy," (GNWT 2001). The NWT Greenhouse Gas Strategy for the years 2007-2011 (GNWT 2007) has introduced a more specific quantitative target *only* for the GNWT (not for the NWT as a whole) to reduce GHG emissions from its own operations by 10 percent below 2001 levels by the year 2011. The GNWT had in fact significantly exceeded this target by achieving a 30 percent reduction by 2011 (GNWT 2013a, 8). Other goals and objectives were formulated in a non-quantifiable manner, for example, to "increase awareness in the NWT

[1] Regarding the implications of prisoner's dilemma for climate change mitigation and adaptation efforts, see: Clemons and Schimmelbusch 2007; DeCanio and Fremstad 2013; Soroos 2012.

of the issue of global climate change and the need to control greenhouse gas emissions," "identify economic opportunities that may arise from the use of cleaner sources of energy and more efficient equipment and technology," etc.

The current NWT Greenhouse Gas Strategy for the years 2011-2015 (GNWT 2011a) sets more detailed numerical targets, including for the first time setting the NWT territorial targets: first, stabilize emissions at 2005 levels (1,500 Kt) by 2015, second, limit emission increases to 66 percent above 2005 levels (2,500 Kt) by 2020, and third, return emissions to 2005 levels (1,500 Kt) by 2030. It is not clear how the first and second targets match up, since they seem to be somewhat inconsistent. Therefore, the 2030 target is probably the most important, as it sets an unequivocal limit to annual emissions from the NWT. In order to achieve these targets, the 2011-2015 Greenhouse Gas Strategy establishes a number of quantifiable sector goals for the year 2015 and sets a framework for future actions.

One of the most notable goals of the 2011-2015 Greenhouse Gas Strategy was to achieve a minimum of 10 percent renewable energy content in the new power systems required for increased demand – effectively, a goal that would require setting a renewable portfolio standard for the new power systems. It should be noted, however, that the GNWT to date has not established any mandatory renewable portfolio standard or requirement (see Section 5.7.2.).

There are also some sector-specific targets in other policy documents adopted by the GNWT. For instance, the NWT Solar Energy Strategy for the years 2012-2017 established a target to install solar systems with the capability to supply up to 20 percent of the average load in NWT diesel communities, effectively displacing 10 percent of diesel electricity generation in the NWT. The Solar Strategy also sets a commitment to investigate ways to deploy solar systems sized at up to 75 percent of the average community load in diesel communities.

The NWT Biomass Energy Strategy for the years 2012-2015 (GNWT 2012b) did not set any numerical targets, referring instead to the Greenhouse Gas Strategy, which aims at increasing biomass heating capacity in residential, commercial, and institutional sectors by 100 percent by 2015. Some communities within the NWT have adopted their own targets for GHG reduction, for instance, the city of Yellowknife adopted targets of a 20 percent greenhouse gas reduction within city operations and six percent reduction city-wide below 2004 levels by 2014, which has been achieved and even exceeded (GNWT 2011a).

It is not yet clear if all the targets and goals set by the GNWT in their 2011-2015 Greenhouse Gas Strategy have been achieved, however, previously the GNWT had been successful in reaching its renewable energy goals. The GNWT keeps track of GHG emissions inventory in the NWT, the territorial renewable energy resources, and the amount of renewable energy generated in the NWT, and is therefore capable of monitoring compliance with the stated goals. Within the GNWT, the Department of Public Works and Services and the Department of Environment and Natural Resources were the ones most actively engaged in providing feedback about the performance of renewable energy policies. Besides, the Arctic Energy Alliance, a government-funded NGO, also plays a major role acting as a clearinghouse for information about government programs in the area of energy efficiency and renewables, and coordinating community energy planning (GNWT 2007; GNWT 2011a). Other actors involved in monitoring the performance of NWT energy policies include the Public Utilities Board, NT Power Corporation, and various environmental NGOs such as Ecology North and Independent Environmental Monitoring Agency. Finally, the GNWT has created an innovative policy solution for stakeholder and public engagement in energy issues – NWT Energy Charrettes, held in 2012 and 2014, and likely to be held in the future (GNWT 2012a; GNWT 2014).

5.4. Problem Definition: Main Aspects

5.4.1. Economic Aspect: Energy Costs and Other Factors

The documents studied in course of this research, as well as all research interviews, demonstrate that the NWT energy policy has one feature of "strong" policy integration: namely, an *overarching objective*.

The NWT Energy Action Plan (GNWT 2013a) states six overarching energy objectives of the NWT,[2] which were defined through the Charrette process:

1. *Ensure reliable energy supply*, defined as improving the reliability and long-term security of energy supply, including limiting power outages,
2. *Improve affordability*, defined as stabilizing the cost of energy and maintaining fair and equitable prices across the NWT,

[2] Interestingly, the NWT Energy Action plan expressly refers to these objectives as "overarching" objectives: "The energy objectives of the GNWT were largely defined through the Charrette process, resulting in the following list of six overarching objectives for this Energy Plan…" (GNWT 2013a, 13).

3. *Reduce environmental impacts*, defined as reducing GHG emissions and other environmental impacts on air, land, and water caused by the production, transmission and use of energy,
4. *Maximize the economic benefits of the energy systems*, defined as encouraging economic development in the local and renewable commercial energy sector, creating local jobs, and keeping energy dollars inside the territory,
5. *Optimize the use of Government resources*, defined as maximizing the efficiency of public funds to best achieve energy priorities, and
6. *Continue to engage community and Aboriginal governments in planning initiatives*, defined as ensuring that communities and Aboriginal governments are involved in energy planning decision-making processes.

Based on the recommendations of 2014 Energy Charrette, the list of objectives was subsequently condensed into four: "Affordability", "Environment", "Economy", and "Energy security" (GNWT 2014).

Of course, the mere fact that the GNWT named these objectives "overarching" does not automatically mean that they all were of equal significance during the policymaking process. So, let us find which of these objectives (if any) are the true overarching societal goals that many scholars insist are required for policy integration (Biesbroek et al. 2010; Briassoulis 2004; Dupont and Oberthür 2012; Jordan and Lenschow 2010; Lafferty and Hovden 2003).

The objectives listed in the NWT Energy Action Plan are not so much environmental-political as in the EU (although environmental considerations, in particular climate change, are present), as economical – a constant pressing need to reduce the cost of living and doing business in the NWT, while also making energy supply and prices more predictable. Multiple factors contribute to driving up costs: remoteness, large distances, limited or absent road access, limited opportunity to benefit from the economies of scale due to a small population and tiny sizes of most communities, lack or insufficiency of the basic infrastructure, severe climate, and limited human resources. High energy costs are a natural consequence of these factors, and also one of the main challenges that NWT policymakers have to deal with on a constant basis. According to Michael Miltenberger, Minister of Environment and Natural Resources (NWT LA 2009, February 5):

> We have a tremendous supply of energy resources, yet energy in our communities is very expensive, contributing significantly to our high cost of living and the high costs of

> operating businesses. We are also witnessing the serious impact of global energy use on our environment.

The 2014 NWT Energy Charrette Report provided the ranking of energy objectives in the NWT as defined by the Charrette participants: general public, energy experts, decision-makers, and other stakeholders. They were divided into groups and asked to indicate which of the energy planning objectives they felt were the most important. There was a general sentiment that all the objectives were important, and that investments in energy projects or initiatives should strive to satisfy as many objectives as possible. Overall, "*Affordability*" was considered the most important – five groups out of seven ranked it first. Three other objectives: "*Environment*", "*Economy*" and "*Energy security*," were ranked fairly closely together, being second, third and fourth in roughly the same number of groups (GNWT 2014). Therefore, energy affordability is widely viewed as the main goal of the renewable energy policy of the NWT, and there is a strong understanding that this goal has to be achieved in an environmentally sustainable manner that also supports economic growth and energy security of the NWT.

It is important to look at how the problem is framed by the NWT policymakers, policy community, and the population in general. Obviously, the choice and application of chosen solutions depend greatly on the problem definition. According to Kingdon, conditions become viewed as problems when people come to believe that something should be done about them. Second, there are great political stakes in problem definition. And third, the values one brings to an observation play a substantial role in problem definition (Kingdon 1995, 109-111).

In the case of the NWT, problem formulation is simple and straightforward. The problem is predominantly defined as *a high cost of energy that hurts economic development and has a big negative impact on the cost of living* and the northerners' livelihoods. All interviewees invariably stated that the concerns about energy costs were and continue to be the main driver behind the development of the NWT renewable energy policy framework. Most of them also referred to the volatility of fossil fuel-based energy costs as a problem, and viewed renewables as a way to either reduce the cost of energy, or to make it more stable and predictable.

Finally, unreliability of supply of hydroelectricity due to anomalously low water levels (presumably caused by climate change) in the Snare Hydro System that provides power to Yellowknife, was also a concern, in particular because the GNWT is forced to purchase massive amounts of diesel fuel to compensate for the decreased power output of the Snare system. For

instance, in the fall of 2015 the territorial government gave the NTPC $29.7 million to cover the cost of extra diesel fuel from July 2015 to July 2016 (CBC 2016). For a territory with only slightly more than 44,000 people (Statistics Canada 2016), the loss of nearly $30 million dollars is a noticeable financial blow. Thus, some interviewees stated that the GNWT was looking at various alternative energy sources as a way to serve as a back-up for the Snare Hydro during dry years, which may become more frequent along with warming global temperatures (Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.).

The economic definition of the problem also dominates renewable energy policy documents adopted by the GNWT and the related debates in the legislature. The effect of the high costs of energy on politics is also evident, since voters will be more likely to vote for a politician who can propose a viable way of reducing their energy bills.

The environmental aspect was also recognized in the GNWT policy documents and by most interviewees, but it stands secondary to high energy costs. For instance, the NWT Energy Action Plan states that "there is consensus across the Northwest Territories (NWT) on the need to reduce our high cost of energy and the impact fossil fuel consumption has on the environment" (GNWT 2013a, III). The high cost of energy goes first and indeed, was uniformly important for all interviewees. The impact on the environment, on the other hand, was highly significant for some, but less important for others, although all interviewees expressed at least some environmental concerns, most notably in respect of the negative effects of climate change.

As far as research interviews were concerned, energy affordability and energy security were uniformly stressed by all interviewees – including both supporters of renewable energy and those more skeptical about it – as the main reasons for GNWT's efforts to increase the share of renewable sources of energy in the overall energy portfolio. The importance of environmental considerations as drivers of the creation of NWT's renewable energy policy framework was also acknowledged, but their impact on the NWT energy policy was clearly ranked lower in importance compared to economic considerations.

5.4.2. Environmental Aspect: Greenhouse Gas Emissions and Renewable Energy

The NWT are willing to contribute their share to the mitigation of GHG emissions by developing new renewable energy projects, as evidenced by the adoption of Greenhouse Gas Strategies in the years 2001, 2007, and 2011.

Developing local sources of renewable energy could also serve as one of the ways to adapt to the threats brought by climate change. If energy is generated locally, communities become less dependent on the external supply of diesel fuel or LNG, thereby becoming less threatened by the shortening of periods during which winter roads are operational or by the thawing of permafrost that complicates the construction of oil and gas pipelines. Thus, in addition to contributing to GHG mitigation, renewables have the potential to provide noticeable benefits for climate change adaptation, especially in a situation when fossil fuels are expensive and their supply is unreliable. It should be noted, however, that renewables have not yet received much consideration as a means to adapt to climate change in the NWT. When asked whether the GNWT has considered the potential of renewables in terms of climate change adaptation, interviewees usually answered in the negative. According to some of them, due to naturally very cold climate and long winters in the NWT, the degree of climate warming that could seriously impact fuel availability because of ice roads closure, was simply too far in the future at this point (Jim Sparling, pers. comm.; Dave Nightingale, pers. comm.). Some, however, recognised the role of renewables as a means to adapt to climate change. For instance, Minister Miltenberger admitted that he believed that concerns about decreasing periods of ice roads availability have directly contributed to Diavik's decision to build an industrial wind farm (Michael Miltenberger, pers. comm.). Therefore, arguments in favour of renewables are centered on their cost-reduction potential and predictability of prices, and also on the added benefit of mitigating GHG emissions.

Some MLAs, most notably Bob Bromley and Wendy Bisaro, clearly understand the need for an integrated approach to greenhouse gas mitigation policy. MLA Bob Bromley expressly called for integrated policymaking in the area of climate change mitigation (NWT LA 2009, November 5):

> …it is clear that we need to take a stand on climate change by setting science-based targets for greenhouse gas reductions and a comprehensive plan to get there. Our energy priorities, biomass and water strategies, the gaps that remain unknown, all will be replaced and revealed in context through a well-integrated plan. This is challenging and it will change how we do business…

Among other things, Bob Bromley called for the development of sustainability education programs and courses locally through the Aurora College in order to fight existing skill shortages, and for the creation of programs aimed at raising public awareness, such as early childhood education. He has also called to shift focus from large scale developments to "vital

mini economies" in order to "bring local sustainable and job-intensive development of communities in ways that attack the cost of living, build appropriate skills and form a healthy engagement with our land". Finally, Mr. Bromley expressed a conviction that "people want every major decision to be viewed through a lens that looks not just at dollars but at how we benefit quality of life and the environment" (ibid). The call to consider environmental implications of every significant decision demonstrates an effort to integrate environmental considerations into policymaking in the NWT.

Some of the other MLAs shared Mr. Bromley's views on the need to have a systematic approach to GHG reduction. For instance, MLA Glen Abernethy criticized the former lack of GHG reduction targets in the NWT and urged the GNWT to "set strong science-based targets for greenhouse gas emission reductions" (NWT LA 2009, November 5). He has also admitted that the lack of ambitious greenhouse gas reduction targets undermines the long-term value of the Greenhouse Gas Strategy itself. Mr. Abernethy then called for the adoption of policies and programs that would result in a "comprehensive strategy to meet those emission reduction targets" (ibid).

These statements show that some MLAs have a good understanding of what a long-term integrated policy approach should look like, and are acting as policy entrepreneurs using every opportunity to push for desirable policy change and to constantly keep issues on the agenda, even if at present there is relatively little interest in the issue. This approach is rational and efficient, since it allows to achieve at least some amount of positive incremental change or, if a window of opportunity opens (for example, in the form of an appropriate trigger event) – to achieve substantial and even paradigmatic policy change (Wison 2000).

The GNWT is planning to release the NWT Climate Change Strategic Framework, which will contain both climate change adaptation and greenhouse gas reduction measures, and will replace the current Greenhouse Gas Strategy (ENR, n.d.). The plans to create a new framework based on the evaluation of the previous one, demonstrate the existence of an iterative process of evaluation and improvement of GHG mitigation policy.

5.4.3. Values Aspect: Economy First vs. Environment First

In addition to cost-benefit considerations, values also play a substantial role in problem definition (Kingdon 1995, 111). Of course, values also affect the determination of whether a particular situation constitutes a problem in the first place. In other words, the values of

policymakers and the general public have a major effect on the policy process, and in particular – on agenda setting and policy formulation.

In case of the NWT, Bob Bromley, a policy entrepreneur behind many of the territory's renewable energy initiatives, clearly was motivated by deeply held environmental values, and in his own words "was elected on environmental platform," which shows that environmental values are shared by a significant number of voters (Bob Bromley, pers. comm.). An influential Minister of Environment and Natural Resources, Michael Miltenberger, also was taking environmental values seriously, which was evident both from the statements he made in the legislature, and from the answers he gave during the research interview. The same is true for some other members of the legislature, public servants, and NGO employees.

The variance in policymakers' values can be illustrated by a reply by MLA Robert Hawkins to Bob Bromley's criticism regarding insufficient (and reduced) funding for energy management, including renewables. Mr. Hawkins called for a "pragmatic approach," noting that a lot of environmental initiatives "just do not seem to pay out," and "some are just so unaffordable that we're doing these things but they just don't make sense" (NWT LA 2012, May 31). This clash of viewpoints illustrates a deeper issue – the difference in the deep core beliefs of those who favour the status quo and those who become policy entrepreneurs in order to promote the desired change. An adherent of the status quo would prefer, in the words of MLA Hawkins, to "have projects that we know can work and bring a return on the bottom line."

Values shared by the majority of policymakers and/or the public affect how policy entrepreneurs frame problems and solutions, even when entrepreneurs themselves adhere to a set of values that differ from those of the majority of policymakers or of the public. If a proposal is formulated in a way that is inconsistent with the core beliefs of the majority of policymakers, it is unlikely to be taken seriously. For example, Bob Bromley, who described himself as an environmentalist in the research interview, was stressing "soaring" energy costs and "ever-increasing energy subsidies" as a justification for allocating additional funds for new hydroelectric generation and other programming in support of renewables and energy efficiency (NWT LA 2012, May 31). Of course, there is no doubt that as a NTW MLA, Mr. Bromley was genuinely concerned about high energy costs and the resulting negative impact on northerners' livelihoods. However, it is interesting to note that although he often referred to climate change or air pollution in his speeches and motions, his main arguments were economic in nature, despite

his own adherence to the values of environmentalism. This mode of argumentation was typical for pro-renewables speakers in the NWT legislature: event though they sometimes mentioned problems caused by greenhouse gas emissions and local air pollution, they typically formulated the problem in terms of high energy costs, and offered renewables as a solution to this problem.

Values have an impact on policymaking in terms of increasing the likelihood that certain policy solutions will be chosen over alternatives, or conversely, bar other solutions. In the context of the NWT, for example, such solutions to the problem of high energy costs as nuclear energy and large-scale hydro have a low potential of being chosen from the "policy primeval soup" because they contradict values and perspectives shared by the majority of residents.

Finally, values can affect implementation and evaluation stages of the policy process. For instance, the implementation of NWT's renewable energy policies depends on, and is strongly affected by the continued funding. If funding is cut or removed, successful implementation even of the best policies may become impossible. This could be illustrated by the removal of $215 million from the federal Green Infrastructure Fund by the Conservative federal government to support "high priority" initiatives in areas not related to renewable energy (see Section 5.7.3.). Within the GNWT, the discussions on the subject of funding renewable energy projects took place often (particularly since 2008), and the differences in the values of MLAs arguing opposing positions were prominent, even though both supporters and skeptics usually chose to frame their arguments in economic terms.

5.4.4. Overarching Problem Definition

Based on the analysis of economic, environmental, and values aspects of the NWT energy problem, a conclusion is justified that the *overarching societal objective* of the NWT renewable energy policy framework is *to reduce the energy costs of the NWT businesses and residents, and to ensure reliable supply of energy at predictable prices*. The development of the NWT's renewable energy potential in this case is a minor problem in the policy integration process, i.e. more of a secondary policy goal.

Such goals as mitigating the NWT's greenhouse gas emissions, improving local air quality, and creating local jobs and businesses, while not insignificant, are also secondary goals. At the same time, these secondary goals work together in a mutually supportive manner to ensure economic well-being of the NWT and the territory's residents.

5.5. The Window of Opportunity for Renewable Energy

According to Kingdon, there are times "when rigid adherence to one's original position would cost one dearly. These times are the real opportunities for passage, the policy windows … when compromise is in the air" (Kingdon 1995, 161).

Analysis of the NWT Legislative Assembly debates performed with NVivo qualitative analysis software showed a significant increase in the frequency with which various renewable energy options were discussed in the year 2008. The only exception is hydroelectricity: the discussions of hydroelectric options also became much more frequent in 2008 compared to the few immediately preceding years, but hydro was also actively discussed in 2001 and 2002. Other alternative sources of energy received relatively little attention before 2008. The year 2008 was also the year when the price of oil increased dramatically, and stayed high until the year 2014 despite a short-lived price drop during the global financial crisis of 2008-09.[3] Consequently, the price of diesel fuel also went up dramatically, which opened a window of opportunity when various alternative energy solutions came to the attention of policymakers and firmly established themselves in the political discourse of the NWT.

Additional factors that contributed to the opening of the "window of opportunity" for renewable energy in the NWT were associated with the negative environmental impacts of fossil fuels, both global (climate change), and local (air pollution in diesel communities). Even though the federal government at the time was not treating environmental issues as a priority, and subsequently pulled Canada out of Kyoto Protocol, the GNWT realised that climate change was a threat, possibly because its effects are highly visible in the North.

Every GNWT's document dedicated to renewables expressly recognises climate change as a problem, and most also mention local air pollution from non-renewable energy sources. Analysis of debates in the Territory's legislature shows that in 2008 the number of references to climate change and greenhouse gas emissions increased dramatically (from less than 10 mentions per year during 2003-2007 period to 153 mentions in 2008), and continued to figure prominently on the agenda since then. Although climate change was by no means the key factor stimulating the acceptance of renewables as a viable energy alternative, its effects certainly contributed to the opening of the window of opportunity for renewables.

[3] Wikipedia, s.v. "Price of Oil," accessed December 1, 2016, https://en.wikipedia.org/wiki/Price_of_oil.

The analysis of debates in the Legislative Assembly shows that as a policy entrepreneur who was promoting renewables as a solution to NWT economic, environmental, and social issues, MLA Bob Bromley was fully aware about the changing circumstances that opened the window of opportunity for renewable energy, and intended to take full advantage of the situation (NWT LA 2009, February 5):

> I'd like to start by mentioning this recession that we're in and the effect it's had on the price of energy, particularly oil. Many believe that we hit peak oil and that's what drove the prices up so high just before the recession hit. It may have contributed to it. We have a window of opportunity now when prices are low to be very effective with our dollars. We can rest assured, and I've had people come up to me at the break and say this window of opportunity may be very brief. We need to be very effective with this time and deliver these programs very effectively and quickly. … One of the first things to me is we have a biomass opportunity. The Minister [Miltenberger] has identified that. We need community forest inventories, we need sustainable harvest plans, we need the development of wood cooperatives where people in the community can contribute and grow and harvest wood following the sustainable programs and so on.

The combined effect of economic and environmental factors resulted in a near-consensus that could best be described by the title of one of the sections of 2014 NWT Energy Charrette Report: "Status Quo Is Not an Option" (GNWT 2014). The Report then went on to clarify why the status quo could no longer be maintained:

> Several speakers emphasized that continued reliance on imported diesel for electrical generation and heating for many NWT communities is not sustainable in the long term. Rising energy costs, environmental concerns, and rapid changes in technology are all factors that are exerting pressure on the status quo. Although hydro-electricity is environmentally sustainable, continuing escalation in cost is not sustainable from an affordability perspective.
>
> If the application of new technologies brings significant changes to the NWT's energy systems … the GNWT energy policy framework needs to be designed to address these challenges. There was also discussion about the need to ensure GNWT energy policy is better aligned with clearly defined objectives.

The current decrease in the price of oil may have a negative effect on the penetration of renewables, as there might be less incentive now to look for more cost-effective energy solutions, but the actual effect of the price drop on the penetration of renewable energy in the NWT remains to be seen.

5.6. The Role of Consensus Government and Policy Entrepreneurs

Interviewees have expressed a wide range of views about the role of consensus government in the promotion of renewable energy in the NWT. Although the number of interviewees was insufficient to make any conclusion as to what views on consensus government dominated among policymakers, the interviewed MLAs, as well as Minister Michael Miltenberger, seemed to be less skeptical and in general more confident about the consensus nature of the GNWT compared to other informants.

When asked a direct question about whether a consensus nature of the government has in any way affected the making of renewable energy policies, Minister Miltenberger and MLA Bob Bromley shared the view that consensus government helped, and that achieving similar outcomes under a party-based government would have been harder. Their views were generally supported by MLA Wendy Bisaro, although she was somewhat more skeptical about the consensus nature of the GNWT. According to them, the Aboriginal values originally underlining the consensus government in the NWT may have at least to some extent facilitated the acceptance of renewable energy by the legislators and the GNWT, in particular due to the effect of such values as respect to the environment and respect to each other.

The feature of consensus government that arguably has the biggest significance for renewables, is the *greater stability of policies* compared to those adopted under a party-based system. Minister Miltenberger (pers. comm.) described this feature as follows:

> We build on the work of the previous assembly a lot. There's very little abrupt change… We've been on track of energy efficiencies, renewables, paying attention to water seriously for the last 8 years. So, the party system – Canada is a good example – we had a Liberal government 9 years ago, then the Conservatives. So, the Liberals go this way, then a 180-degree turn, and things go the other way. … [After the elections] we'll probably have big change again, and that's lots of disruption. Takes lots of time. Consensus government – we keep moving. New government comes in, changes a few things, but never goes 45 or 90 degrees, it is staying within a pretty clear frame. And their constituents – the communities that elect them – they want the same things all the time, and we know what we need to do. So yeah, consensus government is critical.

Other interviewees also believed that consensus government produces stable policies (Dave Nightingale, pers. comm.). MLA Bob Bromley agreed with this idea too, although he also stressed that "there's still a possibility for an influential person to make changes … especially over time" (pers. comm.).

This may be one of the key advantages consensus government has over a party-based system in terms of integrated policymaking, which becomes particularly important when decisions are being made on the matters of environmental policy and related issues such as renewable energy, since these problems by their very nature require a long-term approach. Besides, policy incoherence is expected when institutional framework is highly politicized; on the contrary, when deliberation takes place in a non-politicized environment, coherent policymaking becomes more likely (Selianko and Lenschow 2015).

MLA Bob Bromley has described in detail a strategy that a policy entrepreneur should adhere to when acting within the framework of consensus government (Bob Bromley, pers. comm.). The strategy is based on the understanding that, although in theory the approval of any decision requires a simple majority of members, potentially allowing the legislature (11 members) to control the government, in practice the GNWT is directed by the cabinet (7 members), since the cabinet has a policy of voting uniformly on every issue.[4] Whatever internal disagreements might exist in the cabinet, they get sorted out before voting takes place. On the other hand, it is very hard to get a uniform vote from regular members, some of whom usually support the cabinet's solution, while others propose their own alternatives. Therefore, the cabinet almost always has the upper hand. Of course, the ministers remain responsible to the House, actually more so than in a party-based system, and can be removed from office, but in practice this happens in rare, extreme cases (Cameron and White 1995; O'Brien 2004; White 1991, 2011). In the end, policy solutions proposed or supported by the cabinet end up being upheld in the vast majority of cases.

In these circumstances, it becomes critical for a policy entrepreneur seeking to promote his or her "pet" solution to either become a member of the cabinet or to get some influence over the cabinet. According to Mr. Bromley, in the GNWT he managed to become quite successful in "getting the ear of the cabinet" due to support from the Minister for Environment and Natural Resources, Michael Miltenberger, who was the longest-serving member and had a significant influence in the cabinet. Himself a supporter of renewable energy, Minister Miltenberger often managed to get the required uniform vote of the cabinet on renewables and other environmental

[4] 19-th Member is the Speaker, who does not take part in debates, ask or answer questions, or vote, except to present the Legislative Assembly's budget or to break a tie (NWT LA, n.d.).

initiatives. Besides, some members of the House, in particular Wendy Bisaro, voted consistently in favour of environmentally and socially oriented policies. During the research interview, MLA Bisaro admitted that although renewable energy and environmental initiatives rarely originated from her (usually they were coming from Bob Bromley), she made sure to always support those (Wendy Bisaro, pers. comm.).

The actions of policy entrepreneurs within the GNWT demonstrate their ability to engage in networking and to develop coalitions of supporters – one of the key characteristics of policy entrepreneurs (Kingdon 1995; Mintrom 1997, 2013; Mintrom and Norman 2009, Weible 2012). The only feature that is specific to the NWT is the small size of such coalitions within the ranks of policymakers due to the overall smallness of the NWT political community.

The strategy described above is consistent with what the existing literature on the operation of consensus government suggests (Cameron and White 1995; O'Brien 2004; Tootoo 2012; White 1991, 2011). For instance, White (2011) wrote:

> The seven-member cabinet finds itself a permanent minority in the 19-member House but since what are termed the "regular members" – the non-cabinet MLAs – do not constitute a disciplined opposition, cabinet is usually able to have its policies adopted and implemented with only minor modifications.

Therefore, it becomes particularly important for a policy entrepreneur to ensure that his or hers "pet" solution is accepted or internalized by the cabinet as cabinet's preferred policy.

In a party-based system this strategy would have encountered some major obstacles. First, a policy needs to be approved by the ruling party, which is near-impossible to achieve if the proposal comes from the opposition. This obstacle is removed by the non-partisan nature of consensus government. Indeed, one may say that consensus government does not have any permanent dividing lines – it gets divided of course, but it is divided by issue, not by party, hence alliances and voting blocs shift all the time (even though the cabinet votes unanimously), which provides more opportunities for bargaining and finding compromise.

Second, in a party-based system the flow of information between the cabinet and regular members is severely restricted (O'Brien 2004), which would prevent the described strategy from working properly. As for the GNWT, some interviewees have expressly stressed a better information exchange as an important advantage of the GNWT (Bob Bromley, pers. comm.; Dave Nightingale, pers. comm.; Jim Sparling, pers. comm.). Some have attributed it primarily to the smallness and interconnectedness of the NWT government, public service, and community in

general (Jim Sparling, pers. comm.); however, others have credited the consensus nature of the government that facilitates informed dialogue on proposed policies, thus allowing all members – including community representatives and the general public – to contribute to the discussion at least to some extent (Dave Nightingale, pers. comm.). As an example of the willingness of the GNWT to engage communities through sharing information, Dave Nightingale cited an ongoing effort to create the NWT Energy Communications Strategy, which was going to be "specifically focused on greater community engagement and getting communities more involved in the discussion … to help them take responsibility for managing their own energy use" (ibid).

This is consistent with the observations of some scholars who have mentioned significantly better access to information within consensus government (O'Brian 2004). The resulting policies tend to be more comprehensive, consistent, and durable over time – in other words, better information exchange contributes to better policy integration.

Once a policy gets in place, it becomes stable due to the consensus nature of the government, but the real challenge lies in getting the cabinet's vote approving the policy. This is where a policy entrepreneur needs to be on the lookout for a window of opportunity. In case of NWT, during the times of high fuel costs coupled with ever-increasing climate change concerns, the actions of a small three-person coalition of renewable energy supporters (MLAs Bromley and Bisaro, and Minister Miltenberger) turned out to be quite successful in getting the respective policies in place.

During this research, multiple Hansards were reviewed, and the overall impression of the mode of discussion in the NWT legislature is that debates tend to be non-confrontational, even when members hold different core beliefs (e.g. prioritising environmental and social improvements vs. prioritising economic development). Proposals do not usually get ignored or dismissed, and even in case of disagreement debaters tended to use arguments based on logic and evidence, and arguments to the common good. And as some scholars have indicated, co-operative, non-confrontational discourse facilitates policy integration; on the contrary, "coherent policy is less likely when policymakers use hard modes of interaction" (Selianko and Lenschow 2015). Also, a discourse where policymakers listen to each other's arguments and take into consideration actual problems creates the most productive environment for problem-focused policymaking, which, in its turn, has a higher potential to produce integrated policy outcomes.

However, it is hard to say with certainty whether this style of discussion is motivated by a potential for increased accountability of cabinet members, or by the influence of traditional Aboriginal values, or by both.

Finally, according to some authors (O'Brian 2004; White 1991, 2011), consensus governments are characterised by increased accountability of the cabinet to the legislature. In the present research, none of the interviewees have expressly mentioned increased accountability as a factor contributing to policymaking in general, or to the creation of the NWT renewable energy policy in particular, so the positive effect of the cabinet's higher accountability on integrated policymaking remains hypothetical and may be addressed by future research.

The role of policy entrepreneurs in the GNWT was not limited to promoting renewable energy and forming coalitions within the government; their actions may have also contributed to policy integration in a number of ways:

First, policy entrepreneurs such as Bob Bromley were keeping renewable energy on the agenda, and were actively promoting it within the policymaking process, making sure that renewables were integrated as a solution into resulting policies whenever possible. This has been done over a long period of time, leading to more *consistent* and coherent policies.

Second, policy entrepreneurs developed deep knowledge about their preferred solution (renewable energy), which allowed them to find ways to apply their solution to various situations and in ways that took into account various interests, thus improving policy *comprehensiveness* and *aggregation*. For example, Bob Bromley and other MLAs advocated for the use of renewables by large and small communities, as well as by the objects of public infrastructure such as public buildings, and also for private residents through programs such as net metering and Small Renewable Energy Fund. They did not use a one-size-fits-all approach, but argued in favour of utilising different types of renewable energy systems depending on the application – for example, in favour of Taltson expansion (mid-to-large scale hydro) for bigger communities, solar power installations for small and remote communities, biomass boilers for public buildings, and solar panels and biomass boilers for individual homes.

Finally, Bob Bromley and other supporters of renewable energy acted to prevent the choice of incompatible policy solutions that could have undermined the future of renewable energy in the NWT, for instance, by arguing against connecting to the southern grid that would have brought coal-generated power to the NWT. This has increased policy *consistency*.

The analysis of the role played by policy entrepreneurs in the process of development of the NWT renewable energy policy framework shows that the actions of policy entrepreneurs have contributed to policy integration. The role of policy entrepreneurs is policy integration could be an interesting direction of future research.

There is also one issue of a theoretical nature I'd like to address here. If one is to agree with the "garbage can" model of policymaking, one may conclude that policy entrepreneurs can be effective only in a solution-focused environment, where a problem is viewed essentially as a pretense to promote entrepreneur's favorite solution (Kingdon 1995). However, in the NWT policy entrepreneurs have been successfully working in a problem-focused environment. If one is willing to acknowledge that the "garbage can" model of policymaking is not universal, this seeming contradiction disappears.

It should also be remembered that Kingdon was writing about the role of entrepreneurs at the agenda setting stage of the policy process; however, exploring various options available for addressing (or ignoring) the problem comes at the next stage – policy formulation. As long as the problem definition accepted during agenda setting does not preclude particular policy solutions, policy entrepreneurs can still be actively involved in policy formulation. In other words, nothing stops policy entrepreneurs from working in the problem-focused environment, as is evident from the example of the NWT.

Things could have been different if the problem was formulated as the lack of renewables. Then there really would not have been much left to do for a policy entrepreneur – because the decision had already been made. But the problem was formulated as high energy costs and low energy security, which left the door open for various solutions.

5.7. Implementation and Evaluation: Challenges and Solutions

5.7.1. Limited Potential for Private Sector Involvement

The GNWT on its own may not have a financial capacity to develop major projects such as Taltson Hydro Expansion. NWT borrowing limits were set at $500 million by the federal government in 2008, which further limited the capacity of the GNWT to carry out major projects on its own (NWT LA 2008, October 23), although it was subsequently increased to $1.3 billion (GNWT 2015b). As a result, some MLAs argued in favour of developing NWT's impressive hydro potential though P3 mechanisms (ibid), since industry (such as the diamond mines) would

be the main beneficiary of such projects. There have also been calls to sell the NTPC to "another energy supplier with a capacity to develop some of the vast hydro potential" of the NWT, and in order to drive down energy prices by getting rid of NTPC's debt load (NWT LA 2008, October 23).

Global experience shows that engaging industry in the development of renewables by means of appropriate incentives such as feed-in tariffs and renewable portfolio standards can be highly efficient and effective, and can result in a rapid deployment of significant renewable generating capacity (REN21 2016). Unfortunately, the NWT have very few communities big enough to justify industrial-scale renewable energy installations.

An alternative route that was at one point considered by the GNWT, could be to privatise the NTPC, which supposedly could attract private funding to develop NWT's hydro potential. The GNWT entered into negotiations with a major Albertan holding company, ATCO, concerning a potential merger with the NTPC, hoping to develop large hydro for export in partnership with ATCO (NWT LA 2009, February 19). However, negotiations with ATCO have been actively opposed by some of the MLAs: Bob Bromley criticized these negotiations as "behind-the-scenes, behind-closed-doors process" (ibid), while MLA Robert Hawkins described NTPC as "autocratic," "answerable to no one," and "having more secrets than an illuminati." A merger deal under consideration was described as a "long-term hostile takeover" with the ultimate purpose of ATCO "trying to lock up control of power generation in western and northern Canada" (NWT LA 2009, March 2). MLA Jane Groenewegen also was dissatisfied with this initiative which she referred to as a proposal to "just sell the Power Corporation," and noted the lack of alternatives to the ATCO proposal: "just the fact that somebody can walk up and throw a proposal on our desk and we will then devote resources to investigating that without laying other options out for all of us to consider … has caused a problem" (NWT LA 2009, February 19). The very idea to essentially sell the NTPC to a private company in response to high power rates was criticized as an "overreaction" by the same MLA, who also expressed concerns that the "Power Corp operates too arms-length from the government" (ibid). Eventually, the merger deal with ATCO never took place.

Regardless of whether the privatisation of the territorial energy company could be a valid solution of the problem of high energy rates, the private sector has demonstrated some success in the transition to renewables (such as Diavik wind farm), showing that it can be highly efficient in

implementing new technologies given the right economic incentive. However, those interviewees who commented on the potential involvement of the private sector in the development of renewable energy projects admitted that P3 mechanisms would not be applicable in the present circumstances since large resource development projects are geographically removed from NWT communities and are for the most part located in remote unpopulated areas. It would not make economic sense for the industry to build extremely costly transmission lines to locations far removed from resource development sites (Anonymous, pers. comm.; Michael Miltenberger, pers. comm.; Dave Nightingale, pers. comm.).

On the other hand, the future growth of renewables may create opportunities for the private sector to get involved in the development of renewable resources not just for the industry, but for the NWT communities as well, which could potentially create opportunities for the use of P3 mechanisms. However, the potential for the involvement of the renewable energy industry in the development of renewables in the NWT is limited by the lack of incentives such as feed-in tariffs for industrial power generators, and the lack of P3 policies in the NWT. This policy gap was brought to the attention of the GNWT several times in 2008 (NWT LA 2008, February 14; NWT LA 2008, October 15). Some NWT MLAs such as Wendy Bisaro were very much aware of this gap and were urging the Government to "get a policy in place as soon as possible" (NWT LA 2008, February 14). Therefore, one of the long-term recommendations to the GNWT may be to develop the NWT Public-Private Partnership policy that would include provisions concerning renewable energy projects.

5.7.2. Renewable Portfolio Standards: High Potential and Lack of Political Will

Another way in which industry could potentially contribute to the NWT transitioning to sustainable energy generation is through renewable portfolio standards (also known as mandatory renewable energy targets) – requirements that a certain percentage of energy consumed by a business or distributed by a utility must come from renewable sources (Matisoff 2008; Rowlands 2005; Lewis and Wiser 2007; Winfield and Dolter 2014).

The 2014 NWT Energy Charrette suggested as one of long-term actions to "mandate renewable energy projects for mining projects – through a renewable portfolio standard" (GNWT 2014, 18). However, in the GNWT Response to the 2014 NWT Energy Charrette Report, the GNWT stated that it "will not impose rigid renewable energy targets on resource developments" (GNWT 2015a, 13). Instead, the GNWT stated that it "uses the regulatory and environmental

assessment process to ensure that companies consider the use of renewable energy" (ibid). In other words, the government was willing to ensure that companies only "consider" renewables, but not necessarily use them.

When asked about the possibility of developing renewable portfolio standards for the NWT, some interviewees expressed a conviction that one of the key functions of the GNWT is to make the NWT more attractive for the resource development industry, and expressed concerns that if the industry is not sufficiently satisfied with the government's efforts, it would leave (Dave Nightingale, pers. comm.), while others have referred critically to the interests of the industry as being "sacred" for the government (Anonymous, pers. comm.), or implied that the government tends to over-emphasise economic development, sometimes at the expense of its social and environmental objectives (Bob Bromley, pers. comm.; Wendy Bisaro, pers. comm.; Shauna Morgan, pers. comm.; Kevin O'Reilly, pers. comm.; Craig Scott, pers. comm.).

One of the interviewees expressed regret that the GNWT operates in a "race-to-the-bottom" mode in setting standards and regulations for industry, which is caused by the industry's strategic approach to interactions with the public, the media, and the government. Therefore, any kind of renewable portfolio standard becomes unlikely (Shauna Morgan, pers. comm.):

> Every time a mineral … or oil and gas company pulls out, and it could be for many reasons, like the global price of commodities falling … they always tell the government, and the public, and the media in no uncertain terms that the reason they are leaving is because there are too many rules … and if you want us ever to come back, you have to make it easier for us to come back, you have to make less rules and you have to treat us better. … But the public does not necessarily understand [the actual reasons for company's withdrawal], and think they are leaving because we weren't nice enough to them … So, the government is desperate to take away as many rules as possible, cause that's in some way a politically popular thing to do. … So, I would be very surprised if the GNWT would implement a rule like that, I think it would be great … but I would be very surprised if they did.

Almost all interviewees expressed skepticism about the likelihood of the GNWT establishing mandatory renewable portfolio standards, although Minister Miltenberger allowed for a possibility that such standards may be set in future.

Regardless of their views on the importance of economic development relative to other issues, most interviewees shared an understanding that the industrial interests have great influence in the NWT, and that the GNWT would be very reluctant to impose any obligations on

industry, including renewable portfolio standards, even though such standards may in fact result in the industry saving money, as evidenced by the Diavik Diamond Mine's experience.

There may be some potential for the GNWT establishing renewable portfolio standards for the utilities. However, the effect of such standards would be limited since the utility sector is already getting over 77 percent of its energy from renewable sources, mostly from hydro (NT Energy 2012a). A better outcome could actually be achieved by gradually displacing diesel within "thermal" communities. Introduction of renewable portfolio standards for industry could have made the biggest impact but at present remains unlikely.

5.7.3. Limited Local Financial Resources and the Lack of Federal Support

All interviewees emphasised that costs are one of the key barriers to energy transition in the NWT, although their views varied on whether the money required to finance renewables could be obtained through the reduction of diesel power subsidies. Some believed that these subsidies could be partially re-allocated to renewable projects without compromising energy supply to diesel-dependent communities (Bob Bromley, pers. comm.), while others believed that implementing renewable energy projects would in most cases require significant additional subsidies (Dave Nightingale, pers. comm.).

However, the interviewees uniformly appreciated the unique challenges of pursuing energy transition in remote northern locations and the fact that all energy projects, including renewables, tend to be several times more expensive in the NWT that in the Canadian South. For instance, the GNWT Manager of Climate Change Programs, Jim Sparling (pers. comm.) referred to the fact that people proposing wind power solutions for communities such as Inuvik or Tuktoyaktuk do not often realise that in order to install industrial-size wind turbines there, heavy equipment such as cranes would have to be brought by barge to those locations, and would have to stay there over winter while it could not be used due to weather conditions. All the while equipment lease payments will continue to accrue.

One of the reasons why it is often easier to develop solar energy in the northern communities is that solar does not require heavy equipment for installation, although solar panels still need to be delivered to remote locations, and the personnel required to carry out their installation needs to be brought in too. This still makes installing solar much more expensive compared to similar projects in the South. At the same time, the federal government provided very limited financial support to renewable energy projects. One of the interviewees, for instance,

noted that Alaska has been significantly more successful in developing their wind energy potential due to the fact that "they get a ton of money from the federal government," and that there apparently was a "free wind turbine fairy" somewhere in Washington DC (Dave Nightingale, pers. comm.). Some interviewees expressly stated that support from the federal government would be crucial in order to increase the penetration of renewables in the NWT (Dave Nightingale, pers. comm.; Kevin O'Reilly, pers. comm.; Jim Sparling, pers. comm.).

The GNWT attempted to attract financing from the Government of Canada. In particular, NWT policymakers hoped to emulate the success of the Yukon Government, which had obtained $71 million to invest in the Mayo hydro facility enhancement and in Stage 2 of the Carmacks-Stewart Transmission Line (NWT LA 2009, June 1). In 2009, the GNWT put a $100 million request to the Green Infrastructure Fund (NWT LA 2009, October 15). However, the GNWT eventually failed to obtain financing from this source. According to one of the interviewees, this has likely been caused by a different approach taken by the GNWT compared to the Yukon government: while Yukon had one big project and kept going back to it, the NWT had a whole menu of projects, and was putting the federal government in a situation where it had to choose, and the government's attention was therefore scattered (Anonymous, pers. comm.). Besides, Yukon's closeness to the Conservative government might have also played a role (ibid).

The problem with financing sustainable development with federal money existed at the federal level. For instance, from the original $1 billion allocated to the Green Infrastructure Fund, $215 million were transferred to other federal departments to support "high priority" initiatives (Infrastructure Canada 2015). This fact indicates that green infrastructure development was not considered a priority by the Conservative government; besides, allocating $1 billion over a period of five years (from 2009 till 2014) could hardly be sufficient for a Canada-wide fund intended to finance infrastructure projects. Finally, the lack of interest in funding renewable energy projects on the part of the previous federal government was essentially confirmed in the course of the interview with Aleta Fowler (pers. comm.), an economic development officer with the Canadian Northern Economic Development Agency. Therefore, a conclusion is justified that the lack of federal financing may be explained by the indifference of the Conservative federal government towards sustainable development and renewable energy projects.

Taking into account the insufficiency of federal funding, the GNWT had to rely on internal resources to finance green energy projects. However, the internal capacity of the GNWT

to finance its own infrastructure was negatively affected by the "debt wall" – a borrowing limit established by the federal government for the NWT. According to 2014 Energy Charrette Report, "in the absence of knowing how much capital funding the GNWT has available to allocate to energy projects, it was difficult for the participants to determine priority projects or investments to recommend" (GNWT 2014, 17). Since energy projects are infrastructure projects with significant up-front costs and often long construction times, uncertainty about future availability of funding can easily undermine the viability of such projects.

The situation with federal funding recently started to change. The 2016 Pan-Canadian Framework on Clean Growth and Climate Change declared reducing reliance on diesel of Indigenous, northern, and remote communities as one of the four new key actions in the area of electric energy generation (Government of Canada 2016, 10-13). In compliance with the Pan-Canadian Framework, the 2017 Federal Budget allocated $400 million in an Arctic Energy Fund to finance renewal and replacement of energy systems in communities north of the 60th parallel, in order to address energy security issues and reduce their dependence on diesel (Government of Canada 2017, 130-131). Although the practical outcomes of these developments remain to be seen, this may be a reason for some cautious optimism as far as the federal support of renewable energy in the North is concerned. Most importantly, since transitioning to low-carbon economy requires consistent long-term effort, the federal government needs to ensure that funding is used efficiently and continues to be provided on a regular basis until off-grid communities in the NWT and elsewhere have moved from diesel to renewables as their primary source of power

Despite its own limited resources, the GNWT has taken a number of steps to ensure the availability of funding to renewable energy initiatives within the NWT:

First, the GNWT updated Alternative Energy Technologies Program to include the new Medium Renewable Energy Fund, designed to provide one-third of the cost, up to $15,000, of qualified alternative energy systems for businesses in the Northwest Territories (GNWT, n.d.b). Other changes to energy contribution programs included making community and Aboriginal land and development corporations eligible to get funding for community projects through the Energy Conservation Program, and adding solar hot water heating systems to the list of eligible systems under the Small Renewable Energy Fund (NWT LA 2008, October 15).

There have also been ideas (presented, for instance, by MLA Robert Hawkins) about creating carbon offset funds in the North, where people could buy carbon offset credits to offset

their personal activities that create greenhouse gas emissions, and direct the funds received though the sale of carbon offsets to financing renewable energy projects (NWT LA 2009, June 2). However, infrastructure projects require financial resources greatly exceeding anything that could be obtained through voluntary carbon offsets. Thus, it would be unrealistic to expect that a voluntary carbon offset program could make any noticeable difference in the funding of renewable energy technologies, although it could still be beneficial in terms of public engagement and rising awareness.

The 16th Legislative Assembly established a fund of $60 million ($15 million per year) to support the development and introduction of alternative forms of energy, although government funding for energy management was reduced from $7.2 million annually to $3.5 million for the years 2012-2013 (NWT LA 2012, May 31). Despite the reduction in the energy management funding, Minister Michael Miltenberger positively estimated the effect of the $60 million Alternative Energy Program on biomass, hydro and wind projects in the NWT (NWT LA 2009, November 5). The GNWT was also providing rebates to successful applicants through Small Renewable Energy Fund to install solar photovoltaic and wind turbine technologies in their off-grid homes (GNWT, n.d.c). From the start, this program resulted in fuel savings of 20,772 litres, or 58,900 kilograms of greenhouse gas emissions per year (NWT LA 2008, October 15).

Yet another problem with obtaining financing for transition to a renewable energy future is created by the fact that the GNWT is locked into subsidising energy prices and cannot easily divert this money to other purposes. MLA David Krutko has addressed the situation where the government spends in excess of $9 million annually subsidizing power throughout the NWT, and spends another $3 million on rate applications. He advised that these $12 million dollars should instead be reinvested in new energy projects such as hydro, wind, and solar (NWT LA 2008, October 23). Four years later, this money still was being spent on power subsidies instead of renewable energy. MLA Bob Bromley gave a vivid description of how the status quo persisted despite the losses it created for the Territory's economy (NWT LA 2012, May 31):

> … We are simply asking for implementation of proven technologies that exist in thousands of communities throughout Europe, the northern Scandinavian countries and elsewhere around the globe. Currently, rather than addressing the situation, our government is letting the soaring costs of inaction accumulate in hidden ways in the form of ever-increasing energy subsidies and fuel costs. These costs are much greater than the 2 or 3 or 4 percent we would pay on a few million dollars borrowed to deliver new energy systems. Such costs include: more than doubling the $14 million per year we already subsidize electricity rates; greater than 50 percent rise in fuel costs since 2007,

> borne by our people, our government, our municipalities, our businesses, our environment; … and so on. Rather than wise investment towards reducing and stabilizing energy prices, we seem almost eerily content to allow these hidden costs to soar ... Our public wants and needs alternatives to fossil fuels in all our communities. Further, our people know that developing local and regional renewable energy sources will provide community jobs and local economic development, and will capture the multiplier benefits of dollars paid and spent locally instead of being sent south to businesses and jobs far away... If we were to commit a modest $5 million … that would be well under 1 percent of our debt limit that we fought so hard to have increased.

This quote could be a textbook example of a policy entrepreneur arguing a point: it contains reference to a successful international experience in order to reduce the perception of risk among decision-makers (Mintrom and Norman 2009, 653), presents the situation in a way that switches the focus from the consequences of action to the consequences of inaction (ibid, 654), shows great attention to defining and framing the problem – as a "wise investment" that will reduce energy prices and create local jobs – so that it is taken seriously and perceived favorably (Mintrom 2013), shows the understanding of motives and concerns of others in their local policy context (Mintrom and Norman 2009, 652), and in general demonstrates the existence of a strategy to present an idea to others (Mintrom 1997, 739).

However, even the best efforts of policy entrepreneurs can do only so much in the situation of limited resources and insufficient funding, which is one of the main reasons why renewables remain underdeveloped in the NWT despite the relatively advanced policy framework currently in place.

5.7.4. Issues Being Addressed

The GNWT has accepted as guidelines for its energy policy the objectives of the NWT energy policy as defined by the Energy Charrettes (GNWT 2012a, 2014): "Affordability", "Environment", Economy", and "Energy security", and declared that it will make energy investment decisions that satisfy as many of these objectives as possible (GNWT 2015a). However, these objectives have not yet been fully operationalized, and the existing energy programs, projects, and policies are not yet entirely consistent with these objectives (ibid).

The GNWT Response to the 2014 NWT Energy Charrette Report became the key document outlining the steps GNWT will be taking in order to implement and evaluate their energy policy framework, including its major subset – renewable energy policy (GNWT 2015a). The GNWT admitted that there were issues with the consistency of renewable energy policy

implementation and evaluation measures, and committed to taking action to resolve these issues (ibid).

One of the obstacles to coherent and consistent implementation of renewable energy policy framework – namely, that energy planning and implementation functions used to be scattered among several departments and one corporation – is already being addressed by the GNWT: in 2015, these functions were joined under the Department of Public Works and Services (GNWT 2015a; Kiyoshi 2015; Peter Lennie-Misgeld, pers. comm.; Dave Nightingale, pers. comm.). Prior to April 1, 2015, energy planning and implementation was carried out by the NT Energy Corporation, the Department of Industry, Tourism and Investment, and the Department of Environment and Natural Resource (Kiyoshi 2015). NT Energy Corporation was also merged into the Department of Public Works and discontinued as a separate entity (ibid). Consolidation of government energy functions is expected to result in a more coordinated development of energy policy and a more focused approach to the development of energy programs and projects (GNWT 2015a; Peter Lennie-Misgeld, pers. comm.; Dave Nightingale, pers. comm.). Having energy policy and programs under a single Minister also enhanced accountability to the Members of the Legislative Assembly (GNWT 2015a).

The other challenge being addressed by the GNWT is the existence of gaps in the government's ability to gather and analyze energy-related data and information, including gaps in community-level energy data such as detailed energy demand and end-use statistics, costs and pricing, and greenhouse gas emissions (GNWT 2015a). This gap has been partially addressed by the consolidation of the energy functions within the Department of Public Works and Services, which will make it possible to realize the GNWT's plant to develop "a robust energy data collection system … to track the performance of … energy investments and share this data with community governments" (GNWT 2015a).

Besides, the GNWT has developed the Energy Initiative Evaluation Framework to serve as a guideline to evaluate the achievement of NWT's energy policy objectives, sub-objectives, and individual measures:

Objective	Sub-objective	Measure
Affordability	Minimize community energy expenditures	Project payback based on community savings
		Lifetime community $ saved per $ invested
		Primary beneficiary (residents/business/local government)
	Minimize GNWT operating costs for government assets	Project payback based on GNWT savings
		Lifetime GNWT $ saved per $ invested
	Reduce requirement for GNWT energy subsidies	Lifetime reduction in subsidy per $ invested
Environment	Minimize GHG emissions from energy use and production	Lifetime GHG reduction
		$ invested per tonne of lifetime GHG reductions
	Minimize the environmental footprint of energy use and production	How does this investment reduce the risk of fuel spills, reduce noise in the community or reduce air pollution?
Economy	Keep economic benefits in the NWT	NWT impact in $ per total $ invested (includes local labour, materials)
Energy Security	Improve electricity system reliability	How does the investment improve system reliability?
	Reduce community vulnerability to future price escalations	Reduction in imported, purchased energy per $ invested (MJ/$)
		How does the investment add to diversity in community energy mix?

Table 5-1: NWT Energy Initiative Evaluation Framework (GNWT 2015a, 28).

So far, the GNWT has been firmly on track in terms of addressing existing challenges in the area of implementation and evaluation of its energy policy framework, including NWT's renewable energy programs and policies. This shows deliberate action aimed at ensuring policy coherence and consistency at the implementation and evaluation stages of the policy process.

5.7.5. Potential Future Risks

NTPC rates structure has the potential to reduce economic incentive to save energy or use cheaper energy from renewable sources, in particular, if the NWT residents and businesses start engaging in energy conservation or the use of renewables on a significant scale. The negative impact of the power rates on the cost of living in the NWT, as well as the need to revise the rate structure in order to bring the rates down, were among the most debated topics in the Legislative Assembly in the year 2008. Excessively high rates had the effect of stimulating the efforts to

reduce power consumption. In October 2008, MLA Bob Bromley noted that "some communities, residents and businesses are beginning to propose, design and even implement their own power systems because of the intolerable costs" (NWT LA 2008, October 23). However, according to M.L.A Wendy Bisaro, their opportunity to reduce energy costs may be compromised (NWT LA 2008, October 23):

> The less power we use, the more NTPC revenues drop. The more their revenues drop, the more riders they add to our bills. When NTPC cannot generate enough revenues to meet their expenditures, they ask for a rate increase or a rate rider to make up for lost revenue. The bottom line is that the dollar figure on our power bill goes up.

In other words, the NTPC determines power rates on the basis of its expenditures, so when power users find ways to reduce energy consumption, the NTPC increases the rates to make sure its income remains the same.

However, according to some interviewees, the negative effect of this rate-setting mechanism is either overrated or non-existent: with the overall power consumption in the NWT going up, energy conservation measures do not lead to actual reductions in the NTPC revenues (Dave Nightingale, pers. comm.). As long as the residents and businesses of the NWT do not engage in generating renewable energy on a large scale, the potential negative effect of this rate setting mechanism will be limited.

There are two more factors that potentially might hinder further development of renewables in the NWT: first, a long-term drop in oil prices may result in diesel fuel becoming cheaper, and second, the outcomes of November 2015 NWT elections, where some of the key supporters of renewables, such as Bob Bromley, Michael Miltenberger, and Wendy Bisaro, either did not run or were not re-elected (although at least one of the newly elected MLAs – Kevin O'Reilly – is a strong supporter of renewables).[5] As of the date of this research, it remains to be seen whether the new government stays on the pro-renewables course of its predecessor.

[5] This is the same Kevin O'Reilly who was interviewed for this project.

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

6.1. Addressing the Research Objectives

This chapter provides the summary of the findings for each research objective. It also offers ideas about future research on policy integration, consensus government in the Canadian North, and on the development and improvement of the policy instruments designed to support and promote the transition to the future based on renewable energy.

6.1.1. NWT Renewable Energy Framework and Policy Integration

Before making any conclusions about policy integration, a researcher has to determine what is the problem that an integrated policy intends to solve, or, in terms of policy integration theory, what is (if any) the *overarching societal objective* that guides policymaking efforts (Biesbroek et al. 2010; Briassoulis 2004; Dupont and Oberthür 2012; Jordan and Lenschow 2010; Lafferty and Hovden 2003). As shown in Section 5.4., NWT's renewable energy policy framework is indeed based on an overarching societal objective. This objective is *to reduce the energy costs of NWT businesses and residents, and to ensure reliable supply of energy at predictable prices*. Therefore, the development of NWT's renewable energy potential is a minor problem in the policy integration process, i.e. more of a secondary goal. Such goals as mitigating NWT's greenhouse gas emissions, improving local air quality, and creating local jobs and businesses, while not insignificant, are also secondary in nature. At the same time, these secondary goals/tools work together to ensure economic well-being of the NWT and their residents in the energy domain.

It is obvious that NWT policymaking in the area of renewable energy is an example of a *problem-focused policymaking* (Howlett and McConnell 2013; Howlett, McConnell, and Perl 2015), which is characterised by a comprehensive rational search for a solution to an actual problem – the problem of high energy costs and unreliable energy supply. As discussed in the

Section 2.6. above, this style of policymaking tends to be supportive of policy integration and serves as an indirect evidence that policy integration may indeed have taken place.

But is it actually possible to say that the NWT were engaged in integrated policymaking in order to develop their renewable energy policy framework? The theoretical framework described above allowed to test the policy process in question against Underdal's (1980) three criteria for policy integration: comprehensiveness, aggregation, and consistency.

The first criterion is *comprehensiveness* of policy inputs – the requirement that space, time, actors, and issues are given sufficient attention, that integrated policies adopt a long-term view, and that all significant consequences and implications of policy decisions should be recognized as premises in the making of those decisions. Indeed, the GNWT took into account a wide variety of inputs during the process of creation of their renewable energy policy framework.

Space considerations were addressed by taking into account specific conditions of the NWT, such as remoteness, dispersed population, limited infrastructure availability, and harsh climate. These conditions explicitly or implicitly figured in all the discussions in the Legislative Assembly, and also figure prominently in all policy documents such as renewable energy strategies. Specific conditions of various individual communities were also taken into account, for example, the cost of energy in isolated communities such as Colville Lake; potential for the development of renewable energy sources in various locations, such as wind near Inuvik, or biomass in southern NWT, etc. Essentially, the NWT's renewable energy policy framework was created as an answer to specific challenges NWT face in the field of energy.

The same can be said about *time* consideration – the window of opportunity that created increased interest in renewables opened because of the period of high energy prices, which coincided with the reduction in the reliability of energy supply presumably caused by climate change.

Great attention was paid to *actors* and *issues*, where local actors and interests were often discussed in detail in the legislature and addressed in renewable energy strategies and other policy documents. Various energy alternatives and their implications have been extensively analysed by the GNWT and discussed in the NWT Legislative Assembly, and also discussed with stakeholders, energy experts, community representatives, and to some extent with the general public through Energy Charrettes (2012 and 2014). Moreover, Energy Charrettes, a process unique for the NWT (and also Yukon), allowed stakeholders and the general public to be directly

and actively involved in the formulation and evaluation of the NWT energy policy. The Charrettes should not be confused with a polling mechanism, where a government simply collects public opinion for reference. The GNWT was itself actively engaged in the Charrettes, provided a detailed Response to Energy Charrette Reports (CNWT 2015a), and most importantly, to a significant degree based its policies on Charrettes' recommendations.

The analysis of Energy Charrettes process provided in Section 4.7.2. shows that the Charrettes enabled a much wider participation of experts, community representatives and other stakeholders than would be typical for a governmental decision-making process. Moreover, Charrettes process also allowed some degree of direct involvement and input from the general public. Normally, one would expect decisions on the matters of energy to be made by a small number of politicians and bureaucrats inside the government, assisted by a handful of experts and, in a best-case scenario, with some limited involvement from NGOs. Based on an inclusive, comprehensive approach to *actors* and *issues* involved in making territorial energy policy, Energy Charrettes were a truly innovative policy mechanism pioneered by the governments of the Yukon (in 2011) and the NWT (in 2012 and 2014).

A simple way to measure the comprehensiveness of a policy is along the issue dimension: the more related issues policymakers take into account as policy inputs, the higher the level of comprehensiveness (Ishii and Langhelle 2011). This analysis shows that the NWT policymakers took into account a wide variety of relevant factors when developing their renewable energy policy: the magnitude and volatility of energy costs, the challenges of providing energy to remote communities, the interests of the industry, the economic and environmental impacts of various energy solutions, the obstacles to renewable energy projects, the need to reduce greenhouse gas emissions, the potential for the creation of local jobs and businesses, and the ways to ensure public engagement and to build capacity over time. Even though some opportunities have not been given sufficient consideration, such as the potential to use renewable portfolio standards in order to stimulate the use of renewables by the industry, on the whole the NWT policymakers took a comprehensive view that encompassed most of the significant consequences and implications of policy decisions.

The second criterion for policy integration is *aggregation*, which means that at the inputs processing stage policy alternatives should be evaluated from an overall perspective rather than from the perspectives of separate actors or sectors. Indeed, as shown above, the existence of an

overall perspective was highly evident throughout the process of the development of NWT renewable energy policy. The overarching objective of reducing energy costs and ensuring a reliable supply of energy at predictable prices was important for nearly everyone in the NWT, and did not depend on the agendas of special interest groups, specific industries, or lobbyists.

This is probably one of the key differences between NWT policymaking and that of the United States, on which Kingdon based his premise about the randomness of policy agendas and solutions. Therefore, a conclusion can be made that issues do not necessarily appear on the agenda in a random way, and that solutions can be based on a long-term strategic vision instead of being random as suggested by the "garbage can" model and by Kingdon. If agenda setting and subsequent stages of the policy process actually followed the "garbage can" model in all cases, policy integration would have been impossible. But since integrated policymaking can in fact happen, a conclusion can be drawn that randomness in policymaking might have been overrated, or maybe that a high degree of randomness is a characteristic of American politics, which does not necessarily apply to other jurisdictions. For example, if one takes a look at the specific features of the NWT (small disperse population, remoteness, severe climate, lack of infrastructure, extremely high energy costs, etc.), one can notice that from the NWT's point of view, their policies – aimed at addressing these problems – look quite predictable, although the exact mix of policy instruments can vary.

Besides, a high degree of aggregation may have been easier to achieve in a small, closely connected polity than in a vast, highly diverse nation (such as the U.S.) or in a union of nations such as the EU. The factor of smallness affects both the community of policymakers and experts, and the general public. In particular, it simplifies and speeds up interactions within bureaucracies responsible for policy implementation, as well as between the public and elected officials. As put by MLA Bob Bromley when addressing additional factors that may have facilitated policymaking in the NWT: "It is as much the size of our jurisdiction, the fact that we all know each other for many years. It is sort of a small town spread over a large area." (Bob Bromley, pers. comm.).

The last of Underdal's criteria of policy integration is *consistency* (at the output stage) – in the resulting policies, specific implementary measures should conform to more general guidelines and to policy goals. The analysis performed in this study did not reveal any significant inconsistencies between specific implementary measures and policy goals. On the contrary, there is sufficient evidence that the GNWT has deliberately taken action (such as joining energy

planning and implementation under the same institutional roof, and the development of the Energy Initiative Evaluation Framework) in order to ensure policy coherence and consistency at the implementation and evaluation stages of the policy process.

Finally, in addition to fitting Underdal's criteria, the NWT renewable energy policy framework seeks to build capacity over time through the use of "soft" tools of policy integration, such as increasing visibility of renewable energy solutions through putting solar arrays and biomass heating systems on public buildings, and engaging a wide range of stakeholders through Energy Charrettes.

Taking the above into account, a conclusion is justified that the process of creation of the NWT's renewable energy policy framework meets the criteria for integrated policymaking, and that the process in question has produced a coherent, integrated policy outcome. Unlike the EU, where policy integration efforts are most prominent in the environmental sphere and are based on the idea of a "Green Europe" (Lenschow and Sprungk 2010), in the NWT policies were integrated on the basis of economic, not environmental, goals. The latter have not been disregarded, however, but rather were integrated into the policy mix as tools aimed at improving the overall economic and environmental sustainability of the NWT's energy policy framework.

Policy integration in the NWT apparently follows the "sectoral" approach described by Adelle and Russel (2013). Unlike EU's "strong" integration approach, the NWT policymakers were not trying to integrate environmental objectives into a wide variety of policies across all sectors of the economy. Instead, they are focused on the objective to reduce energy costs while ensuring energy security. Secondary objectives, such as GHG mitigation, and creation of local jobs and businesses, are also taken into account. Renewable energy is viewed as a policy solution that is highly suitable for achieving these objectives; therefore, it has been integrated into the NWT energy policy framework.

This approach, while not as comprehensive as strong environmental policy integration, may be more realistic and effective in terms of achieving coordinated policy outcomes, because it is easier for policymakers to deal with narrower sectoral policy concepts, and to measure and evaluate the outcomes of such policies. The difference between the European approach described by Adelle and Russel, and the one taken by the NWT, is that in the EU environment-related policy objectives are integrated into non-environmental sectors, while in the NWT renewable

energy is integrated into non-environmental sectors as a solution to economic problems, while environmental problems are secondary in terms of significance.

A downside of sectoral policy integration is that the NWT's focus on the problem instead of the solution may have contributed to the relative underdevelopment of renewables in the NWT. The GNWT's priority goal is to reduce costs while ensuring continued reliability of energy supply, and NWT policymakers have been using whatever tools were available to address this problem. These tools included renewables; however, they also included other solutions such as continued subsidization of energy. On the other hand, policymaking *focused on renewables as a solution* would likely have made GNWT use a different mix of policy instruments. For instance, the government could have heeded calls from renewable energy proponents in the Legislative Assembly to redirect massive diesel fuel subsidies into new alternative energy projects such as mini-hydro, wind, and solar (see Section 5.7.3. for details), which may have led to better penetration of renewables in the NWT.

A comparative study of integrated policymaking in the countries based on coalition government systems (mostly in Europe) and on the Westminster model, could be a viable direction for future research. Another possible direction for future research could be an investigation into the effect of policymaking styles on policy integration.

6.1.2. Consensus Government, Policy Integration, and Policy Entrepreneurs

The feature of consensus government that arguably has the biggest significance for policy integration, as well as for renewable energy, is the *greater stability of policies* compared to those adopted under a party-based system: once a policy gets in place, it tends to stay instead of being discarded at the next elections, which allows for long-term policy solutions. This is the key advantage consensus government has over a party-based system in terms of integrated policymaking, which becomes particularly important when decisions are made on the matters of environmental policy and related issues such as renewable energy, since these problems by their very nature require a long-term approach. In other words, consensus government has a lower potential for creating policy layering, which is one of the key obstacles to policy integration.

Besides, policy incoherence is expected when institutional framework is highly politicized; on the contrary, when deliberation takes place in a non-politicized environment, coherent policymaking becomes more likely (Selianko and Lenschow 2015). During this research, multiple Hansards were reviewed, and the overall impression of the mode of discussion

in the NWT legislature is that debates tended to be non-confrontational, and in cases of disagreement debaters preferred logical arguments and arguments to the common good over confrontation and criticism. Indeed, consensus government does not have any permanent dividing lines – it gets divided by issue, not by party, hence alliances and voting blocs shift all the time (even though the cabinet votes unanimously), which provides *more opportunities for bargaining and finding compromise*. And more opportunities for finding compromise translate to wider acceptance, and hence stability, of policies.

Better information exchange is another feature of consensus government that facilitates integrated policymaking. In a party-based system the flow of information between the cabinet and regular members is severely restricted. As for the GNWT, some interviewees have expressly mentioned better access to information as an important advantage of consensus government that facilitates informed dialogue on proposed policies, thus allowing all members to contribute to the discussion at least to some extent. Resulting policies tend to be more comprehensive, consistent, and accepted by a wider range of actors, and hence more stable – in other words, better information exchange contributes to better policy integration.

Finally, consensus government is supposedly characterized by the *increased accountability of the cabinet to the legislature*. Whether such increased accountability does actually have a positive effect on integrated policymaking remains hypothetical and may be addressed by future research.

A strategy that a policy entrepreneur should adhere to when acting within the framework of consensus government is based on the understanding that in practice the GNWT is directed by the cabinet (7 members), since the cabinet has a policy of voting uniformly on every issue. Whatever internal disagreements might exist in the cabinet, they get sorted out before voting takes place. On the other hand, it is very hard to get a uniform vote from 11 regular members, therefore, policy solutions proposed or supported by the cabinet end up being upheld in most cases. In these circumstances, it becomes critical for a policy entrepreneur seeking to promote his or her "pet" solution to either become a member of the cabinet, or to get a sufficient amount of influence over the cabinet, which can be done by finding an ally among the influential members of the cabinet. In a party-based system this strategy would have been impossible provided the proposal comes from a policy entrepreneur who is a member of the opposition. This obstacle is removed by the non-partisan nature of consensus government.

To summarize, *the following features of consensus government make integrated policymaking easier and more effective*:

- Greater stability of policies, which makes long-term strategic policymaking possible,
- Non-politicized environment, which results in more opportunities for finding compromise and therefore in wider acceptance of policies, and
- Better information exchange compared to a party-based government, which allows all interested members to participate in policymaking, thus leading to more comprehensive policies acceptable by a wider range of actors.

Policy entrepreneurs who want their policies to be accepted by consensus government need to find an ally among influential members of the cabinet, or become cabinet members themselves.

The role of policy entrepreneurs in the GNWT was not reduced just to promoting renewable energy and forming coalitions within the government; their actions have also contributed to policy integration in a number of ways:

First, policy entrepreneurs such as MLA Bob Bromley kept renewable energy on the agenda over long periods of time, and actively promoted it within the policymaking process, making sure that renewables were integrated into resulting policies whenever possible, leading to more *consistent* and coherent policies.

Second, by finding ways to apply their preferred solution – renewable energy – to various situations and in ways that take into account various interests, policy entrepreneurs improved policy *comprehensiveness* and *aggregation*.

Finally, Bob Bromley and other supporters of renewable energy acted to prevent the choice of incompatible policy solutions that could have undermined the future of renewable energy in the NWT. This has further improved policy *consistency*.

The role of policy entrepreneurs in policy integration could be an interesting direction of future research.

6.2. Challenges and Opportunities for Renewable Energy Development

Limited potential for private sector involvement. The GNWT on its own does not possess sufficient financial capacity to develop large renewable energy projects such as Taltson Hydro Expansion. The future growth of renewables may create opportunities for the private

sector to get involved in the development of renewable resources not just for the industry, but for communities as well.

The NWT have very few communities big enough to justify industrial-scale renewable energy installations, therefore, the only opportunities for the development of renewables on a major scale may be expected to arise in the mining sector – as a source of energy for the mines. However, large resource development projects are geographically removed from NWT communities and are for the most part located in remote unpopulated areas. It would not make economic sense to build extremely costly transmission lines to locations far removed from resource development sites. Instead, the industry prefers to generate its own energy on-site. Therefore, there is little hope to involve the industry in the construction of renewable energy installations for NWT communities on a public-private partnership basis. However, the GNWT could make an effort to stimulate the industry to use renewable energy for its own needs.

Renewable portfolio standards: high potential and lack of political will. The 2014 NWT Energy Charrette suggested as one of the long-term actions to "mandate renewable energy … for mining projects – through a renewable portfolio standard" (GNWT 2014, 18). However, in response the GNWT stated that it "will not impose rigid renewable energy targets on resource developments" (GNWT 2015a, 13). This research demonstrated that the interests of industry have great influence in the NWT, and that the GNWT would be very reluctant to impose any obligations on industry, including renewable portfolio standards, even though such standards may in fact result in the industry saving money, as evidenced by the experience of the Diavik Diamond Mine wind power plant.

It may be easier for the GNWT to establish renewable portfolio standards for the utilities. However, the effect of such standards would be limited since the utility sector is already getting over 77 percent of its energy from renewable sources (NT Energy 2012a). Introduction of renewable portfolio standards for industry could have made a bigger impact but at present remains unlikely.

The potential for Aboriginal engagement in the development of renewable energy sources in the NWT is not fully utilized. This may have been caused by the GNWT's reluctance to more actively engage Aboriginal governments and development corporations, or (and more likely) simply by high up-front costs of renewable energy projects.

The NWT could benefit from adopting an Aboriginal and Community Energy Strategy, which could set the groundwork for small, community-owned energy projects, in particular, in the area of renewable energy. Such a strategy would address the recommendation of the 2012 Charrette "to create a firm public policy on the development of independent power producers … with local and Aboriginal ownership as priorities." It would also be a logical continuation of the provisions of the 2013 NWT Energy Action Plan related to Aboriginal engagement. The Aboriginal and Community Energy Strategy could rely on Aboriginal development corporations, or on public-private partnerships between such corporations and the GNWT, as the instruments of unlocking NWT's impressive renewable energy potential.

Limited local financial resources and the lack of federal support. The cost of transition to renewables is one of the key barriers to renewable energy deployment in the NWT. High costs are caused by the unique challenges of pursuing energy transition in remote northern locations, which make all energy projects, including renewables, to be several times more expensive in the NWT than in the provincial South. At the same time, prior to 2017 the federal government provided very limited financial support to renewable energy projects in the North.

The lack of federal financing may be explained by the indifference of the previous federal government towards sustainable development and renewable energy projects. Internal capacity of the GNWT to finance its own infrastructure projects is limited both by the amount of government's own funds, and by the "debt wall" – a borrowing limit of $1.3 billion established by the federal government for the NWT. An alternative solution could be to redirect some of the GNWT diesel fuel subsidies to invest into local renewable energy development. However, this approach is highly improbable, since even a small risk that any NWT community might end up without diesel fuel for its back-up generation is unacceptable for the GNWT.

As noted above, the 2017 Federal Budget has finally begun to address this issue, and allocated $400 million to an Arctic Energy Fund in order to address energy security issues in communities north of the 60th parallel, and to reduce their dependence on diesel (Government of Canada 2017, 130-131). However, since transitioning to low-carbon economy requires consistent long-term effort, the federal government needs to ensure that sufficient funding continues to be provided on a regular basis until off-grid communities in the NWT and elsewhere have moved from diesel to renewables as their primary source of power.

Potential future risks. There are three factors that potentially might have a negative effect on further development of renewables in the NWT. The first is the long-term drop in oil prices, which may result in diesel fuel becoming cheaper, and the second factor is the outcome of November 2015 NWT elections, where some of the biggest supporters of renewables, such as Bob Bromley, Michael Miltenberger, and Wendy Bisaro, either did not run or were not re-elected. Although at least one of the newly elected MLAs – Kevin O'Reilly – is a strong supporter of renewable energy, as of the date of this research it remains to be seen whether the new government will stay on the pro-renewables course of its predecessor.

Finally, the third factor that might become an obstacle in the future, is the NTPC rates structure, which has the potential to reduce incentive to use cheaper energy. The NTPC determines power rates on the basis of company's expenditures, so when power users find ways to reduce energy consumption, the NTPC increases the rates to make sure its income remains the same. This rate-setting mechanism potentially destroys the incentives for the use of cheaper energy sources and for energy conservation. As long as the residents and businesses of the NWT do not engage in generating renewable energy on a large scale, the potential negative effect of this rate setting mechanism will be limited.

6.3. Research Contributions and Transferability

This work intended to study the NWT's integrated approach to the development and implementation of their renewable energy policy framework. This is an impressive achievement, since the NWT does not have access to the massive financial resources and policy experience of the pioneer in integrated policymaking – the European Union.

Although this is a single case study, various governments can draw policy conclusions from it, in particular, the governments of northern polities and communities, both in Canada and worldwide. The NWT created an integrated policy approach to the development of renewable energy sources that takes into account such specific conditions of the Northwest Territories as remoteness, limited infrastructure, high cost of energy and high cost of living and doing business in general, small and disperse populations, and severe climatic conditions combined with high susceptibility to the impacts of climate change.

Multiple jurisdictions in the global North can learn from the positive example of the NWT, including, in particular, Nunavut in Canada, Greenland, and Siberia – regions where renewable energy policies and programs are currently underdeveloped or missing. Other remote,

sparsely populated regions with limited access and harsh natural conditions – such as Australian "Outback" and also desertified regions in the global South – can also learn from NWT's experience.

One of the biggest potential beneficiaries of this research could be Canadian "Provincial North" – northern regions of Canadian provinces. Renewable energy projects, including community-owned and operated ones, could stimulate the economy by providing power at predictable prices to natural resource development projects, small local businesses, and communities. Renewables could also create local jobs and help save money at the times of high diesel prices.

However, the efforts to develop integrated renewable energy policy frameworks similar to that of the NWT are likely to encounter significant challenges in the Provincial North. With a combined population 15 times that of the Canadian territories, and in many ways key to Canada's economic well-being, the Provincial North remains strangely forgotten, receiving far less attention and care than the Arctic (Coates, Holroyd, and Leader 2014; Poelzer and Coates 2014). The main reason why it is still marginalized and lacks the ability to take care of itself that the territories have, is the lack of political autonomy – Provincial North is governed by provincial laws and policies, but too often gets neglected by provincial governments due to its remoteness from provincial centers located in the South (ibid). Besides, although the populations of Provincial Norths are many times larger than those of the territories, they are still small compared to the southern parts of provinces. Therefore, Provincial Norths often do not have much political clout in the elections and in legislatures.

Any noticeable renewable energy developments in those regions will in the current conditions depend on the provincial adoption of robust, coordinated renewable energy policies. And it may be harder for provinces to achieve the level of policy coordination demonstrated by the NWT – especially in terms of policy stability – due to the partisan nature of provincial governments. Indeed, political barriers become the biggest obstacles to the penetration of renewable energy in case when incumbent political elites lack up-to-date knowledge about the technologies and economics of renewable energy, or when they are simply complacent about the status quo (Richards, Noble, and Belcher 2012). Finally, even if a provincial government succeeds in making renewable-friendly policies, there's a risk those will not take into account

unique northern circumstances such as climate, geography, remoteness, and a whole set of unique economic challenges.

On the other hand, if northerners get the ability to make policies for themselves – like they do in the NWT – resulting policies will be tailored to their unique circumstances, and will have a better chance to succeed in terms of actual policy implementation – i.e. to produce more and bigger successful renewable energy projects. And there may be a way to achieve this despite the relatively light political weight of the Provincial North. Wide implementation of the Energy Charrettes mechanism could create sufficient publicity and pressure on the provincial politicians to force them take into account northern needs and circumstances.

As put by Coates, Holroyd, and Leader (2014, 43), substantial progress in the Provincial North requires the "willingness and ability of provincial governments to adapt their policies, administrative systems, and expectations to meet northern needs more effectively and with much greater northern and Aboriginal input." As long as provincial governments are willing to follow this advice, the NWT experience could serve as an invaluable source of lessons and ideas.

The theoretical value of this study includes several aspects. First, this research shows that Kingdon's views on randomness in policymaking do not apply to all polities and all circumstances. Kingdon believed that issues appeared on the agenda in a random manner described as a "garbage can" model, depending on the events that open windows of opportunity, often unexpectedly. In line with multiple other studies on policy integration, this research shows that issues appearing on the agenda, and proposed solutions, can be based on a long-term strategic vision instead of being random.

Second, this is one of the relatively few studies of integrated policymaking outside the EU, and it highlights specific features and challenges facing policy integration in the context of small, remote polities such as the NWT.

Finally, this study addresses the role of policy entrepreneurs in the process of integrated policymaking – a new direction in the research on both policy entrepreneurship and policy integration, which could potentially be a promising direction for future research.

6.4. Recommendations

6.4.1. Recommendations to the GNWT

Follow the recommendation of the 2014 Energy Charrette to introduce renewable portfolio standard for the mining industry. Currently the GNWT has been reluctant to impose any additional regulations on the industry; however, as shown by the experience of the Diavik Diamond Mine wind farm, the industry can in fact save significant amounts of money by switching to renewables as their main source of energy while keeping diesel as a backup option. The reluctance of other mining operations to follow Diavik's example may be caused by inherent conservatism of senior management, and by the perception of renewables as "risky" and "unreliable". A requirement to ensure that a certain percentage of energy comes from renewable sources could compel mining companies to change their attitudes. Admittedly, due to the high up-front costs of most renewable energy installations, establishing such requirements for mines nearing the end of their lifespans would create an unnecessary economic burden. Therefore, renewable portfolio standards should apply only to the newly opening mines, and to the mines in the beginning of their estimated lifespans.

Alternative approach could be to establish a NWT-wide feed-in tariff, or to establish a portfolio standard for NWT utilities. However, these two approaches have significant drawbacks. First, the GNWT will likely be unable to afford establishing a feed-in tariff without financial assistance from the federal government due to limited local funds. And second, a portfolio standard for utilities, even if established, will not result in any significant increase in renewable energy generation, since 77 percent of utility generation in the NWT already comes from hydro.

Increase Aboriginal and community engagement in renewable energy projects. In particular, follow the recommendation of the 2012 Energy Charrette to create a firm public policy on the development of independent power producers (IPPs) in the NWT, with local and Aboriginal ownership as priorities. Such policy should prioritize projects that diminish fossil fuel consumption.

Dedicate equal attention to supporting wind, solar, mini-hydro, and biomass. This recommendation should not be treated as a suggestion to discard exiting support to biomass as a source of renewable energy. However, the GNWT should pay more attention to the development of medium and large-scale wind and solar installations, as well as run-of-the-river hydro. Concentrating too much attention on the development of the biomass industry does not guarantee

success due to the difficulties of building the whole industry from the ground up. Even if such industry is created, it will have to compete with the biomass industries of Alberta and BC, who enjoy a major advantage of getting their raw materials – wood waste from logging operations – at extremely low cost. Besides, it may be argued that in subarctic conditions biomass, although technically renewable, is not the most preferable source of renewable energy in terms of climate change mitigation, since it would take about 70-75 years of regrowth to sequester the annual emissions from bioenergy production in the NWT.

Consider other options to involve industry in renewable energy generation. One such option could be to develop a Public-Private Partnership policy that would incentivise private investments in renewable energy generation in the NWT.

6.4.2. Recommendation to Provincial Governments and the Government of Nunavut

Emulate the mechanism of Energy Charrettes. The basic conditions (remoteness, small and dispersed populations, etc.) in the Canadian Provincial North are similar to those of the Canadian Territories. In particular, small populations make it possible to directly involve residents in the discussion of energy issues. Energy Charrettes have demonstrated their effectiveness as a mechanism to engage the public, stakeholders, and experts in the discussion of the NWT's current energy challenges and in the search for solutions. Therefore, the mechanism of Charrettes could be emulated by municipal and provincial governments, and in particular, but the Government of Nunavut. It may also be possible to hold similar public discussions on provincial and even federal level. In political terms, wide implementation of the Energy Charrettes mechanism could create sufficient publicity and pressure on the provincial politicians to make them take into account northern needs and circumstances.

6.4.3. Recommendation to the Federal Government

Ensure sufficient long-term financial support for renewable energy projects. Unfortunately, the constitutional division of powers in Canada's federal system impedes the creation of a national renewable energy development strategy, because constitutional authority over electricity governance belongs to the provinces (Liming, Haque, and Barg 2008; Valentine 2010). Therefore, the options available to the federal government are fairly limited. However, the federal government is able to allocate funds through such mechanisms as the Green Infrastructure Fund and the Arctic Energy Fund. The previous federal government simply did not view

renewable energy as a priority – an approach that started to change with the current federal government. However, since transitioning to a low-carbon economy requires consistent long-term effort, the recommendation is made to ensure that sufficient funding continues to be provided on a regular basis until off-grid communities in the NWT and elsewhere have moved from diesel to renewables as their primary source of power.

An alternative approach could be to rise the debt limit for the NWT on condition that a certain share of funds will be spent on renewable energy development.

6.5. Concluding Remarks

According to Lord Stern, author of the well-known Stern Review and one of the leading climate economists, a new "energy-industrial" revolution is required to avoid potentially disastrous levels of global warming. Unlike the Industrial Revolution of the 18th-19th centuries, this energy-industrial revolution has to be policy-driven (Stern 2012).

This study shows that policy efforts aimed at the development of renewable energy policies and programs are possible not only at the level of major nations and international unions, but also in remote, isolated, and sparsely populated areas with limited access to financial resources. Moreover, it shows that arguably the most advanced form of policymaking – integrated policymaking – is possible in places like the NWT if persistence of policy entrepreneurs is combined with the political will of the government and the administrative skills of public servants. And although there are no universal solutions, any polity and any location is potentially capable of finding its own way to the future based on clean renewable energy.

REFERENCES

Adelle, Camilla, and Duncan Russel. 2013. "Climate Policy Integration: A Case of Deja Vu?" *Environmental Policy and Governance* 23: 1–12. doi:10.1002/eet.1601.

Anderson, James E. 1975. *Public Policy-Making*. New York: Praeger Publishers.

Arctic Energy Alliance. 2009. *NWT Community Wood Pellet Study: Supply and Transport Options for Wood Pellets*. Accessed November 1, 2016. http://aea.nt.ca/files/download/72.

Atkinson, Michael M. 2011. "Lindblom's Lament: Incrementalism and the Persistent Pull of the Status Quo." *Policy and Society* 30 (1). Policy and Society Associates Ltd Partnership: 9–18. doi:10.1016/j.polsoc.2010.12.002.

Aurora Research Institute. 2006. *A Report on the State-of-the-art and Economic Viability of Wind Power Development in Arctic Communities*. Accessed November 1, 2016. https://nwtresearch.com/sites/default/files/state-of-the-art-and-economic-viability-of-wind-power-development-in-arctic-communities.pdf.

Baumgartner, Frank R., and Bryan D. Jones. 1991. "Agenda Dynamics and Policy Subsystems." *The Journal of Politics* 53 (4): 1044–74.

Baxter, Pamela, and Susan Jack. 2008. "Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers." *The Qualitative Report* 13 (4): 544–59.

Bennett and Checkel, eds. 2015. *Process Tracing: From Metaphor to Analytic Tool*. Cambridge: Cambridge University Press.

Biesbroek, G. Robbert, Rob J. Swart, Timothy R. Carter, Caroline Cowan, Thomas Henrichs, Hanna Mela, Michael D. Morecroft, and Daniela Rey. 2010. "Europe Adapts to Climate Change: Comparing National Adaptation Strategies." *Global Environmental Change* 20 (3). Elsevier Ltd: 440–50. doi:10.1016/j.gloenvcha.2010.03.005.

Bisaro, Wendy (Member of the Legislative Assembly, Northwest Territories), in discussion with the author, digital recording, October, 2015.

Bowen, Glenn A. 2009. "Document Analysis as a Qualitative Research Method." *Qualitative Research Journal* 9 (2): 27–40. http://dx.doi.org/10.3316/QRJ0902027.

Brewer, Garry D. 1974. "The Policy Sciences Emerge: To Nurture and Structure a Discipline." *Policy Sciences* 5 (3): 239–44. doi:10.1007/BF00144283.

Briassoulis, Helen. 2004. "Policy Integration for Complex Policy Problems: What, Why and How." In *Berlin Conference "Greening of Policies: Interlinkages and Policy Integration,"* 1–30.

Bromley, Bob (Member of the Legislative Assembly, Northwest Territories), in discussion with the author, digital recording, October, 2015.

Brusilow, Raf. 2011. “North Mulls Nuclear Solution to Rising Power Costs.” *CBC News*. April 15. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north-mulls-nuclear-solution-to-rising-power-costs-1.1045157.

BW McCloy & Associates Inc. 2009. *NWT Wood Pellet Pre-Feasibility Analysis Prepared for The Government of the Northwest Territories*. Accessed November 1, 2016. http://www.grrb.nt.ca/pdf/forestry/NWT percent20Wood percent20Pellet percent20Public percent20Report percent20Jan percent2014 percent202010.pdf.

Cashore, Benjamin, and Michael Howlett. 2007. “Punctuating Which Equilibrium? Understanding Thermostatic Policy Dynamics in Pacific Northwest Forestry.” *American Journal of Political Science* 51 (3): 532–51. doi:10.1111/j.1540-5907.2007.00266.x.

Cameron, Kirk, and Graham White. 1995. *Northern Governments in Transition: Political and Constitutional Development in the Yukon, Nunavut and the Western Northwest Territories*. Montreal: Institute for Research on Public Policy (IRPP).

CBC (Canadian Broadcasting Corporation). 2007. “Tuktoyaktuk Harnesses Northern Wind Farm Idea.” *CBC News*. April 10. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/tuktoyaktuk-harnesses-northern-wind-farm-idea-1.634159.

———. 2011. “Taltson Hydro Expansion Put on Hold.” *CBC News*. March 2. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/taltson-hydro-expansion-put-on-hold-1.1027782.

———. 2012. “N.W.T.'s $37.4M Bluefish Dam Construction Complete.” *CBC News*. November 26. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/n-w-t-s-37-4m-bluefish-dam-construction-complete-1.1248904.

———. 2014. “Yellowknife Cries Foul on Power Rate Hike; Others Cry Foul on City.” *CBC News*. September 17. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/yellowknife-cries-foul-on-power-rate-hike-others-cry-foul-on-city-1.2768921.

———. 2016. “Wet Fall, Good Snowpack May Revive Snare Hydroelectric Water Levels This Year.” *CBC News*. January 29. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/snare-basin-hydro-water-level-1.3424746.

Canadian Wind Energy Association. 2013. *Diavik Wind Farm: Wind Energy Helps Reduce Carbon Footprint*. Accessed November 1, 2016. http://canwea.ca/wp-content/uploads/2013/12/canwea-casestudy-DiavikMine-e-web2.pdf.

Carmichael, Dali. 2015. “Inuvik tests for wind power feasibility on the road away from fossil fuels.” *Northern Journal*. December 14. Accessed November 1, 2016. http://norj.ca/2015/12/inuvik-testing-for-wind-power-feasibility/.

Casado-Asensio, Juan, and Reinhard Steurer. 2013. “Integrated Strategies on Sustainable Development, Climate Change Mitigation and Adaptation in Western Europe: Communication rather than Coordination.” *Journal of Public Policy* 34 (03): 437–73. doi:10.1017/S0143814X13000287.

Cato, Molly Scott. 2009. Green economics: an introduction to theory, policy and practice. London, Sterling: Earthscan.

———. 2012. “Green Economics: Putting the Planet and Politics Back into Economics.” *Cambridge Journal of Economics* 36 (5): 1033–49.

Charowsky, Zena. 2011. “The Aboriginal Law Duty to Consult: An Introduction for Administrative Tribunals.” *Saskatchewan Law Review* 74: 213–30.

Cherniak, David, Vincent Dufresne, Lawrence Keyte, Alexandra Mallett, and Stephan Schott. 2015. “Report on the State of Alternative Energy in the Arctic.” Paper presented to Polar Knowledge Canada, Ottawa, Ontario, September 21, 2015. doi:10.11574/11250001. Accessed March 10, 2017. https://curve.carleton.ca/08515c6b-3b39-4c41-ad7b-2c6306cf0379.

Coates, Ken, Carin Holroyd, and Joelena Leader. 2014. “Managing the Forgotten North: Governance Structures and Administrative Operations of Canada’s Provincial Norths.” *The Northern Review* 38: 6–54.

Cohen, Michael D, James G March, and Johan P Olsen. 1972. “A Garbage Can Model of Organizational Choice.” *Administrative Science Quarterly* 17 (1): 1–25. doi:10.2307/2392088.

Collier, David. 2011. “Understanding Process Tracing.” *PS: Political Science & Politics* 44 (4): 823–30. doi:10.1017/S1049096511001429.

Collier, Ute. 1994. *Energy and Environment in the European Union*. Avebury: Aldershot.

Clemons, Eric K, and Heinz Schimmelbusch. 2007. “The Environmental Prisoners’ Dilemma Or We're All in This Together: Can I Trust You to Figure It Out?” Accessed November 1, 2016. http://opim.wharton.upenn.edu/~clemons/blogs/prisonersblog.pdf.

Crouch, M., and H. McKenzie. 2006. “The Logic of Small Samples in Interview-Based Qualitative Research.” *Social Science Information* 45 (4): 483–99.

Curry, John, Han Donker, and Richard Krehbiel. 2009. “Development Corporations in Aboriginal Communities: The Canadian Experience.” *Journal of Developmental Entrepreneurship* 14 (1): 1–19. doi:10.1142/S1084946709001119.

DaRosa, Emanuel (president and chief executive officer, Northwest Territories Power Corporation), in discussion with the author, digital recording, October, 2015.

David Suzuki Foundation. 2012. *All Over the Map 2012*. Accessed November 1, 2016. http://davidsuzuki.org/publications/reports/2012/all-over-the-map-2012.

Dawson, Susan E., and Gary E. Madsen. 2011. “Psychosocial and Health Impacts of Uranium Mining and Milling on Navajo Lands.” *Health Physics* 101 (5): 618–25. doi:10.1097/HP.0b013e3182243a7a.

DeCanio, Stephen J., and Anders Fremstad. 2013. “Game Theory and Climate Diplomacy.” *Ecological Economics* 85 (January). Elsevier B.V.: 177–87. doi:10.1016/j.ecolecon.2011.04.016.

DiCicco-Bloom, Barbara, and Benjamin F. Crabtree. 2006. “The Qualitative Research Interview.” *Medical Education* 40 (4): 314–21. doi:10.1111/j.1365-2929.2006.02418.x.

Dupont, Claire, and Sebastian Oberthür. 2012. “Insufficient Climate Policy Integration in EU Energy Policy: The Importance of the Long-Term Perspective.” *Journal of Contemporary European Research* 8 (2): 228–47.

EBA Engineering Consultants Ltd. 2010. *Geothermal Favourability Map*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/reports/geothermal_favorability_report.pdf.

Engelman, Robert. 2013. “Beyond Sustainababble.” In *State of the World 2013: Is Sustainability Still Possible?* Washington, Covelo, London: Worldwatch Institute.

Fowler, Aleta (economic development officer, Canadian Northern Economic Development Agency, CANNOR), in discussion with the author, digital recording, October, 2015.

Gleeson, Richard. 2015. “N.W.T. Solar Energy Surges in Popularity.” *CBC News*. June 26. Accessed November 1, 2016. http://www.cbc.ca/news/canada/north/n-w-t-solar-energy-surges-in-popularity-1.3128538.

Government of Canada. 2004. *Sharing the Story: Aboriginal and Northern Energy Experiences*. Ottawa, ON: Minister of Indian Affairs and Northern Development.

———. 2011. *Energy Use in Canada’s North: an Overview of Yukon, Northwest Territories, and Nunavut*. Accessed November 1, 2016. http://publications.gc.ca/collections/collection_2011/one-neb/NE12-8-3-2011-eng.pdf.

———. 2016. *Pan-Canadian Framework on Clean Growth and Climate Change*. Accessed May 25, 2017. https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf.

———. 2017. *Budget 2017: Building a Strong Middle Class*. Accessed May 25, 2017. http://www.budget.gc.ca/2017/docs/plan/budget-2017-en.pdf.

GNWT (Government of the Northwest Territories). 2001. *Northwest Territories Greenhouse Gas Strategy*. Yellowknife, NT: Department of Resources, Wildlife, and Economic Development.

———. 2006. *2006-07 Budget Highlights*. Accessed November 1, 2016. http://www.fin.gov.nt.ca/sites/default/files/2006-07 percent20budget percent20highlights.pdf.

———. 2007. *Northwest Territories Greenhouse Gas Strategy 2007-2011*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/strategies/greenhouse_gas_strategy_final.pdf.

———. 2008a. *Climate Change Impacts and Adaptation Report*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/reports/nwt_climate_change_impacts_and_adaptation_report.pdf.

———. 2008b. *Energy Priorities Framework*. Accessed October 15, 2015. http://www.iti.gov.nt.ca/sites/default/files/EnergyPriorities.pdf (site discontinued).

———. 2010. *Biomass Energy Strategy 2010*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/nwt_biomass_energy_strategy_2010.pdf.

———. 2011a. *A Greenhouse Gas Strategy for the Northwest Territories 2011-2015*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/strategies/ghg_strategy_2011-2015.pdf.

———. 2011b. *Public Works and Services Energy Conservation Projects. Annual report 2010*. Accessed October 1, 2015. http://www.pws.gov.nt.ca/pdf/publications/EnergyConservationProjects2010.pdf (site discontinued).

———. 2012a. *2012 Northwest Territories Energy Charrette. Planning the NWT's Energy Future Together*. Accessed October 15, 2015. http://www.iti.gov.nt.ca/sites/default/files/nwt_energy_charrette_final_report.pdf (site discontinued).

———. 2012b. *Biomass Energy Strategy 2012-2015*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/strategies/biomass_energy_strategy_2012-2015.pdf.

———. 2012c. *Budget 2012-13 Highlights*. Accessed November 1, 2016. http://www.gov.nt.ca/newsroom/budget-2012-13-highlights.

———. 2012d. *Public Works and Services Energy Conservation Projects. Annual report 2011*. Accessed November 1, 2016. http://www.assembly.gov.nt.ca/sites/default/files/12-06-07td22-173.pdf.

———. 2012e. *Solar Energy Strategy 2012-2017*. Accessed November 1, 2016. http://www.nwtsolar.ca/uploads/3/4/7/4/34746653/solar_energy_strategy_2012-2017_0.pdf.

———. 2013a. *Northwest Territories Energy Action Plan. A Three-Year Action Plan and a Long-Term Vision*. Accessed November 1, 2015. http://www.iti.gov.nt.ca/sites/default/files/energy_action_plan_web_feb_20.pdf (site discontinued).

———. 2013b. *Public Works and Services Energy Conservation Projects. Annual report 2012-2013*. Accessed November 1, 2016. http://www.assembly.gov.nt.ca/sites/default/files/13-05-06td_92-174.pdf.

———. 2014. *2014 Northwest Territories Energy Charrette Final Report*. Accessed November 1, 2016. http://warehouse.pws.gov.nt.ca/pdf/Energy/charrette_report_fnl_web.pdf.

———. 2015a. *GNWT Response to the 2014 NWT Energy Charrette Report*. Accessed November 1, 2016. http://www.assembly.gov.nt.ca/sites/default/files/td_271-175.pdf.

———. 2015b. *NWT pleased with increased borrowing limit*. Accessed November 1, 2016. http://news.exec.gov.nt.ca/gnwt-pleased-with-increased-borrowing-limit/.

———. n.d.a. *Devolution of Land and Resources in the Northwest Territories*. Accessed March 10, 2017. http://devolution.gov.nt.ca.

———. n.d.b. *Medium Renewable Energy Fund*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/documents/medium_renewable_energy_fund.pdf.

———. n.d.c. *Small Renewable Energy Fund*. Accessed November 1, 2016. http://www.enr.gov.nt.ca/sites/default/files/documents/small_renewable_energy_fund.pdf.

ENR (Government of the Northwest Territories Department of Environment and Natural Resources). n.d. *Climate Change: Greenhouse Gas Strategy*. Accessed November 15, 2016.

http://www.enr.gov.nt.ca/programs/nwt-climate-change/nwt-greenhouse-gas-strategy-2011-2015.

Goodman, Leo A. 1961. "Snowball Sampling." *The Annals of Mathematical Statistics* 32 (1): 148–70. http://www.jstor.org/stable/2237615.

Government of the Northwest Territories, Government of Nunavut, and Yukon Government. n.d. *Path to a Renewable North. Pan-Territorial Renewable Energy Inventory*. Accessed November 1, 2016. http://www.anorthernvision.ca/documents/RenewableEnergyInventory EN.pdf.

Graetz, Geordan. 2014. "Uranium Mining and First Peoples: The Nuclear Renaissance Confronts Historical Legacies." *Journal of Cleaner Production* 84. Elsevier Ltd: 1–9. doi:10.1016/j.jclepro.2014.03.055.

Hall, Peter A., and Kathleen Thelen. 2009. "Institutional Change in Varieties of Capitalism." *Socio-Economic Review*, 7–34. http://ser.oxfordjournals.org/content/7/1/7.short.

Heagle, A.L.B., G.F. Naterer, and K. Pope. 2011. "Small Wind Turbine Energy Policies for Residential and Small Business Usage in Ontario, Canada." *Energy Policy* 39 (4). Elsevier: 1988–99. doi:10.1016/j.enpol.2011.01.028.

Hiesinger, Margaret. 2002. "The house that uranium built: perspectives and effects of exposure on individuals and community." In *The Energy Reader*, edited by L. Nader, 113-131. Malden: Wiley-Blackwell Publishing.

Howlett, Michael. 2014. "Why Are Policy Innovations Rare and so Often Negative? Blame Avoidance and Problem Denial in Climate Change Policy-Making." *Global Environmental Change*, February. Elsevier Ltd. doi:10.1016/j.gloenvcha.2013.12.009.

Howlett, Michael, and Allan McConnell. 2013. "Reconciling Streams and Stages: Avoiding Mixed Metaphors in the Characterization of Policy Processes." *1st International Conference on Public Policy*, 1–24.

Howlett, Michael, Allan McConnell, and Anthony Perl. 2015. "Streams and Stages: Reconciling Kingdon and Policy Process Theory." *European Journal of Political Research* 54 (3): 419–34. doi:10.1111/1475-6765.12064.

Howlett, Michael, and Jeremy Rayner. 2006. "Convergence and Divergence in 'New Governance' Arrangements: Evidence from European Integrated Natural Resource Strategies." *Journal of Public Policy* 26 (02): 167. doi:10.1017/S0143814X06000511.

Infrastructure Canada 2015. *Green Infrastructure Fund*. Accessed November 1, 2016. http://www.infrastructure.gc.ca/prog/gif-fiv-eng.html.

IPCC (Intergovernmental Panel on Climate Change). 2013. *Climate Change 2013: The Physical Science Basis. Summary for Policymakers*. Accessed November 1, 2016. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf.

Ishii, Atsushi, and Oluf Langhelle. 2011. "Toward Policy Integration: Assessing Carbon Capture and Storage Policies in Japan and Norway." *Global Environmental Change* 21 (2). Elsevier Ltd: 358–67. doi:10.1016/j.gloenvcha.2011.02.005.

Janghorban, Roksana, Robab Latifnejad Roudsari, and Ali Taghipour. 2014. "Skype Interviewing: The New Generation of Online Synchronous Interview in Qualitative

Research." *International Journal of Qualitative Studies on Health and Well-Being* 9 (1). Informa Healthcare.

Jensen-Ryan, Danielle. 2014. "New Technologies. Old Stories: The Forgotten Voices of Uranium Mining in Rural Wyoming." *The Extractive Industries and Society* 1 (2). Elsevier Ltd: 321–28. doi:10.1016/j.exis.2014.04.003.

Jones, Tom. 2002. "Policy Coherence, Global Environmental Governance and Poverty Reduction." *International Environmental Agreements: Politics, Law and Economics* 2 (4): 389–401.

Jordan, Andrew, and Andrea Lenschow. 2010. "Policy Paper Environmental Policy Integration: A State of the Art Review." *Environmental Policy and Governance* 20: 147–58. doi:10.1002/eet.539.

Kiyoshi, Evan F. 2015. "GNWT absorbs NT Energy: Alternative energy planning consolidated under public works department." *Northern News Services*. March 25. Accessed November 1, 2016. http://www.nnsl.com/frames/newspapers/2015-03/mar25_15pow.html.

Kickert, Walter J. M., and Frans-Bauke van der Meer. 2011. "Small, Slow, and Gradual Reform: What Can Historical Institutionalism Teach Us?" *International Journal of Public Administration* 34 (8): 475–85. doi:10.1080/01900692.2011.583768.

Kingdon, John W. 1984. *Agendas, Alternatives, and Public Policies*. Boston: Little, Brown and Company.

Kingdon, John W. 1995. *Agendas, Alternatives, and Public Policies, 2nd Edition*. New York: HarperCollins College Publishers.

Kraemer, Andreas R., Uwe Büsgen, Keya Choudhury, Anneke Klasing, Anne-Gabrielle Mazurek, and Stefanie Pfahl. n.d. *Results of the 'Cardiff-Processes' – Assessing the State of Development and Charting the Way Ahead*. Berlin: Institute for International and European Environmental Policy. http://ec.europa.eu/environment/archives/integration/pdf/german_study.pdf.

Krupa, Joel. 2012. "Identifying Barriers to Aboriginal Renewable Energy Deployment in Canada." *Energy Policy* 42 (March). Elsevier: 710–14. doi:10.1016/j.enpol.2011.12.051.

La Duke, Winona. 1981. "Red land and uranium mining: how the search of energy is endangering Indian tribal lands." In *The Energy Reader*, edited by L. Nader, 105-109. Malden: Wiley-Blackwell Publishing.

Lafferty, William, and Eivind Hovden. 2003. "Environmental Policy Integration: Towards an Analytical Framework." *Environmental Politics* 12 (3): 1–22. doi:10.1080/09644010412331308254.

Lasswell, Harold D. 1956. *The decision process: seven categories of functional analysis*. College Park: University of Maryland Press.

Lazarus, Richard J. 2009. "Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future." *Cornell Law Review* 94 (5): 1153–1233.

Lennie-Misgeld, Peter (senior analyst, Energy Policy and Planning, Department of Public Works and Services, Government of the Northwest Territories), in discussion with the author, digital recording, October, 2015.

Lenschow, Andrea, and Carina Sprungk. 2010. “The Myth of a Green Europe.” *Journal of Common Market Studies* 48 (1): 133–54. doi:10.1111/j.1468-5965.2009.02045.x.

Levin, Kelly, Benjamin Cashore, Steven Bernstein, and Graeme Auld. 2009. “Playing It Forward: Path Dependency, Progressive Incrementalism, and the ‘Super Wicked’ problem of Global Climate Change.” In *IOP Conference Series: Earth and Environmental Science*, 6:502002.

———. 2012. “Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change.” *Policy Sciences* 45 (2): 123–52.

Lewis, Joanna I., and Ryan H. Wiser. 2007. “Fostering a Renewable Energy Technology Industry: An International Comparison of Wind Industry Policy Support Mechanisms.” *Energy Policy* 35 (3): 1844–57. doi:10.1016/j.enpol.2006.06.005.

Liberatore, Angela. 1997. “The integration of sustainable development objectives into EU policy making.” In *The Politics of Sustainable Development: Theory, Policy and Practice within the European Union*, edited by S. Baker, M. Kousis, D. Richardson, and S. Young, 107–126. London: Routledge.

Liming, Huang, Emdad Haque, and Stephan Barg. 2008. “Public Policy Discourse, Planning and Measures toward Sustainable Energy Strategies in Canada.” *Renewable and Sustainable Energy Reviews* 12 (1): 91–115. doi:10.1016/j.rser.2006.05.015.

Lindblom, Charles E. 1959. “The Science of ‘Muddling Through.’” *Public Administration Review* 19 (2): 79–88.

———. 1979. “Still Muddling, Not yet through.” *Public Administration Review* 39 (6): 517–26. http://www.jstor.org/stable/976178.

Mabee, Warren E., Justine Mannion, and Tom Carpenter. 2011. “Comparing the Feed-in Tariff Incentives for Renewable Electricity in Ontario and Germany.” *Energy Policy* 40 (January). Elsevier: 480–89. doi:10.1016/j.enpol.2011.10.052.

Manitoba Hydro International. 2016. *North Slave Resiliency Study*. Accessed November 1, 2016. http://www.pws.gov.nt.ca/sites/www.pws.gov.nt.ca/files/north_slave_resiliency_study_final_report.pdf.

Manuilova, Anastassia and Mark Johnston. 2011. *Greenhouse Gas Emissions Assessment: Substitution of Fossil Fuels with Woody Biomass in the Northwest Territories*. Saskatoon, SK: Saskatchewan Research Council. Accessed November 1, 2015. http://www.nwtclimatechange.ca/sites/default/files/GHG percent20_Emissions_Assessment_ percent20Report.pdf (site discontinued).

Matisoff, Daniel C. 2008. “The Adoption of State Climate Change Policies and Renewable Portfolio Standards: Regional Diffusion or Internal Determinants?” *Review of Policy Research* 25 (6): 527–46. doi:10.1111/j.1541-1338.2008.00360.x.

McGloin, Sarah. 2008. “The Trustworthiness of Case Study Methodology.” *Nurse Researcher* 16 (1): 45–55. doi:10.7748/nr2008.10.16.1.45.c6752.

McDonald, Nicole C., and Joshua M. Pearce. 2012. “Renewable Energy Policies and Programs in Nunavut: Perspectives from the Federal and Territorial Governments.” *Arctic* 65 (4): 465–75.

———. 2013. “Community Voices: Perspectives on Renewable Energy in Nunavut.” *Arctic* 66 (1): 94–104. http://arctic.journalhosting.ucalgary.ca/arctic/index.php/arctic/article/view/4269.

Meijers, Evert, and Dominic Stead. 2004. “Policy Integration: What Does It Mean and How Can It Be Achieved? A Multi-Disciplinary Review.” *2004 Berlin Conference on the Human Dimensions of Global Environment Change: Greening of Policies – Interlinkages and Policy Integration*.

Meyer, Christine B. 2001. “A Case in Case Study Methodology.” *Field Methods* 13 (4): 329–52. doi:10.1177/1525822X0101300402.

Miltenberger, Michael. 2014. *Report on the Northwest Territories Power Corporation*. Yellowknife, NT: Government of the Northwest Territories. Accessed November 1, 2016. http://news.exec.gov.nt.ca/j-michael-miltenberger-report-on-the-northwest-territories-power-corporation-2/.

———. (Minister of Finance and Environment and Natural Resources, Minister Responsible for the Northwest Territories Power Corporation, Chair of Financial Management Board, Government of the Northwest Territories), in discussion with the author, digital recording, October, 2015.

Mintrom, Michael. 1997. “Policy Entrepreneurs and the Diffusion of Innovation.” American *Journal of Political Science* 41 (3): 738–70. doi:10.2307/2111674.

———. 2013. “Policy Entrepreneurs and Controversial Science: Governing Human Embryonic Stem Cell Research.” *Journal of European Public Policy* 20 (3): 442–57. doi:10.1080/13501763.2012.761514.

Mintrom, Michael, and Phillipa Norman. 2009. “Policy Entrepreneurship and Policy Change.” *Policy Studies Journal* 37 (4): 649–67. doi:10.1111/j.1541-0072.2009.00329.x.

Moe, Terry M. 2005. “Power and Political Institutions.” *Perspectives on Politics* 3 (2): 215–33. http://journals.cambridge.org/abstract_S1537592705050176.

Morgan, Shauna (senior analyst (former), Pembina Institute), in discussion with the author, digital recording, October, 2015.

Musall, Fabian David, and Onno Kuik. 2011. “Local Acceptance of Renewable energy – A Case Study from Southeast Germany.” *Energy Policy* 39 (6). Elsevier: 3252–60. doi:10.1016/j.enpol.2011.03.017.

Myers, Michael D., and Michael Newman. 2007. “The Qualitative Interview in IS Research: Examining the Craft.” *Information and Organization* 17 (1): 2–26.

Nightingale, Dave (director of energy policy and planning, Department of Public Works and Services, Government of the Northwest Territories), in discussion with the author, digital recording, October, 2015.

Northwest Territories Bureau of Statistics. 2008. *Aboriginal People. 2006 Census*. Accessed March 10, 2017. http://www.statsnwt.ca/census/2006/Aboriginal%20Peoples_2006.pdf.

NWT LA (Northwest Territories, Legislative Assembly), *Hansard* (9 November 2000), pp.819, 826 (Mr. Lafferty, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn010214.pdf.

———. *Hansard* (29 March 2004), p.414 (Mrs. Groenewegen, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn040329.docx.

———. *Hansard* (18 October 2005), p.340 (Mr. Villeneuve, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn051018.docx.

———. *Hansard* (3 February 2006), p.723 (Standing Committee on Governance and Economic Development Report on 2006-2007 Pre-Budget Review Process). http://www.assembly.gov.nt.ca/sites/default/files/hn060203.docx.

———. *Hansard* (8 February 2008), pp.201-202 (Hon. McLeod, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080208-print_ready_final_0.docx.

———. *Hansard* (14 February 2008), p.323 (Ms. Bisaro, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080214-print_ready_final.docx.

———. *Hansard* (18 February 2008), pp.395-396 (Mr. Bromley, MLA; Mr. Menicoche, MLA; Hon. McLeod, MLA; Hon. Roland, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080218-print_ready_final.docx.

———. *Hansard* (22 May 2008), p.502 (Budget Address). http://www.assembly.gov.nt.ca/sites/default/files/h080522-print_ready_final.docx.

———. *Hansard* (29 May 2008), p.702 (Mr. Krutko, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080529-print_ready_final.docx.

———. *Hansard* (9 June 2008), p.1038 (Mr. Bromley, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080609.docx.

———. *Hansard* (10 June 2008), pp.1093-1095, 1100 (Mrs. Groenewegen, MLA; Mr. Hawkins, MLA; Hon. McLeod, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080610.docx.

———. *Hansard* (11 June 2008), p.1130 (Hon. McLeod, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080611.docx.

———. *Hansard* (16 June 2008), p.1303-1304 (Mr. McLeod, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h080616.docx.

———. *Hansard* (15 October 2008), p.1655-1656,1658, 1668 (Ms. Bisaro, MLA; Hon. McLeod, MLA; Hon. Miltenberger, MLA; Hon. Roland, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h081015-final.docx.

———. *Hansard* (23 October 2008), p.1896-1900 (Mr. Abernethy, MLA; Ms. Bisaro, MLA; Mr. Bromley, MLA; Mr. Krutko, MLA; Mr. Menicoche, MLA). http://www.assembly.gov.nt.ca/sites/default/files/h081023-final.docx.

———. *Hansard* (5 February 2009), p.1981, 1983-1984, 1991-1992 (Mr. Bromley, MLA; Hon. Miltenberger, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090205.docx.

———. *Hansard* (9 February 2009), p.2066-2067, 2075-2076, 2090-2092 (Mr. Krutko, MLA; Mr. Yakeleya, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090209.docx.

———. *Hansard* (19 February 2009), p.2383-2384, 2387-2389 (Mr. Bromley, MLA; Mrs. Groenewegen, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090219.docx.

———. *Hansard* (24 February 2009), p.2535-2536, 2543, 2544, 2546-2548 (Mr. Beaulieu, MLA; Mr. Bromley, MLA; Hon. McLeod, MLA; Mr. Ramsay, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090224.docx.

———. *Hansard* (25 February 2009), p.2592, 2594 (Hon. Miltenberger, MLA; Mr. Ramsay, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090225.docx.

———. *Hansard* (2 March 2009), p.2660 (Mr. Hawkins, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090302.docx.

———. *Hansard* (12 March 2009), p.3014 (Mrs. Groenewegen, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090312.docx

———. *Hansard* (1 June 2009), p.3154, 3167 (Mr. Ramsay, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090601.docx.

———. *Hansard* (2 June 2009), p. (Mr. Hawkins, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn090602.docx.

———. *Hansard* (15 October 2009), p.3297 (Hon. Roland, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn091015.docx.

———. *Hansard* (5 November 2009), p.3726-3727, 3733-3734 (Mr. Bromley, MLA; Hon. Miltenberger, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn091105_0.docx.

———. *Hansard* (31 May 2012), p.774-776 (Mr. Bromley, MLA; Mr. Hawkins, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn120531.docx.

———. *Hansard* (20 February 2013), p.1996 (Mr. Bromley, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn130220.docx.

———. *Hansard* (11 March 2013), p. 2528-2529 (Hon. Miltenberger, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn130313.docx.

———. *Hansard* (18 October 2013), p.2971 (Mr. Bromley, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn131018.docx.

———. *Hansard* (28 October 2013), p.3157 (Mr. Bromley, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn131028_0_0.docx.

———. *Hansard* (25 February 2014), p.3954 (Mr. Bromley, MLA). http://www.assembly.gov.nt.ca/sites/default/files/hn140225_0.docx.

———. n.d.a. *J. Michael Miltenberger*. Accessed November 1, 2015. http://www.assembly.gov.nt.ca/meet-members/M.L.A./j-michael-miltenberger (site discontinued).

———. n.d.b. *Speaker*. Northwest Territories Legislative Assembly website. Accessed November 1, 2016. http://www.assembly.gov.nt.ca/meet-members/speaker.

NT Energy (Northwest Territories Energy). 2012a. *Draft NWT Hydro Strategy*. Accessed November 1, 2015. http://ntenergy.ca/wp-content/uploads/2012/04/hyrdro_strategy.pdf (site discontinued).

———. 2012b. *Fort Simpson Hydro Kinetic Turbine Pilot Project*. Accessed November 1, 2015. http://ntenergy.ca/?p=208 (site discontinued).

———. 2013. *A Vision for the NWT Power System Plan*. Accessed November 1, 2016. http://www.pws.gov.nt.ca/sites/www.pws.gov.nt.ca/files/a_vision_for_the_nwt_power_system_plan_-_december_2013.pdf.

NT Hydro (Northwest Territories Hydro Corporation). 2014. *Annual Report*. Accessed November 1, 2016. http://www.assembly.gov.nt.ca/sites/default/files/td_130-175.pdf.

NTPC (Northwest Territories Power Corporation). 2014. *Customer Information. Net Metering*. Accessed November 1, 2016. http://www.ntpc.com/docs/default-source/default-document-library/ntpc-net-metering-13-08-14.pdf?sfvrsn=2.

———. n.d.a. *Colville Lake Solar Project*. Accessed November 1, 2016. http://www.ntpc.com/smart-energy/how-to-save-energy/colville-lake-solar-project.

———. n.d.b. *Energy Calculator*. Accessed November 1, 2016. https://www.ntpc.com/conserving-energy/energy-calculator.

———. n.d.c. *Hydro Electric*. Accessed November 1, 2016. https://www.ntpc.com/smart-energy/how-we-supply-power/hydro.

———. n.d.d. *Territorial Power Support Program (TPSP).* Accessed November 1, 2016. https://www.ntpc.com/customer-service/territorial-power-support-program---tpsp.

O'Brien, Kevin. 2004. "Some Thoughts on Consensus Government in Nunavut." *Canadian Parliamentary Review* 26 (4): 6–10.

O'Reilly, Kevin (executive director, Independent Environmental Monitoring Agency), in discussion with the author, digital recording, October, 2015.

OECD (Organisation for Economic Co-operation and Development). 1996. *Building Policy Coherence, Tools and Tensions*. Public Management Occasional Papers, No.12. Paris: OECD.

Opdenakker, Raymond. 2006. "Advantages and Disadvantages of Four Interview Techniques in Qualitative Research." *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* 7 (4). Free University of Berlin, Germany.

Painuly, J.P. 2001. "Barriers to Renewable Energy Penetration; a Framework for Analysis." *Renewable Energy* 24 (1): 73–89. http://www.sciencedirect.com/science/article/pii/S0960148100001865.

Paris Agreement, December 12, 2015, U.N.T.C. I-54113. https://treaties.un.org/doc/Publication/UNTS/No%20Volume/54113/Part/I-54113-0800000280458f37.pdf.

Patton, Michael Quinn. 1990. *Qualitative evaluation and research methods*. Newbury Park: Sage Publications.

Peters, Guy B. 1998. "Managing Horizontal Government: The Politics of Co-Ordination." *Public Administration* 76: 295–311. doi:10.1111/1467-9299.00102.

Peters, Guy B., Jon Pierre, and Desmond S. King. 2008. "The Politics of Path Dependency: Political Conflict in Historical Institutionalism." *The Journal of Politics* 67 (4): 1275–1300. doi:10.1111/j.1468-2508.2005.00360.x.

Peters, Kath, and Elizabeth Halcomb. 2015. "Interviews in Qualitative Research." *Nurse Researcher* 22 (4). RCN Publishing Company Ltd.: 6–7.

Pinard, Jean-Paul, John Maissan, and Annika Trimble. 2015. *Inuvik Wind Energy Pre-Feasibility Analysis: 2015*. Inuvik, NT: Aurora Research Institute. Accessed December 25, 2015. http://nwtresearch.com/sites/default/files/inuvikmarch2015.pdf.

Poelzer, Greg, and Ken Coates. 2014. "Introduction: Political and Economic Change in Canada's Provincial North." *The Northern Review* 38 (2014): 3–5.

Qu, Sandy Q, and John Dumay. 2011. "The Qualitative Research Interview." *Qualitative Research in Accounting and Management* 8 (3): 238–64. doi:10.1108/11766091111162070.

Rayner, Jeremy, and Michael Howlett. 2009. "Introduction: Understanding Integrated Policy Strategies and Their Evolution." *Policy and Society* 28 (2): 99–109. doi:10.1016/j.polsoc.2009.05.001.

REN21 (Renewable Energy Policy Network for the 21st Century). 2016. *Renewables 2016 Global Status Report*. Paris: REN21 Secretariat. Accessed November 1, 2016. http://www.ren21.net/wp-content/uploads/2016/06/GSR_2016_Full_Report_REN21.pdf.

Richards, Garrett, Bram Noble, and Ken Belcher. 2012. "Barriers to Renewable Energy Development: A Case Study of Large-Scale Wind Energy in Saskatchewan, Canada." *Energy Policy* 42 (March). Elsevier: 691–98. doi:10.1016/j.enpol.2011.12.049.

Rogers, Jennifer C., Eunice A. Simmons, Ian Convery, and Andrew Weatherall. 2008. "Public Perceptions of Opportunities for Community-Based Renewable Energy Projects." *Energy Policy* 36 (11): 4217–26. doi:10.1016/j.enpol.2008.07.028.

Rowlands, Ian H. 2005. "Envisaging Feed-in Tariffs for Solar Photovoltaic Electricity: European Lessons for Canada." *Renewable and Sustainable Energy Reviews* 9 (1): 51–68. doi:10.1016/j.rser.2004.01.010.

Salverson, Julie. 2011. "They never told us these things." *Maisonneuve: A Quarterly of Arts, Opinion & Ideas*. 40: summer 2011. Accessed November 1, 2016. http://maisonneuve.org/article/2011/08/12/they-never-told-us-these-things/.

Schaefer, Manuel S., Bob Lloyd, and Janet R. Stephenson. 2012. "The Suitability of a Feed-in Tariff for Wind Energy in New Zealand – A Study Based on Stakeholders' Perspectives." *Energy Policy* 43 (April): 80–91. doi:10.1016/j.enpol.2011.12.032.

Schiermeier, Quirin. 2012. "The Kyoto Protocol: Hot Air." *Nature* 491 (7426): 656–58. doi:10.1038/491656a.

Scott, Craig (executive director, Ecology North), in discussion with the author, digital recording, October, 2015.

Selianko, Iulli, and Andrea Lenschow. 2015. "Energy Policy Coherence from an Intra-Institutional Perspective: Energy Security and Environmental Policy Coordination within the European Commission." *European Integration Online Papers* 19: Article 2. doi:10.1695/2015002.

Soroos, Marvin S. 2012. "Global Change, Environmental Security, and the Prisoner's Dilemma." *Journal of Peace Research* 31 (3): 317–32.

Sparling, Jim (manager of climate change programs, Department of Environment and Natural Resources, Government of the Northwest Territories), in discussion with the author, digital recording, October, 2015.

Statistics Canada. 2006. *Aboriginal identity population, by province and territory (2006 Census)*. Accessed March 10, 2017. http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo60a-eng.htm.

———. 2016. *Estimates of population, Canada, provinces, and territories, quarterly (persons).* Accessed November 1, 2016. http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=0510005&paSer=&pattern=&stByVal=1&p1=1&p2=31&tabMode=dataTable&csid=.

Stern, Nicholas. 2012. "Climate Change and the New Industrial Revolution – What We Risk and How We Should Cast the Economics and Ethics" (lecture). *London School of Economics* online video, 87:18. February 21, 2012. Accessed November 1, 2016. http://www.lse.ac.uk/newsAndMedia/videoAndAudio/channels/publicLecturesAndEvents/player.aspx?id=1361.

Steurer, Reinhard, Gerald Berger, and Markus Hametner. 2010. "The Vertical Integration of Lisbon and Sustainable Development Strategies across the EU: How Different Governance Architectures Shape the European Coherence of Policy Documents." *Natural Resources Forum* 34: 71–84. doi:10.1111/j.1477-8947.2010.01272.x.

Stokes, Leah C. 2013. "The Politics of Renewable Energy Policies: The Case of Feed-in Tariffs in Ontario, Canada." *Energy Policy* 56 (May). Elsevier: 490–500. doi:10.1016/j.enpol.2013.01.009.

Tellis, Winston. 1997. "Application of a Case Study Methodology." *The Qualitative Report* 3: 1–17.

Thelen, Kathleen. 1999. "Historical Institutionalism in Comparative Politics." *Annual Review of Political Science* 2 (1): 369–404. doi:10.1146/annurev.polisci.2.1.369.

———. 2004. "How Institutions Evolve. Insights from Comparative Historical Analysis." In *Comparative Historical Analysis in the Social Sciences*, edited by James Mahoney and Dietrich Reuschemeyer, 208–40. Cambridge University Press. http://catdir.loc.gov/catdir/samples/cam051/2004040785.pdf.

———. 2009. "Institutional Change in Advanced Political Economies." *British Journal of Industrial Relations* 47 (3): 471–98. doi:10.1111/j.1467-8543.2009.00746.x.

Tootoo, Hunter. 2012. "Nunavut: An Example of Consensus Government in the Canadian Arctic." *Canadian Parliamentary Review* 35 (4): 2–5.

Turner, Daniel W. 2010. "Qualitative Interview Design: A Practical Guide for Novice Investigators." *The Qualitative Report* 15 (3): 754–60.

Underdal, Arild. 1980. "Integrated Marine Policy." *Marine Policy* 4 (3): 159–69. doi:10.1016/0308-597X(80)90051-2.

US EPA (United States Environmental Protection Agency). n.d. *Climate Change Indicators: Global Greenhouse Gas Emissions. Figure 3. Global Carbon Dioxide Emissions by Region, 1990–2012*. Accessed November 1, 2016. https://www.epa.gov/climate-indicators/climate-change-indicators-global-greenhouse-gas-emissions.

Valentine, Scott Victor. 2010. "Canada's Constitutional Separation of (Wind) Power." *Energy Policy* 38 (4). Elsevier: 1918–30. doi:10.1016/j.enpol.2009.11.072.

Waters, C, and R Didsbury. 2012. “Small Modular Reactors – a Solution for Canada’s North?” *AECL Nuclear Review* 1 (2): 3–7.

WCED (World Commission on Environment and Development).1987. *Our Common Future*. Oxford: Oxford University Press.

Weible, Christopher M., Tanya Heikkila, Peter deLeon, and Paul a. Sabatier. 2012. “Understanding and Influencing the Policy Process.” *Policy Sciences* 45 (1): 1–21. doi:10.1007/s11077-011-9143-5.

Weyland, Kurt. 2011. “Toward a New Theory of Institutional Change.” *World Politics* 60 (2): 281–314. doi:10.1353/wp.0.0013.

White, Graham. 1991. “Westminster in the Arctic: The Adaptation of British Parliamentarism in the Northwest Territories.” *Canadian Journal of Political Science*. doi:10.1017/S0008423900022666.

———. 2011. “Go North, Young Scholar, Go North.” *Canadian Journal of Political Science*. doi:10.1017/S0008423911000734.

Winfield, Mark, and Brett Dolter. 2014. “Energy, Economic and Environmental Discourses and Their Policy Impact: The Case of Ontario’s Green Energy and Green Economy Act.” *Energy Policy* 68 (May): 423–35. doi:10.1016/j.enpol.2014.01.039.

Wison, Carter A. 2000. “Policy Regimes and Policy Change.” *Journal of Public Policy* 20 (3): 247–74. doi:10.1017/S0143814X00000842.

Worldwatch Institute. 2010. *State of the World 2010: Transforming Cultures from Consumerism to Sustainability*. New York, London: W.W. Norton & Company.

———. 2013. *State of the World 2013: Is Sustainability Still Possible*? Washington, Covelo, London: Island Press.

Yakabuski, Konrad. 2013. “Revenge is a bad business plan, Newfoundland.” *The Globe and Mail*. July 27. Accessed November 1, 2016. http://www.theglobeandmail.com/globe-debate/revenge-is-a-bad-business-plan-newfoundland/article13464882/.

Yatchew, Adonis, and Andy Baziliauskas. 2011. “Ontario Feed-in-Tariff Programs.” *Energy Policy* 39 (7). Elsevier: 3885–93. doi:10.1016/j.enpol.2011.01.033.

Yin, Robert K. 2014. *Case Study Research: Design and Methods*. Los Angeles: Sage Publications.

Yukon Energy. 2011. *Yukon Energy Charrette Report*. Accessed March 10, 2017. http://yukonenergy.ca/media/site_documents/charrette/docs/yec_charrette_report.pdf.

APPENDIX A

INTERVIEW TOPICS

Note: more detailed questions were asked when necessary in order to fully explore each topic. Interview topics were arranged along the stages of a policy cycle (in bold type).

Agenda setting:

- How did the issue of renewable energy come to policy-makers' attention?
- The existence of a main underlying theme that guided or accompanied the setting of a renewable energy policy agenda.
- Who initiated the process of making these new policies?
- The roles of various stakeholders.
- The existence of long-term targets or goals at the initial stage of the policymaking process.

Policy formulation and design:

- The process of developing and drafting the relevant policy documents.
- The involvement and the roles of the Government, experts, consultants, NGOs, and other stakeholders.
- The involvement and the roles of industrial and utility companies.
- Coordination between stakeholders in the process of policy formulation.
- Did any inter-territorial or international consultations or studies of experiences from other jurisdictions take place?
- The integration of renewable energy policies in the existing policy framework, ensuring consistency between policies.
- What alternatives were considered (e.g. large-scale hydro, small nuclear, etc.)?
- The existence of an overarching goal behind the development of the new policies.

Decision-making:

- The existence of an opposition to renewable energy policies among policymakers.
- Were there any renewable energy initiatives that were not approved?
- The amount of consensus among policymakers on the issue of renewables in general, and on the policies they have eventually approved, in particular.

Implementation:

- The degree of coordination between relevant authorities, industry, and communities in the development of new renewable energy projects.
- Potential dis-coordination between government and municipal agencies, industry, and communities in the implementation of renewable energy projects.
- What are the biggest capacity gaps that impede renewable energy development in the Northwest Territories?
- What are the biggest institutional and political obstacles to renewable energy development in the Northwest Territories?

Evaluation:

- Examples of successes and failures of the new policies.
- Methods used for policy evaluation.
- The existence of iterative processes for policy improvement.
- Key lessons to be drawn from the NWT experience in introducing renewable energy policy.
- Plans for the future and long-term goals. Is there a difference between the formulation of the long-term goals at the agenda-setting stage, and how these goals are formulated now?

APPENDIX B

PARTICIPANT CONSENT FORM

Consent Form

Johnson-Shoyama School of Public Policy,
University of Saskatchewan
Diefenbaker Building,
101 Diefenbaker Place,
Saskatoon, SK, Canada, S7N 5B8

Project Title: A Search for Sustainable Energy Future for the Northwest Territories: The Role of Policy Integration

Researcher: Petr Baranovskiy, graduate student, Master of Public Policy Program, Johnson-Shoyama Graduate School of Public Policy, University of Saskatchewan, phone: (306) 850-36-56, e-mail: pdb766@mail.usask.ca

Supervisor: Jeremy Rayner, Professor, Johnson-Shoyama Graduate School of Public Policy, University of Saskatchewan, phone: (306) 966-22-15, e-mail: jeremy.rayner@usask.ca

Purposes of the Research:

This research intends to: (1) identify the key factors behind the apparent success of the Northwest Territories in introducing renewable energy to an overall energy portfolio by means of consistent policy innovation, and (2) test the hypothesis that the consensus, non-partisan nature of the Government of the Northwest Territories facilitated integrated policymaking in the area of renewable energy policy. The purpose of this research is to contribute to the development of sustainable energy sources in the Northwest Territories.

Procedures:

This research includes interviews, which will be digitally recorded. By signing this consent form, you agree to participate in the interview, to provide information that is, to your best knowledge, true and correct, and agree that the information you have provided will be used in research papers, and may be used in publications based on this research. Please feel free to ask any questions regarding this study or your role in it.

Potential Risks:

Minimal risk of being negatively judged by peers in case your opinion about renewable energy is contrary to the opinions of your peers.

Confidentiality:

At your discretion, you may request to be interviewed in confidence, in which case your name and position will not be mentioned in the published research papers. Given the fact that most or all respondents are expected to be personally known to each other, it may still be possible to attribute quotations to individuals, even if they speak in confidence. **Anonymity cannot be reliably guaranteed in this research**. Please check this box if you wish to speak in confidence: ☐

Please note that by choosing not to speak in confidence, you expressly authorize the use of your name and position in the published research papers.

Debriefing and Results Sharing:

At your request, research results will be shared with you to make sure that you and the agency or organization that you represent (hereinafter "you") are aware about the results. This includes any recommendations or action plans developed in the course of research, from which you could potentially benefit. Please check this box if you wish to receive the final results of this research: ☐

Please check this box if you wish to be mentioned in the "acknowledgements" section of the final research paper: ☐

Right to Withdraw:

Your participation is voluntary and you may withdraw from the research project for any reason and without an explanation until the presentation of the first draft of the thesis to thesis committee.

Should you wish to withdraw, please notify accordingly by e-mail at pdb766@mail.usask.ca.

Questions or Concerns:

Contact the researcher(s) using the information at the top of page 1.

Should you have any questions or concerns about research ethics, you may address them to the Research Ethics Office by e-mail: ethics.office@usask.ca, or by phone: (306) 966-2975. If you are out of town, you may call toll free (888) 966-2975.

CONSENT:

My signature below indicates that I have read and understood the description provided; I have had an opportunity to ask questions and my questions have been answered. **I consent to participate in the research project**. **I release the audio or textual recording(s) of my personal interview(s)** with Petr Baranovskiy to be used in the manner described in this Consent Form.

A copy of this Consent Form has been given to me for my records.

_____ _____

Name of Informant Signature

_____ _____

Researcher's Signature Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

APPENDIX C

REB EXEMPTION LETTER

UNIVERSITY OF SASKATCHEWAN

To: Jeremy Rayner, PhD
Professor and Centennial Research Chair
Johnson-Shoyama Graduate School of Public Policy
University of Saskatchewan

Student: Petr Baranovskiy
Date: April 14, 2015

Re: BEH 15-133

Thank you for submitting your study entitled: ***A Search for Sustainable Energy Future for the Northwest Territories: The Role of Policy Integration***. The study meets the requirements for exemption status as per T**he Tri-Council Policy Statement (TCPS): Ethical Conduct for Research Involving Humans, December 2014, Exemption Article 2.1** states "research may involve interaction with individuals who are not themselves the focus of the research in order to obtain information. For example, one may collect information from authorized personnel to release information or data in the ordinary course of their employment about organizations, policies, procedures, professional practices or statistical reports. Such individuals are **not considered participants** for the purposes of this Policy. This is distinct from situations where individuals are considered participants because they are themselves the focus of the research.

It should be noted that though your project is exempt of ethics review, your project should be conducted in an ethical manner (i.e. in accordance with the information that you submitted). It should also be noted that any deviation from the original methodology and/or research question should be brought to the attention of the Behavioural Research Ethics Board for further review.

Please revise the invitation letter and consent form to reflect an exemption from the REB or delete the sections regarding REB approval.

Sincerely,

original signed

Scott Tunison
Vice-Chair, Behavioural Research Ethics Board
University of Saskatchewan

APPENDIX D

NWT SCIENTIFIC RESEARCH LICENSE

Licence No. 15763
File No. 12 410 1039
October 07, 2015

2015
Northwest Territories Scientific Research Licence

Issued by:	**Aurora Research Institute – Aurora College** Inuvik, Northwest Territories
Issued to:	Dr. Jeremy Rayner Johnson-Shoyama Graduate School of Public Policy University of Saskatchewan 101 Diefenbaker Place Saskatoon, SK S7N 5B8 Canada Phone: (306) 966-2215 Fax: (306) 966-1967 Email: jeremy.rayner@usask.ca
Affiliation:	University of Saskatchewan
Funding:	
Team Members:	Jeremy Rayner; Petr Baranovskiy
Title:	**A Search for Sustainable Energy Future for the Northwest Territories: The Role of Policy Integration**
Objectives:	To contribute to facilitating the transition to nature-friendly ways of generating energy through consistent policy innovation.
Dates of data collection:	October 6, 2015 to December 31, 2015.
Location:	Yellowknife, NT

Licence No.15763 expires on December 31, 2015
Issued in the Town of Inuvik on October 07, 2015

* **original signed** *

Pippa Seccombe-Hett
Director, Aurora Research Institute