Discourse Network Analysis of the Northern Gateway Pipeline Project: assessing environmental governance in the Joint Review Panel process

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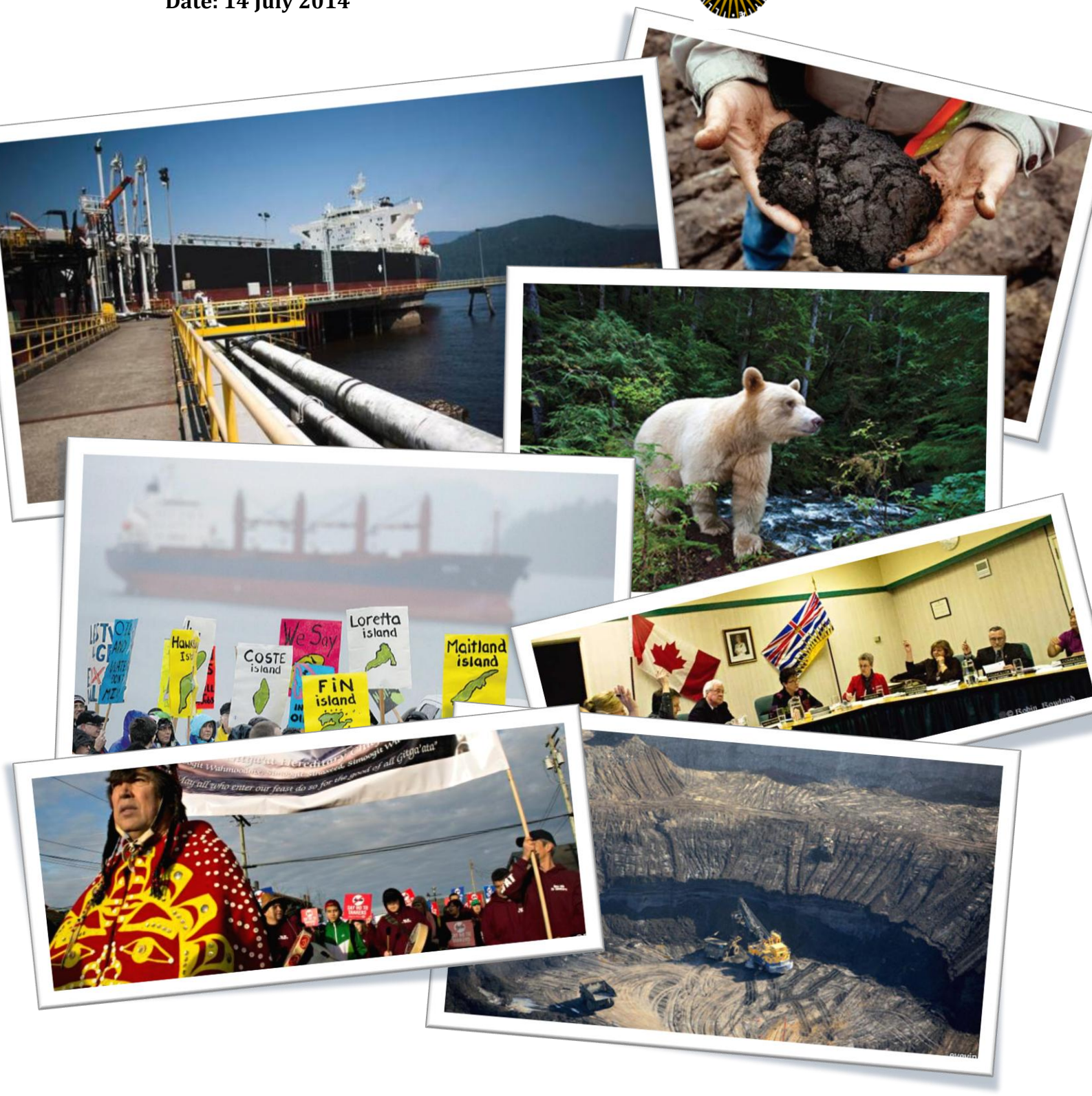

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1 Introduction

With the Intergovernmental Panel on Climate Change (IPCC) now publishing its fifth annual assessment report detailing the known consequences and likely impacts of climate change (Stocker et al., 2013), the idea that new policy is needed to address climate issues is not a novel one. It has in many ways become routine to include environmental considerations in many processes of policy development and government decision making. Though much has been accomplished at the international level with new agreements being routinely reached between nations, much remains to be done and these agreements are far from universally accepted. Similarly, national and sub-national policies and institutions must adapt to incorporate new and more sustainable practices. Due to the fact that the energy sector is the single largest contributor of climate warming pollution in all nations, energy policies must adapt to pursue more sustainable practices if global climate change is to be limited and risk minimized as the IPCC report suggests. In light of the significance of national energy policy and a fundamental need for the incorporation of principles of sustainability in new policy formation, this research has chosen to focus on a particular case of energy policy development that is of particular significance to the national energy future of Canada and which could in turn have significant impacts globally.

The petroleum reserves found in northern Alberta, Canada hold one of the world's largest remaining known supplies of fossil fuel. These reserves have not, however, collected into conventional crude as most petroleum sources to be tapped have done. The aptly named Alberta oil sands or Alberta tar sands produce a mixture of sand, clay and heavy crude from which hydrocarbons are removed, primarily by steam and chemical extraction processes. The resulting product is a heavy, tar-like substance called bitumen, which is much thicker than conventional crude and must be diluted for transport to refineries where it is made into a range of petroleum fuels. These oil fields are located in remote northern areas and account for the vast majority of human development in those regions; transporting bitumen from these locations is currently accomplished by use of trucks and trains. However, there are at least three proposals for significant pipeline infrastructure to be developed to greatly increase the export capacity of the Alberta oil sands. This research will explore the Northern Gateway Pipeline (NGP) project proposal, the first of these proposals to become widely debated and to undergo assessment and approval proceedings under Canadian environmental law.

Major energy projects require tremendous time and coordination between a range of actors and stakeholders. Most often, state and/or corporate actors function as the prime movers when it comes to initiating new energy projects due to their more abundant resources and ability to facilitate large scale project development. Other stakeholders such as research institutes, NGOs and private citizens are drawn into the process to evaluate proposed projects and to contribute their unique perspectives to decision making processes. There are many arenas in which discourse and debate over the details and implications of a particular project will occur. Some, like the boardrooms of project developers or

the private chambers of political parties, are exclusive locations in which weighty decisions are ultimately made. However, other more public venues exist and serve as sites of democratic engagement where much broader audiences gain understanding, form opinions, contribute knowledge and experiences and ultimately choose to support or oppose projects. A certain degree of public engagement and transparency is always necessary in order to provide the project with democratic legitimacy. This is particularly true of energy projects due to their broad social and environmental impacts, which can have significant implications for current and future generations of citizens and as a result often become highly publicized and politicized.

As the review of environmental governance literature provided in the subsequent chapter indicates, governments are no longer seen as solely responsible for the management and protection of social and environmental goods or the development and implementation of new policy to support those ends. Increasingly diverse combinations of state, private and corporate actors work together to design and implement the programs and policies that have the greatest social and environmental impacts. When this process functions well, diverse knowledge and perspectives can be included in order to optimize selection between alternatives, and the costs and benefits of a given project can be openly and appropriately distributed between stakeholders. The implied results of this process are projects supported by policies that better achieve their aims and enjoy greater support and stability. If processes of environmental governance function poorly, however, the deliberative exchange that contributes to the success of multi-stakeholder engagement can break down, resulting in the polarization of interests and alternatives and a decreased likelihood that stable well-rounded policy or projects will be developed.

Due to the potential for the quality of multi-stakeholder deliberative engagement to improve the results of project and policy development, the primary focus of this research is to explore the degree to which the National Energy Board of Canada has been successful at engaging in the federally mandated environmental assessment process known as the Joint Review Panel (JRP) as a means of bringing public, private and government actors together to engage constructively in a democratic process of project assessment and evaluation capable of producing balanced and informed policy recommendations. The approach taken in doing so entails the comprehensive exploration of the policy area surrounding the NGP approval process, with special attention paid to the formation of advocacy coalitions that emerge through the discursive engagement of stakeholders.

Background

Background information relating to the Canadian energy sector, Alberta's petroleum reserves, the range of actors who have a stake in the NGP and the body of Canadian legislation that governs energy projects follows. This background provides an account of some of the more relevant information that relates to the following research and will provide some additional context.

Alberta Oil

The province of Alberta is the most petroleum rich region in Canada, the vast majority of these reserves being situated in a region known formally as the Athabasca oil sands, but referred to more commonly as the Alberta oil sands or the Alberta (or Athabasca) tar sands. This area is located in the northern part of the province, centered on the boomtown of Fort McMurray. The type of crude petroleum found in this region consists of a material called bitumen that is a semi-solid form of crude mixed with silica sand, clay, minerals and water. Oil sand deposits in Alberta lie under 141,000 square kilometers of boreal forest and muskeg (peat bogs) and contain about 1.7 trillion barrels (270×109 m^3) of bitumen (Michael Teare & Afshin Honarvar, 2014). This is roughly comparable in magnitude to the world's total proven reserves of conventional petroleum. Although the former CEO of Shell Canada, Clive Mather, estimated Canada's reserves to be 2 trillion barrels (320 km^3) or more, the International Energy Agency (IEA) lists Canada's reserves as being 178 billion barrels (2.83×1010 m^3) (Michael Teare & Afshin Honarvar, 2014). When various extraction methods are considered, the total proven reserve, or amount of oil that could be extracted in an economically feasible way, is considered to be at least 10% of these deposits, or about 170 billion barrels (27×109 m^3) if it were it considered economically recoverable at 2006 prices. This makes the petroleum deposits in Alberta the third largest in the world after that of Saudi Arabia and Venezuela (Michael Teare & Afshin Honarvar, 2014).

Pipelines to transport Alberta oil

The proposed Enbridge Northern Gateway Pipeline (NGP) calls for a 1,170km pipeline to be built from Bruderheim, Alberta to Kitimat, British Columbia (BC)(See Figure 1). Westbound, the pipeline would export diluted bitumen from the Athabasca oil sands to a new marine tanker terminal that would be built in Kitimat BC. Bitumen is diluted with hydrocarbon natural gas condensate, which is required in order to make the crude sufficiently viscous for transport by pipeline. Eastbound, the pipeline would carry imported condensate needed to facilitate this process. Much of the proposed pipeline route is remote, crossing the Rocky Mountains, four major river systems and both coniferous and coastal rain forests containing ecosystems that support elk, bear, salmon and many other forms of wildlife. The route also passes thorough the traditional territory of at least forty distinct First Nations (Columbia, 2013).

Figure 1 - Proposed pipeline route

Alternative pipeline projects that have been put forth include the Keystone XL Pipeline, proposed by Trans Canada Inc., and the Line 9 Reversal Project which, like the NGP, was proposed by Enbridge Inc. The Keystone XL project is a cross-national project proposed to run from Hardisty, Alberta to Steel City, Nebraska with 529 km of pipeline to be built in Canada and 1,368 km of pipeline in the United States. The proposed line would have a capacity of 830,000 barrels per day (TransCanada, 2014). The Line 9 Reversal Project involves the reversal in direction of an existing pipeline originally intended to bring refined petroleum from ports in Ontario to central Canada. If approved, Line 9 would be upgraded and its direction reversed in order to transport bitumen to the ports on Hudson's Bay in Ontario (Enbridge, 2014).

The stakeholders

The Federal Government of Canada considers the NGP to be critical to furthering international energy exports, a strategy which is central to current economic and energy planning and policy (G. o. Canada, 2013). The current federal administration is composed of a single party majority government led by the Conservative Party of Canada under the leadership of Prime Minister Stephen Harper.

In addition to the federal government, two provincial governments have significant interests in the NGP project. The current government of Alberta has stood for the last two terms and is controlled by the Progressive Conservative Party led by Allison Redford. Alberta is traditionally the most fiscally conservative province in Canada and has historically derived much of its economy from resource extraction, particularly of fossil resources.

A Liberal Party majority has controlled the government of British Columbia for three consecutive terms. The current party leader is Christy Clark, who took over the position as Premier from her predecessor Gordon Campbell, who resigned as a result of widespread opposition to his government's handling of a proposed harmonized sales tax. The Liberal Party of British Columbia is not affiliated with the federal party of the same name. Ideologically this party tends to exhibit a highly centrist perspective.

Enbridge Inc. is the central developer of the NGP project and is its most visible and vocal proponent. Foreign finance from Chinese energy companies represents a majority of the investment in the proposed pipeline, however, because China would be the primary destination of bitumen exported from the proposed Kitimat tanker terminal. The legal body formed to represent and promote the project has been titled Northern Gateway, but is in effect represented virtually exclusively by Enbridge Inc.

Environmental groups have been highly critical of the project due to a number of concerns regarding the potential for environmental damage to sensitive ecosystems. These concerns relate to both the construction and operation impacts of the project as well as to the consequences that could result from leaks or ruptures in the pipeline route or at the proposed tanker terminal. The

potential precedent an approval of this project would set in terms of a national commitment towards fossil fuels and away from renewable energy is also cited as cause for concern, as Mary Robinson has argued at the COP 19 in Warsaw (Wodskou, 2013).

BC and Alberta First Nations are also prominent opponents to the NGP and frequently express resolute opposition to the pipeline. First Nations groups are highly vocal about the environmental risks and cite concerns about undue threats to land, water, wildlife, and traditional practices if the NGP project were to be approved. These groups also raise objections based on the grounds that this project infringes on existing Aboriginal land claim disputes. Canadian First Nations are distinct in name and geography, but many are linked through multi-band organizations.

Canadian environmental assessment law

Environmental review and impact assessment is addressed under the Canadian *Environmental Assessment Act* (CEAA), which provides a mandate to review and asses environmental impacts that are within the federal jurisdiction (G. o. Canada, 2012). This mandate applies to any projects or policies with impacts that might have effects on the following: fish and fish habitats, other aquatic species, migratory birds, federal lands, effects that cross provincial or international boundaries, effects that impact on Aboriginal peoples[1], such as their use of lands and resources for traditional purposes, and changes to the environment that are directly linked to, or necessarily incidental to, any federal decisions about a project. The CEAA states that any environmental assessment will consider a comprehensive set of factors that include cumulative effects, mitigation measures and comments received from the public (act, 2012; G. o. Canada, 2012).

Two types of environmental assessment are possible under the CEAA. The first is a review by agency and the second by review panel. Smaller projects previously requiring environmental assessments, which were formally a part of the CEAA, have been shifted to provincial authorities and no longer require federal review since the 2012 revision of the CEAA. The default federal agency responsible for most environmental assessments is Environment Canada; however, in the case of nuclear projects the relevant agency becomes the Canadian Nuclear Safety Commission, and in the case of other energy projects responsibility falls to the National Energy Board of Canada. All major projects are subject to review by the relevant agency by default, but within 60 days of the start of an environmental assessment, the Minister of Environment may refer a project for panel review.

In the case of a review by agency, the relevant authority has an imposed deadline of 12 months for gathering information and public comment, completing all

[1] The term 'Aboriginal peoples' refers to First Nations communities collectively. The proper nomenclature in Canada is to refer to individual tribal bands as First Nations, who are collectively Aboriginal people. However, the term 'native' is also substituted in reference to both individual bands and to Aboriginal people in general. In practice, all of these terms are commonly used interchangeably.

analyses and compiling a report of recommendations. These recommendations are then considered by the federal cabinet in order to arrive at a final decision. In the case of a panel review, a deadline of 24 months is imposed beginning from the time the Federal Minister of Environment recommended that the evaluation be escalated to a panel review. This additional time is intended to allow for a more extended period of public consultation and to provide the opportunity to conduct the review process through a process of public hearings. A report containing recommendations is ultimately generated; this report is utilized by the federal cabinet in making a final decision.

A significant review of the CEAA conducted in 2012 at the request of the federal government resulted in significant changes to the CEAA through the introduction of Bill C-38. Bill C-38 was a federal omnibus bill[2] attendant to many issues; only those changes to the CEAA will be discussed here. One of the most significant of these changes resulted in the adoption of a 'project list approach' for determining which projects will be subject to environmental assessment. Under CEAA 2012, only projects designated by the Regulations Designating Physical Activities (RDPA) or designated by the Minister of Environment may be subject to federal environmental assessment. The result of this amendment is that fewer projects are automatically subjected to federal environmental review and of those that are, some may be subsequently exempted under special exceptions.

The scope and content of federal environmental assessments is also reduced under CEAA 2012. Consideration of environmental effects under CEAA 2012 is limited to effects on fish and fish habitat, aquatic species at risk, migratory birds, federal lands and Aboriginal peoples. Federal authorities must consider changes to the environment that are "directly linked or necessarily incidental" to that federal authority's exercise of power in relation to the project. This contrasts to the previous CEAA, which considered effects to all aspects of the environment: land, water, air, organic and inorganic matter, all living organisms and interacting natural systems. Further, under the previous iteration of the CEAA, the need for a project and alternatives to that project were necessary components of the evaluation. These requirements were removed in 2012.

Because of the scope of the NGP project, Canadian federal legislation required that an environmental impact assessment be conducted and that this assessment take the form of a Joint Review Panel (JRP). This is the most extensive environmental assessment possible under Canadian law and functions both to assess the project and to provide a forum for public consultation (G. o. Canada, 2012). Since the project is a pipeline, the responsible authority is the National Energy Board (NEB).

[2] In Canadian Federal politics, which are strongly based on the British parliamentary model, it is common practice for new governments to release a single piece of legislation addressing all changes that the new administration proposes to make, including a new federal budget. If the government holds a majority of the seats in cabinet, then larger and more radical changes are expected in omnibus legislation. This was the case for the Federal Conservative cabinet under the leadership of Stephen Harper when these changes were made.

2 This Research

Knowledge Gaps

The Northern Gateway Pipeline (NGP) project has been researched from a variety of perspectives since it was first announced. Most commonly, this research has focused on specific environmental and economic aspects of the project, with some attention being paid to questions related to consultation and representation of affected parties.

The Joint Review Panel (JRP) process itself has produced the largest, most comprehensive assessment of the Northern Gateway Project. This report ultimately recommends the development of the project, subject to some 209 conditions that must be met by developers. The report considers environmental impacts related to the pipeline's construction, operation, and potential malfunctions. It is also attentive to economic considerations, addressing potential economic benefits of the project and their distribution throughout the construction and operational lifespan of the pipeline. The report also considers the costs and consequences that may result from potential spills, leaks and other unexpected events.

Because the JRP process places emphasis on public consultation and local knowledge in combination with independent scientific evaluation and developer research, the final report is intended to reflect not just the best available information regarding the project and its impacts, but also to evaluate and address the concerns and preferences of a wide range of stakeholders. Independent research into the JRP and Canadian environmental assessment practices has highlighted environmental and economic themes in addition to focusing much attention on public consultation practices and the inclusiveness of these processes (Van Hinte, Gunton, & Day, 2007).

Research originating from universities, research institutes and NGOs has focused on similar economic, environmental and representational themes when examining the NGP. A review of related literature focusing on articles most commonly cited identifies studies focusing specifically on environmental risks to protected areas (Service, Nelson, Paquet, McLnnes, & Darimont, 2012), salmon (Levy, 2009) and climate change (Swart & Weaver, 2012). Others have focused specifically on the economic implications (Rozhon, 2011), while still others have combined environmental and economic concerns (Anthony Swift, 2011) (Boulton, 2010).

What is lacking in this body of analysis is research that takes a perspective rooted in environmental governance by asking how functional the JRP process has been in achieving its primary purpose: to provide a tool or forum to facilitate the development and expression of knowledge, concerns and preferences from diverse stakeholders, and to contribute useful policy recommendations which allow policy makers to produce good policy resulting in desired outputs.

Research Objective

The goal of this research is to examine the policy area surrounding the NGP project review and approval process as a means of developing a comprehensive understanding of the relationship between the diverse actors, institutions, legislation and procedures that have evolved as a result of this project. This examination will provide an opportunity to gain some basic understanding of the review and approval process and the JRP's role in it. Fundamentally, this research aims to provide insight into the ability of the JRP to contribute effectively to the production of policy contributing to desirable outputs that balance social, economic and environmental considerations in sustainable ways. Clearly, no single policy solution exists when it comes to balancing these considerations, and as with any attempt at policy, the setting, stakeholders, and context in which that policy is derived are as significant as the particular drivers or mechanisms suggested in the policy itself. By using a combination of qualitative analysis and discursive networking techniques to explore the context of this policy area, it is expected that some useful conclusions can be drawn as to the effectiveness of the JRP preprocess as a site of environmental governance.

Abundant literature (for review see chapter 2) has noted the difficulties traditional governmental policy processes face in addressing issues of environmental governance. These issues often center on decisions that cut across traditional polities, creating cleavages in typical party and issue politics. Issues surrounding uncertainty and plurality of knowledge contribute further to the complexity of many issues related to environmental protection and development. Expert knowledge is sometimes polarized and contradictory, and a tension often emerges between local or traditional knowledge and diverse 'expert' testimony. The JRP process entails a fundamental attempt to address these difficulties, by bringing together both expert and local knowledge in an endeavor to provide open and interactive access to policy development. The result is a political process that is not based on traditional top-down policy formation, but is also not the organic result of grassroots efforts to influence political action from the bottom up. What is being explored is, in, essence an attempt at multi-level interactive environmental governance that is potentially capable of working through the difficulties resulting from social cleavages and conflicting beliefs.

In order to evaluate how effective such a governance process might be in reflecting diverse views and interests, it is important to achieve an independent consensus on the concerns and preferences of stakeholders and affected parties. These concerns and preferences can be identified by viewing interactions in social discourse as political processes in themselves, making it possible to explain how the boundaries of coalitions of likeminded actors are formed around particular issues. This provides an independent account of the range of other issues that are significant to the identified issue, and also identifies to whom these issues are most significant. Further, this analytical process has the potential to allow insight into how these stakeholders and their interests fit into a larger social and political landscape.

The present research will first explore and map the discursive networks that emerge in rhetoric used by stakeholders surrounding the Northern Gateway Pipeline project. This will provide a picture of how stakeholders may share similar views and therefore be connected with one another, even if they are not formally allied. Further, it may reveal nuances in the ways in which stakeholder positions reinforce or oppose one another, as well as the relative strengths of different factions. Stakeholder rhetoric will be evaluated and coded so as to demonstrate how like-minded stakeholders express their concerns and preferences related to the NGP project

Secondly, this research will explore how effective the JRP process has been in identifying policy preferences and areas of concern to stakeholders as well as how these issues have been addressed or resolved through the review process and in the final report. If the JRP process is to function well as a site for environmental governance, then evidence must be found to show that it allows stakeholders to express their concerns and contribute personal knowledge in a process that is both considerate and responsive to their unique positions. Analyzing discursive patterns in the language that surrounds this issue in the media, and comparing these patterns to the results of the JRP process will allow for an appraisal of the representativeness of stakeholders concerns in the review process. Further, analyzing the panel's final report allows for an assessment of the JRP's ability to translate those concerns into policy recommendations.

A final and indirect research objective is to contribute to the body of theoretical knowledge from which the precepts of this project have been taken. By applying the concepts of Advocacy Coalition Theory and Political Discourse Network methodology to a particular case study in order to explore processes of environmental governance, a contribution is made to these theoretical areas by both demonstrating the effectiveness of combining these theories with this methodology and by contributing a relevant case study to the existing body of literature in this area. A graphic representation of this research framework is presented in Figure 2.

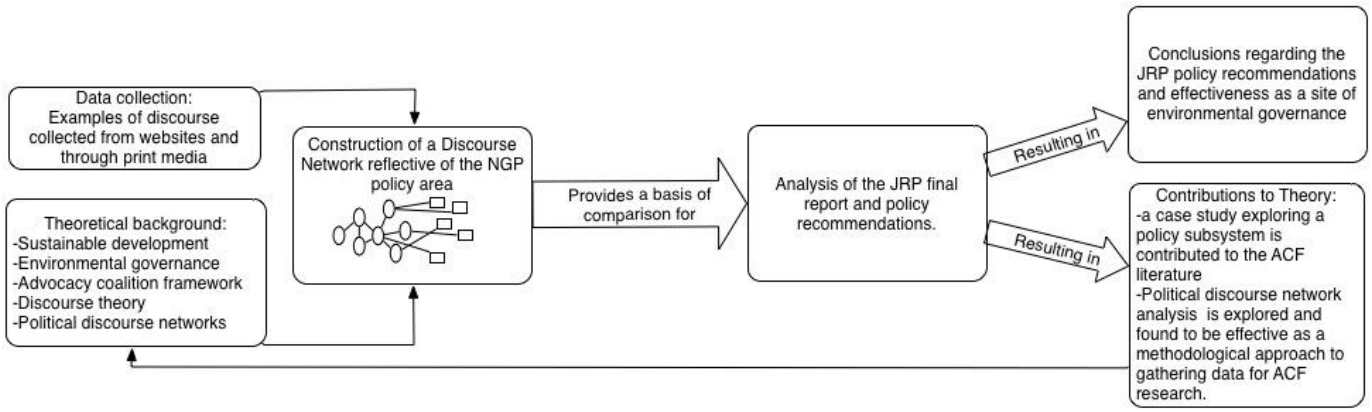

Figure 2 - Research framework

Research Questions

To facilitate the proposed research, the following question has been formulated:
How has the Joint Review Panel contributed to effective environmental governance by providing policy recommendations on the Northern Gateway Pipeline project?

In order to answer this question, the following sub-questions are posed:

1. What are the expressed concerns and preferences of stakeholders regarding the NGP, and how do these connect stakeholders into advocacy coalitions?
2. How are the expressed concerns and preferences of stakeholder coalitions addressed by the JRP through policy recommendations?

Sub-question one will be addressed by construction and analysis of a discourse network (Leifeld, 2010), and sub-question two will be addressed by analysis of the JRP final report (Panel, 2013a).

3 Theoretical Influences and Literature Review

This research touches on a range of themes that have received attention in peer-reviewed literature and will be discussed in this section as a means of clarifying the perspectives and knowledge from which the present research has proceeded. The objective of this discussion is to establish the assumptions that have been adopted in order to allow this research to proceed and to connect these assumptions to the existing literature that has informed them. These can be conceived of as being categorized into three nested groups.

The first group concerns the overarching context from which this research is approached. The perspectives expressed in sustainable development literature underlie all aspects of this research, in conjunction with literature discussing the processes and practices of environmental governance that translate the tenants of sustainable development into real-world practices and policies. A second group of assumptions is connected to a somewhat deeper level of socio-political interactions and draws on literature that seeks to articulate a framework to understand how actors interact with other actors in a broad political landscape. In this vein, the Advocacy Coalition Framework (ACF) and related literature is drawn on heavily as a means of comprehensively exploring the policy area related to the NGP approval process. The third group connects to a still deeper and more fundamental set of assumptions regarding the mode through which actors interact. This is captured in literature related to discourse analysis that provides some opportunities to explore a political environment through the language used in political discourse.

The following sections will explore these three levels of assumptions by highlighting the literature that informs them. This will provide an adequately broad theoretical background to make clear the perspective from which this research is undertaken, as well as introduce the specific concepts used to facilitate it. Figure 3 provides a simplified representation of how these theoretical presidents have influenced the design of this research.

Theoretical Framework

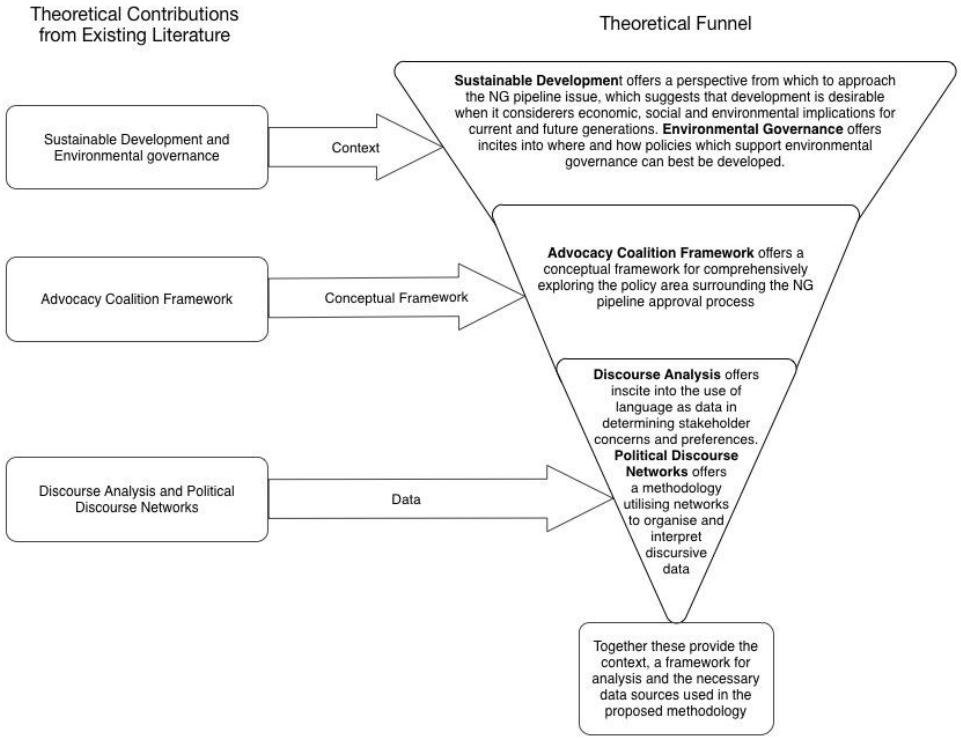

Figure 3 - Theoretical framework

Sustainable Development and Environmental Governance

As this research is undertaken in the completion of a master's program that is both titled and focused on *sustainable development and environmental governance,* the primal influence of these concepts on the approach taken and assumptions made is honestly come by. This is then all the more reason to be explicit about these influences so as to make clear what the basic orientation of this research is and where these origins can be found in the peer reviewed literature. The following sections will attempt to do so concisely.

Sustainable Development

The concept of sustainable development is generally perceived to have been born of the Bruntland Commission and the resulting report titled Our Common Future (Bruntland, 1987). This is as good a starting point as any, although if the concept was born in 1987 it was conceived of earlier efforts like the Sustainable Society (Brown, 1981) and Sustainable Developments of the Biosphere (Clark & Munn, 1986). What Bruntland really signifies is the emergence of the term 'sustainable development' as a common usage in environmental discourse.

Prior to Our Common Future, debates over how to properly use and maintain the natural environment have been conducted using a range of terms and language throughout most of the previous century. In the first half of the twentieth

century, discourse and language characterized a debate between two perspectives. *Preservationist* approaches, based in spiritual belief and rooted in American Transcendentalism and European Romanticism argued for the sanctity of the natural undisturbed environment. Alternatively, *conservationist* perspective espoused a form of enlightened self-interest that argued for the conservation of land for later human use. This debate played out largely in the areas of wilderness preservation, renewable resource extraction and natural area management (Robinson, 2004).

In the second half of the twentieth century, particularly during the 1960's and 1970's, common themes in environmentally focused discourse moved more towards issues of pollution, non-renewable resource depletion and population growth (Boulding, 1966; Carson, 2002; P. Ehrlich, 1970; Hardin, 1968; Meadows, Goldsmith, & Meadow, 1972). This resulted in a debate over the primary causes of, and solutions to, environmental degradation, which was most aptly characterized by the perspectives of Paul Ehrlich and Barry Commoner. For Ehrlich the primary culprit of environmental damage was human overpopulation and over consumption, so the solution then rested on the radical reshaping of human behavior and consumption patterns (P. R. Ehrlich & Ehrlich, 1990). For Commoner the prime suspect was the impact of technology, and so the solution to problems of environmental degradation inevitably involved the development of new and less destructive technology (Commoner, 1991).

It was in this context that the Bruntland report was produced, thus establishing a distinct concept known as sustainable development and making clear the recognition by the United Nations that environmental concerns should now be included alongside social and economic considerations when developing new policy alternatives. This is what has become known as the 'triple bottom line', or 'three p's' approach, in reference to the idea that three central concepts must be 'people, plant and profit'. Central to this recognition was a realization that development should not be pursued at the expense of the ability of future generations to realize similar achievements. In order to comply with these standards, the Bruntland report advised that developers must respect the impact of human technology and the ability of the biosphere to accommodate this impact without undergoing fundamental and irreversible change.

> Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth (Bruntland, 1987, p. 9)

The position taken in Our Common Future seems then to be largely resolved on the preservation/conservation debates of the early twentieth century as the approach suggested is one which clearly places the needs of human beings to

consume and develop at its core, albeit within certain limitations. The sanctity of the preserved, undisturbed and unaltered natural environment receives virtually no attention. Later debates such as that of Ehrlich and Commoner have also been largely resolved in the eyes of the Bruntland Commission. Although human behavior is seen as playing a role in causing pollution, the prescribed solution is more development, albeit of the sustainable variety. There is particular emphasis on this for the 'underdeveloped' portions of the globe. This is made clear in the report's call for "a 5-10-fold" increase in world industrial activity (Bruntland, 1987, p. 23). This prescription for a new kind of development clearly leans towards the perspective of Commoner, asserting the view that new and better technology can fuel a more sustainable form of development that will not cause undue impact.

The above discussion has defined Sustainable Development as a revised approach to 'development' that is sensitive to the needs of people and the planet and that promotes a form of development with an economically progressive character. This is indeed a new formulation in light of the earlier debates, but it is far from a concise and concrete theory of how development should occur and even falls short in most respects of offering a useful framework to describe the interaction of even its most core principles such as poverty alleviation, environmental protection, technological development, etc.

Most fundamentally, the concept of sustainable development can be criticized as being extremely vague and lacking a coherent definition (Robinson, 2004). The term itself lacks a consistent definition that is widely accepted[3]. The result of this imprecision is that the concept often reflects the political and philosophical position of the person generating the definition (Mebratu, 1998). It also opens the door for practitioners of what Robinson calls "cosmetic environmentalism", whose true agenda is not wholly in line with the ambitions of sustainable development (2004, p. 374).

The overall conceptual weakness of sustainable development is pointed out by Lélé (1991) who identifies the three central concepts of sustainable development as being economic growth, sustainability and participation. None of these concepts have been defined adequately enough to allow for an understanding of their fundamental relationships to emerge.

> On the one hand, economic growth is being adopted as a major operational objective that is consistent with both removal of poverty and sustainability. On the other hand, the concepts of sustainability and participation are poorly articulated, making it difficult to determine whether a particular development project actually promotes a particular form of sustainability, or what kind of participation will lead to what kind of social (and consequently, environmental) outcome (Lélé, 1991, p. 614).

[3] For a review of the attempts made at defining sustainable development see Mebratu (1998) and Pezzoli (1997).

This problem is found to be particularly evident in the connection between issues of poverty and environmental degradation and results in the adoption of unsuitable strategies in the face of incomplete knowledge and uncertainty (Lélé, 1991). Further, the vagueness inherent in the concept of sustainable development opens it up to what Robinson refers to as "delusional hypotheses" related to the seeming impossibility of greater growth resulting in lesser impact, and/or ignoring more pertinent social or environmental problems due to an inadequate attempt to balance the two. This effectively causes the concept of sustainable development to blind actors to the problems that require more pressing attention and leads them to pursue the wrong agenda (Robinson, 2004, p. 376).

It is interesting to note, however, that this same vagueness in defining sustainable development is also heralded as a strength by some authors. Sneddon *et al.* (2006) argue that the openness of the concept is a great boon, as it forces practitioners to accept a plurality of epistemological and normative perspectives in their approach to sustainability. This allows for the formulation of multiple interpretations and practices associated with the evolving concept of development in an effort to open up a continuum of local-to-global public spaces to debate and enact a politics of sustainability (2006, p. 253).

Environmental Governance

In the post-Bruntland world, issues of environmental significance increasingly become connected to economic and social issues through the discourse of sustainable development. Our Common Future posits the need for changes in legal and institutional frameworks to accommodate this new interaction, thereby bringing diverse participation, knowledge and accountability to policy formation and project decision making processes (Bruntland, 1987, p. 43). Efforts to achieve these ends have become characterized as efforts at environmental governance, usefully defined by Lemos and Agriwal.

> …environmental governance is synonymous with interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors. More specifically, we use "environmental governance" to refer to the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes. Governance is not the same as government. It includes the actions of the state and, in addition, encompasses actors such as communities, businesses, and NGOs. Key to different forms of environmental governance are the political-economic relationships that institutions embody and how these relationships shape identities, actions, and outcomes (Lemos & Agrawal, 2006, p. 298).

As this definition suggests, pursuing environmental governance effectively is not simply a matter of updating existing agendas to include new environmental concerns. Issues related to sustainable development tend to fall outside the traditional patterns of governmental policy formation and implementation, due largely to the heretofore unconventional collusion of environmental, economic and social concerns in a single decision making process. These issues also often

entail a scope that can be too small, in the case of local issues, or to large, in the case of global concerns, and often require knowledge that does not generally exist within conventional practices of policy development.

This inadequacy of traditional policy processes is what Martin Hajer refers to as the *institutional void*. Hajer uses this term to describe the failure of classical-modernist institutions, which are defined as "codified arrangements that provide the official setting of policy making and politics in the postwar era in Western societies" (2003, p. 176). This creates an emergent need for *new political spaces* that describe "the ensemble of mostly unstable practices that emerge in the struggle to address problems that the established institutions are - for a variety of reasons - unable to resolve in a manner that is perceived to be both legitimate and effective" (2003, p. 176).

The concepts that Hajer characterizes as the institutional void and the need for new political spaces are common departure points in the literature on environmental governance, but they can in no way be said to comprehensively capture those debates. Issues of environmental governance have been studied from the perspective of the smallest collective actions to the broadest issues of global environmental concern. This would not be such a complex landscape if environmental issues stayed neatly confined to the context in which they are first identified, but this is seldom the case. When explored fully, the most mundane local environmental issues can often be connected to broader national or supranational policies, practices or projects. Add to this complexity the range of interests that result from the list of concerned, affected or effected parties and it becomes clear that environmental issues are among the most complex and interrelated policy areas.

A complete review of the sum body of literature on environmental governance is grossly beyond the scope of this paper; however, a brief survey of some existing efforts to make sense of this terrain is warranted. To start, Lemos and Agriwal offer a four-part categorization of themes in environmental governance research that is useful in understanding the range of issues and approaches taken in exploring them (2006). The remainder of this section will highlight these themes; for a complete account of publications contributing to these themes see (Lemos & Agrawal, 2006) as well as the additional recommended literature.

First identified by Lemos and Agriwal (2006) is the theme of *globalization*, which describes a world in which the interconnection of environments, societies and economies continues to become increasingly pronounced. From an environmental perspective, the influence of globalization on governance can be seen as both positive and negative in character and as having impacts at local, regional, national and global scales.

In a positive light, increased awareness of the interconnected nature of environmental issues and their impacts has led to new and often far-reaching international agreements and new legislative and regulatory instruments. These are in turn more easily communicated in an increasingly globalized world where they can be adopted, improved and reinvented by new actors in a virtuous circle of progressive learning and policy development. Conversely, increased

connections between geographically distant markets can be seen to lead to increases in demand, resource depletion, and waste production in a 'race to the bottom' scenario where the demands for development are driven faster by a globalized market place than is the capacity to do so in a sustainable manner.

Literature in this area tends to focus on the development and operation of international environmental regimes that seek to facilitate the development of the positive aspects of globalization while addressing its negative consequences. Common themes in this area relate to understanding, measuring and comparing the effectiveness of regime performance and to exposing their inherent democratic deficits (Lemos & Agrawal, 2006) For a more comprehensive account of global environmental governance see (Biermann & Pattberg, 2008; Young, 2011)

A second theme identified in the literature is the *decentralization* of environmental governance. The increasing prevalence of international organizations and regimes in tackling the 'big issues' may be seen as attention grabbing, but many of the most significant changes to occur in environmental governance involve the inclusion of a variety of new sub-national actors. Whereas previously, state actors were seen as appropriate for and capable of addressing environmental policy and regulation, a loss of faith in governments' willingness and ability to adequately deal with these issues has resulted in the inclusion of communities and other small scale organizational bodies in environmental governance decision making and enforcement practices.

Extensive research has been done on the ability of communities to engage in co-management, community-based resource management and environmental policy decentralization. When functioning well, decentralized environmental governance has the capacity to change the relationship between local management hierarchies and their larger regional, territorial or national counterparts. It has the potential to change the ways in which local decision makers relate to their constituents; and a decentralized shift in power and governance also has the potential to alter the subjective relationship of people to each other and the environment, although these outcomes have received the least amount of study (Lemos & Agrawal, 2006). For a more comprehensive account of local resource management and decentralized environmental governance see (Ostrom, 1990).

Another area of research relates to *market and agent-focused instruments* (MAFIs), which utilize carefully calculated interpretations of related costs and benefits associated with particular environmental strategies to motivate individual actions in pursuit of desired incentives or to avoid undesired consequences. These MAFI's take a variety of forms including ecotaxes, subsidies, voluntary agreements, certification, ecolabeling and informational systems. Ecotaxes and subsidies appeal directly to bottom line considerations by rewarding or penalizing, depending on actor behavior. Voluntary agreements often serve as a means for industry or corporate actors to take a leading role in developing the regulatory frameworks in which they perceive they must ultimately operate. For example, by voluntarily agreeing to lower waste or emissions, firms are able in many cases to preempt legal regulations that might

be less desirable. One form of voluntary agreement that has received additional attention relates to certification, ecolabeling and information systems that appeal to consumer behavior as a means of addressing environmental issues. By voluntarily agreeing to meet and maintain higher standards, producers hope to increase the value of the product they produce and foster markets willing to pay a higher premium for them. These are commonly seen in primary sector commodities such as coffee, timber and energy. A review of different instruments of environmental governance based on market incentives and exchanges suggests that success depends largely on the internalization of positive environment preferences among relevant stakeholders, most importantly citizens and consumers, and effective leadership by governments (Lemos & Agrawal, 2006).

A final theme highlighted by Lemos and Agrawal is what they refer to as the *cross-scale* nature of environmental governance. It is noted that environmental problems tend towards a decoupling of spatial and temporal relationships between their causes and consequences. This decoupling introduces significant concerns over the unequal distribution of costs and benefits related to development. The problem is perhaps exemplified best by the reality that the responsibility for increased carbon concentrations in the atmosphere lies most significantly on the shoulders of the developed world, having produced a great deal of atmospheric carbon through the process of development. However, the consequences of this are often felt most by developing nations which, having not yet undergone rapid development and modernization, often lack the resources and capacity needed to cope with the consequences of climate change such as a seal level rise or crop displacement. Further, it is often suggested these nations must reduce their own carbon impact without having first reaped the advantages of rapid development.

A common theme in addressing this problem is multi-level environmental governance aimed at counteracting the disconnect between causes and effects, regardless of spatial and temporal distance. Cross-scale governance efforts are noted to be increasingly shaped by the involvement of non-state actors including NGOs, transnational environmental organizations, intergovernmental and multilateral organizations, market-oriented actors (e.g., transnational and multinational companies) and epistemic communities which introduce new tools and mechanism, all while positively shaping power relations within the policy area. Their transformative power is, however, somewhat in question (Lemos & Agrawal, 2006).

Lemos and Agrawal go beyond simply categorizing the themes of environmental governance research by putting forward a classification of the systems of governance that have emerged in response to these changing themes. These efforts at filling the void, to borrow Hajer's terminology, are understood using a trinary model that places actors rooted in the community, the market or the state at the point of a triangle, and posits a different governance relationship forming along the intersects between each (Lemos & Agrawal, 2006). This is a useful starting point for classifying attempts at environmental governance in that it emphasizes a tendency towards hybridized forms of governance involving multiple actors from diverse backgrounds. However, this depiction is somewhat

simplistic in that it conflates state actors to a single category, thereby ignoring distinctions between local, regional and state governmental actors. This model is also somewhat ambiguous in its treatment of "community" actors, which seems to focus on actors at the community level but does not distinguish between the influences of civil society, local private organizations or even local government.

The efforts of Lemos and Agrawal have been extended into a more comprehensive typology by Driessen *et al.* (2012) who offer a more functional contribution towards a conceptual framework for understanding modes of environmental governance that illuminates the diverse interactions of a range of potential actors. In this framework a similar trinary of actor types is used, but in this case, it distinguishes between actors most closely tied to markets, states and civil society. Although the actors are similarly treated, the model developed by Driessen *et al.* is much more appropriate due to the fact that the archetypal model presented includes five rather than three governance types, thus making it more reflective of the different scales at which actors, and state actors in particular, operate. This framework also goes further by presenting three dimensions, derived from extensive literature review, which are suggested as those that should be analyzed in determining the composition of, as well as shifts and changes in, environmental governance. These dimensions are actors, institutions and content. By exploring these dimensions in reference to the presented archetypal model, a much more functional analysis tool is presented. Figure 4 provides a simplified representation of the governance types provided.

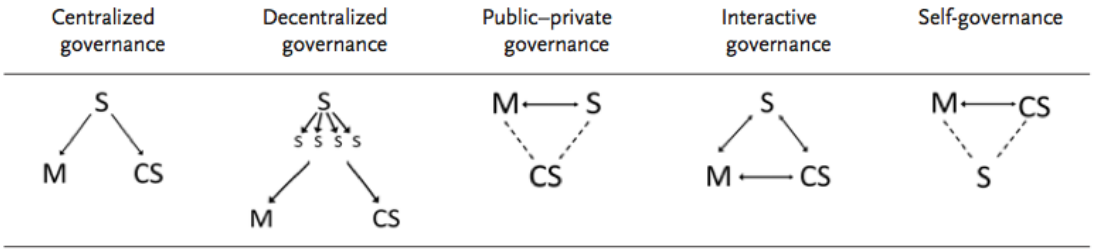

Figure 4 - A conceptual framework for modes of governance

Advocacy Coalition Framework

The context for the present research is rooted in the concepts and literature of sustainable development and environmental governance, but the organizing principle used to structure the following investigation and analysis is much more dependent on the research associated with the Advocacy Coalition Framework (ACF). Basic theoretical tenants of the ACF are used as precepts from which to structure the subsequent investigation of stakeholder interaction and coalition structures in relation to the proposed NGP project. Basic concepts regarding the structures of actor belief systems, the influence of these beliefs on coalition behavior and suppositions about the role of policy subsystems within the boarder political environment are all taken from ACF literature. ACF is further employed in structuring the analysis of the policy development process that has surrounded the potential development of the NGP project.

First created by Sabatier and Jenkins-Smith in the late 1980s, ACF has been seen as a response to three perceived shortcomings in the existing literature on policy

processes (C. M. Weible, Sabatier, & McQueen, 2009). First, the stepwise approach previously used in policy process analysis, termed the *stages heuristic*, was seen as an inadequate theoretical tool for exploring the multiple interactions that occurred throughout processes of policy formation in a way that could allow for the analysis of causal relationships (Jenkins-Smith & Sabatier, 1994). The second shortcoming lies in the existing literature on policy implementation, which at the time primarily consisted of debate between top-down and bottom-up approaches to implementation. This was seen as a false dichotomy, best replaced by a systems-based approach that drew from both top-down and bottom-up experiences in policy implementation (Sabatier, 1986). A third shortcoming was found in the seemingly lack of existing theory and supporting research aimed at exploring the role of scientific knowledge and technical information in the policy process (Jenkins-Smith, 1990; Sabatier, 1988).

At its inception, the ACF was fundamentally based on three premises. First, that to understand policy and processes of policy oriented learning, a period of at least a decade or more is necessary in order to properly perceive change. Second, that the best way to understand policy change is through a focus on policy sub-systems, which operate within a larger political environment. Third, that policies or programs can be conceptualized as belief systems containing a set of values, priorities and causal assumptions about how to realize them (Sabatier, 1988, p. 131).

The idea of a policy subsystem refers to the body of active participants who are concerned with, and involved in, shaping the development of a given area of policy development. This concept is inclusive of individuals beyond the usual suspects of administrative agencies, legislators and interest groups coming together and interacting at a single level of government in traditional 'iron triangle' arrangements, but also includes actors at multiple levels of government, journalists, researchers, analysts and any others who play a role in developing and disseminating information related to policy development (Sabatier, 1988).

Perhaps the most central and significant of the assumptions made in the ACF is the recognition of policy preferences as synonymous with belief systems. Obviously not all beliefs are of equal weight to the individual who holds them. For example, it may be firmly believed by an individual that social welfare is an essential component of a functional and ethical democracy, and that it is the responsibility of all citizens to contribute towards the collective good. Another individual may feel equally convinced that social welfare is nothing more than an opportunity for some to capitalize on the hard work of others and that giving to such a system is merely an invitation to laziness. These are what ACF views as *deep core* beliefs: an individual's fundamental normative and ontological axioms that shape his/her understanding of the world around them. According to the ACF, deep core beliefs are fundamentally difficult, if not impossible, to alter through persuasion or new information.

To continue using the analogy of two ideologically polarized individuals, for a liberal-minded Keynesian thinker, programs that seek to redistribute wealth fairly through welfare programs would be desirable in order to allow for the

most opportunities to be experienced by the most people. For the fiscal conservative, however, what is desirable are policies that protect the ability of the individual to hold on to what they have. These are, according to the ACF, *policy core* beliefs, which are the strategies or policies that are seen to be most appropriate in achieving deep core beliefs. There is some flexibility in these beliefs, insofar as they are most desirable when they are the best option in furthering deep core beliefs. There is room for adaptation and debate as to what particular policies might be most effective when the knowledge and experience of the individual demonstrate the necessity of a change in belief. In this way, the liberal might be influenced to change a preference for direct financial redistribution in the form of welfare to one that seeks to divert those resources to create more educational or employment opportunities if it could be shown that this would lead to greater social equity. The conservative, on the other hand, might be convinced of the benefits of favorable corporate taxation rates as a better means of preserving personal wealth than lower personal taxation if it were made clear that this would result in less income being diverted to taxes. However, due to their deep core beliefs, there is virtually no possibility of convincing the conservative of the merits of raising taxes to develop new educational programs or of inducing the liberal thinker to support favorable corporate taxation, as each of these changes would violate the individual's deep core beliefs.

Following both of these levels of beliefs is a third tier known as *secondary beliefs.* Secondary beliefs refer to the multitude of instrumental decisions and knowledge searches that support the policy core in a particular policy area. This is the most commonly debated level of beliefs or policy preferences within a policy subsystem and, although these beliefs are in service of the policy core, which in turn serves the deep core, this level has the most room for debate and alteration of beliefs as a result of new knowledge and learning (Sabatier, 1988).

The framework these assumptions lead to then takes into consideration the policy subsystem as the most significant arena of policy change within which competition occurs between conflicting coalitions of actors who are distinguished by their affinity for particular belief systems and associated policy objectives and the resources at their disposal to pursue those objectives. The result of this competition is that each coalition adopts a unique strategy aimed at influencing state decision makers. Outside the policy subsystem, two categories of exogenous variables are seen to affect subsystem actors by influencing the constraints and opportunities they experience. Relatively stable system parameters, such as the basic configuration of the problem structure, available natural resources, fundamental social structures and sociocultural values and basic constitutional structures or rules, are seen as stable and unchanging. More dynamic exogenous factors, such as changes in socioeconomic conditions or systemic governing coalitions as well as events in other adjacent policy subsystems, are seen as occurring more frequently (Sabatier, 1988).

Successive revisions of the ACF have led to the adoption of several additional precepts. One iteration recognizes the role of technical information concerning the causes, scope and probable impacts of various solutions and how policy

subsystems will almost inevitably involve actors from multiple levels of government, multiple nations and/or from actors affiliated with international organizations (Sabatier, 1998). Another revision acknowledges the degree of consensus needed for major policy change and the degree of openness of political systems as variables to be considered in the long-term opportunity structures affecting coalitions.

The most recent iteration of ACF also recognizes two additional pathways to policy change. Where earlier conceptions posited external system shocks (Sabatier, 1998) or policy oriented learning (Sabatier, 1988, 1998; Sabatier & Jenkins-Smith, 1999) as potentially leading to policy change, later versions include two additional possibilities. One of these versions, stemming from research on processes of policy oriented learning, involves negotiated agreements between two or more coalitions; another focuses on internal subsystem events which occur within the policy subsystem and tend to reflect failures in current practices (Sabatier & Weible, 2007)

Figure 5 shows the most recent representation of the concepts central to ACF and how they interrelate. The policy subsystem within which competing coalitions seek to influence decision makers can be seen on the far right. The exogenous variables that may potentially impact the policy subsystem are located in the other four boxes to the left. The lines connecting these do not describe specific causal mechanisms but instead suggest likely directions of influence.

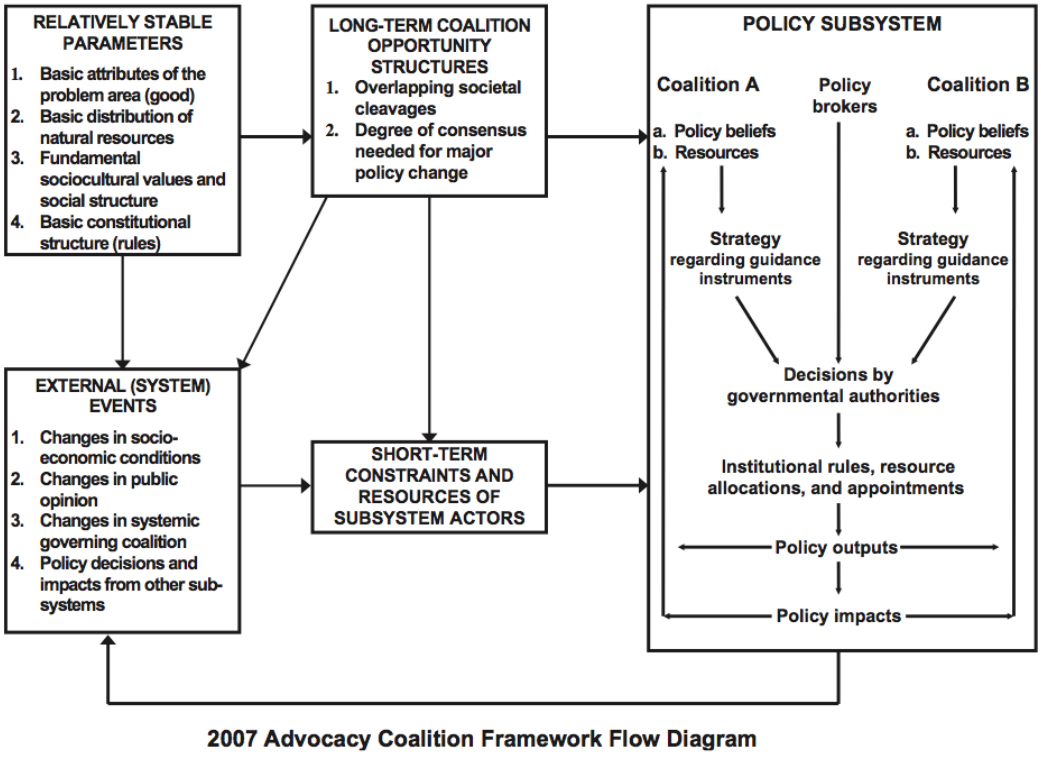

Figure 5 - ACF framework

The above account has introduced the concepts and origins of the ACF; however, the many applications of the ACF cannot so easily be summed up. The diverse applications of ACF have been legion and have resulted in the identification of several shortcomings that have in many ways been addressed by the successive iterations and applications of the framework. One criticism was aimed at the ACF's specific applicability to American political systems and its inability to adapt to other contexts. This criticism spawned a theoretical response from Sabatier (1998), in which the potential application of the framework in the European context was the focus. Many other efforts have been made to apply the framework in diverse locations, notable examples of which are Kübler's exploration of Swiss drug policy (2001) and Jacobson and Lauber's exploration of transformations in German energy policy (2006). Efforts have even also been made to develop ACF for use in conducting comparative public policy research, and one such approach incorporates seventeen policy subsystems across Canada, the United States and Europe (Montpetit, 2011).

Another criticism was raised by Edella Schlager (1995) who challenged researchers to incorporate the formation of coalitions through shared patterns of coordination as opposed to simply through shared beliefs. This resulted in a variety of publications that explored coalition formation through both shared belief and shared patterns of coordination (Henry, Lubell, & McCoy, 2011; Matti & Sandström, 2011; Christopher M. Weible & Sabatier, 2005).

Much more could be said about the specific applications of ACF over the last 25 years but in the interest of brevity, it is perhaps more useful to conclude with some findings which have resulted from comprehensive systematic reviews of ACF. First, it is noted that there are three prominent themes in the focus of ACF research, with most applications of the framework exploring hypotheses related to policy change, policy oriented learning and coalition formation or stability (Christopher M. Weible et al., 2011; C. M. Weible et al., 2009). These have explored subsystems related to social, economic, health and environmental issues, with environmental subsystems being the most common, but with health concerns becoming more prevalent since 1999 (C. M. Weible et al., 2009). The data used to explore these subsystems is inconsistent, and in some cases unspecified, but tends to include one or more of the following: interviews, content analysis, questionnaires and observation (C. M. Weible et al., 2009). It is noted that the ACF is highly adaptive and can be combined in a variety of ways with numerous other theoretical approaches (Christopher M. Weible et al., 2011; C. M. Weible et al., 2009). Common combinations are between ACF and the Institutional Analysis and Development (IAD) framework (Ostrom, 1982), the multiple streams approach (Kingdon & Thurber, 1984; Zahariadis, 1999) and punctuated equilibrium (Baumgartner & Jones, 1993). The present study will combine ACF with a relatively new theoretical area known as Political Discourse Networks, to be described in greater detail in the next section.

Two common problems that have been identified in the application of the ACF in research, as opposed to the ACF itself, are inadequately defined methodologies, which serve to undermine the credibility and generalizability of research, and a tendency to inadequately describe factors outside the subsystem in question, particularly relatively stable parameters (C. M. Weible et al., 2009). Both of these

factors strongly limit the potential for comparison across case studies and limit the ability to develop generalizable knowledge through the ACF.

Discourse Analysis

The final theoretical underpinning of this research relates to the type of data that will be collected and analyzed as a means of identifying the coalition structures which form around the NGP approval process and the concerns and preferences that these coalitions express. The data type most appropriate for this dual purpose is discursive data because it describes in the actor's own words the concerns and preferences held by the individual stakeholder. Discourse then can inform research as to what these concerns and preferences are, and by grouping stakeholders expressing similar concerns and preferences together, a clearer insight into stakeholder coalitions can be gained. This approach takes advantage of both the content and origin of discourse and is somewhat novel insofar as most discursive research tends to focus predominantly on one aspect or the other. The following section will briefly discuss what is meant by discourse and what traditions of discursive analysis and research can be identified in the area of policy analysis. The final section will then discuss literature supporting the approach and methods used in this thesis.

Discourse

Discourse and language are intrinsic components of the existential reality of all human beings and are one of the primary means through which individuals come to understand the world around them and to define their place in relation to that world. This has made the choice of language and discourse between individuals and groups a subject of significant interest to many researchers in varied fields, although not all have applied the concept of discourse in the same way. This may be in part because the significance of language and the potential for it to inform research has at least two ontological origins.

The Habermasian tradition seeks to explore the field of ethics and truth by deconstructing the presuppositions contained in discursive arguments (Habermas, 1978). This is essentially a discursive reinvention of Kant's deontological ethics (Kant, 1996), with both approaches seeking to uncover some universal or obligatory moral structure against which the value of human actions and decisions can be judged. Although interesting in a philosophic light, this tradition has little bearing on political decision making processes.

Of greater relevance to policy and politics is the Foucaultian approach to discourse analysis. This approach seeks to identify the power relationships that are reflected in the language used in discourse between actors. This perspective sees the power dynamic reflected in these discursive engagements as reflective of the institutional power relationships which exist outside the discourse and are reproduced through it (Foucault, 1970). This approach has widely been found more applicable to political analysis as it takes into consideration the political implications of discourse, an aspect that is intentionally omitted in the approach taken by Habermas (Wooffitt, 2005). The institutional embeddedness of race relations in France and elsewhere was the primary political conflict for which

Foucault developed and applied discourse analysis, but this approach can be widely applied in many areas.

The present research draws on an understating of the significance of discourse and the role language can play in political matters from the Foucaultian tradition. This tradition does, however, fall short of providing a clear definition of what particular discourse can and will be used in deriving data for interpretation and analysis. For this, a useful definition can be borrowed from Hajer and Versteeg who argue that discourse can be defined:

> "…as an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices. The 'discussion', in other words, is the object of analysis; discourse analysis sets out to trace a particular linguistic regularity that can be found in discussions or debates"(M. Hajer & Versteeg, 2005)

This definition suggests that when a particular concern or preference is expressed in language, there are two aspects that may lend significance to that expression. One is the content of what is being expressed, which is the intended meaning attached to the language used to describe social and physical phenomena. A second rests in the recurrent component of the definition and is determined by the actor associated with the expression and, more importantly, the actors who share in a particular expression of concern or preference and how frequently they express it. This definition has been chosen because it provides significance to both the content of discourse and the actors who conduct it. Many research efforts have pursued discursive data and analysis as a means of better understanding policy formation, but have tended to prejudice either content or actor focuses analysis.

Some of this research has focused primarily or exclusively on actor-centered approaches, which are most sensitive to changes in the mutual attachment of studied actors. Many of the instances identified in the previous section where ACF has been applied to a range of policy problems fit into this category, as do a variety of applications of punctuated equilibrium theory. Other examples include work done on epistemic communities (Haas, 1992) and policy paradigms (Hall, 1993).

Taking the alternative approach and focusing on the content of discourse are research areas such as critical discourse analysis and semantic network analysis. Critical discourse analysis, which is rooted strongly in the Foucaultian tradition, focuses on the reproduction of social and political domination in talk and text(Wodak & Meyer, 2009), while semantic network analysis utilizes network mapping to represent the relationship between concepts (Brandes & Corman, 2003).

Some scholars have attempted to maintain a balance between the content and agents of discourse. The approach of Koopmans and Statham (1999) involves a classification of actors, and a categorization of frames along a one-dimensional

pro/contra scale. Another example of a more balanced use of discourse analysis is the work of Hajer (from whom the above definition of discourse is drawn) on discourse coalitions (1995), which identifies narratives, in a manner somewhat similar to the frames identified by Koopmans and Statham, and assembling within those narratives the actors who support that account. Although both of these approaches seek to include both aspects of discourse analysis, and indeed do provide insight into policy development, the methodologies used tend to be limited in both the range of content that can be included and in the number of actors who can be connected to the different elements of that content. It is for these reasons that an alternative methodology has been chosen for this research.

Discourse Networks

Being part theoretical and part methodological, the concept of *political discourse networks* (Leifeld, 2010) is somewhat difficult to categorize, but it contributes to the proposed research at both levels. Methodological contributions will be addressed subsequently, but what the discourse networks approach offers in terms of theoretical contributions can be summed up as a recognition that the integration of actor-centered approaches to analyzing coalitions are greatly enhanced by the analysis of discursive content. To do so most effectively, it is not simply the linguistic content that must be considered but also network structures that emerge as a result of exchanges of discourse must also be examined. This approach to studying discourse networks is unique in its combination of the concepts of coalitions, discourse and the network mapping of both.

Combining these two aspects of discourse can be accomplished by utilizing discourse analysis techniques that focus on extracting the qualitative content of language in use and then mapping the connections between stakeholders and the language they use. This newly developed approach produces accounts of how stakeholders express information and how shared expressions connect stakeholders to each other in a way that provides greater detail at higher resolution. Through the use of network theory and tools, this method of analysis can be used to identify with greater clarity the ways in which coalitions form around specific policy preferences or concerns, what conflicts might exist within coalitions, and how these elements change over time (Leifeld & Haunss, 2012).

Despite its newness, the political discourse networks approach has been applied to several policy areas in different political systems. In the United States it has been applied to the ideological construction of climate politics (Fisher, Leifeld, & Iwaki, 2012). In Germany it has been used to explore evolutions in the area of pension politics (Koopmans & Statham, 1999; Leifeld, 2013) as well as to explore conflicts over software patents across Europe (Leifeld & Haunss, 2012).

In order to facilitate the process of coding and mapping discourse networks, a tool known as the discourse network analyzer (DNA) has been developed specifically to collect and code data so as to produce datasets that can be exported to a variety of existing network software such as Ucinet, visone, R, Pajek, Gephi or spreadsheet software like MS Excel or OpenOffice. More will be

said on the construction of political discourse networks utilizing these tools in the next chapter.

4 Political Discourse Network

This chapter addresses the first research sub-question: *What are the expressed concerns and preferences of stakeholders regarding the NG pipeline and how do these connect stakeholders into advocacy coalitions?* This question is really two, but they are asked as one because they are particularly interrelated. The expressed concerns and preferences of stakeholders are significant and relevant in and of themselves and will be explored thoroughly providing a solid account of the content that is of relevance to the Northern Gateway pipeline (NGP) project. These concerns, however, also form the basis of a series of connections and communities of active stakeholders that can be explored through the connections identified by their shared concerns and preferences. Combining actor and content focused analysis allows the second part of the research question to be answered and provides a rich account of the actors and their relationships related to the NGP issue. Connecting these content and actor based questions is a great strength of the political discourse networks approach. The following chapter will first look at how the overall political discourse network was constructed and then will explore the various network configurations that are possible before returning to a final discussion of the proposed research question.

Constructing the Discourse Network

It was decided in the design phase of the research that combining both online and printed examples of discourse would be the most inclusive and representative of a wide range of perspectives for use in the construction of a social network, which genuinely reflected the social discourse surrounding the NGP project. This decision resulted in two data sources being selected: websites belonging to active stakeholder organizations and local, regional and national newspapers. Combined, these two sources produced a total of 267 articles from which 898 statements were extracted and coded. Coding was done according to 59 distinct categories to which stakeholders either expressed agreement or disagreement. This data provides the basis for the construction of a social issue network capable of graphically representing the connections that occur between stakeholders as a result of their expressed acceptance or rejection of a range of statements (Leifeld, 2010). The following sections will outline the processes used in collecting this data and combining it to create a discourse network reflective of stakeholder views and their implied connection to one another through mutually shared or rejected viewpoints.

Web content

The first data sources used were websites belonging to organizations that have expressed an opinion on the NGP project. A web-based tool called Issue Crawler was utilized in order to avoid any researcher bias and to ensure a comprehensive sample of relevant websites. Issue Crawler is server side software that consists of three components that operate in sequence. First, a *crawler* captures outlinks of a specified list of websites. Second, analysis engines are applied to the captured URL's using either co-link analysis, snowball analysis or inter-actor analysis. Using co-link analysis, the software crawls the seed URLs

and retains the pages that receive at least two links from the seeds. Snowball analysis allows the analysis engines to crawl sites and retain pages receiving at least one link from the seeds, and inter-actor analysis involves a crawl of the seed URLs while retaining inter-linking between the seeds. Third, visualization modules are employed to construct graphic network representations of the connections found (IssueCrawler, 2013).

Through use of this tool, it is possible to identify the digital networks of co-linked web sites that, by linking to one another, demonstrate an exchange of information. By first providing Issue Crawler with a list of starting URL's to begin its search and instructing it to perform a co-link analysis, the program is capable of exploring those websites provided and stripping away any code which is not the URL address of another distinct website. This provides a list of all websites which are linked to by the original website. This process is then repeated for each of the identified websites and, if directed to do so, again for each website linked to these. From this collection of interlinked website, a co-link analysis identifies any URL's that are connected to at least two others, indicating that a site has repeated connections to the network and is not merely referred to one.

Limiting the number of iterations of this process to a specified number of degrees of separation from the original website keeps the number of linked sites to a manageable number while still comprehensively mapping the range of digital connections between them. The results are displayed as nodes in a network depicting how websites directly link to each other and also to output as a list of stakeholder websites. This process provides a comprehensive account of the organizations that are exchanging and contributing to discourse in a given subject area, in this case the NGP project. [4]

To explore the discourse surrounding the NGP process, Issue Crawler was instructed to begin its crawl with eight obvious URL's, three project supporters and five opponents and then to proceed with a co-link analysis. Starting URL's were obtained from a preliminary Google search. The results of this returned 92 additional URL's, resulting in a total of 100 web sites to be reviewed. This review process consisted of visiting each web site in turn and identifying all available relevant documents, statements, press releases or other expressions of the organizations' concerns or preferences regarding the NGP. The procedure followed for each website consisted of first exploring the main page and navigating to all the immediate sub pages on each site. Second, if the website architecture supported internal searching, this was done using the terms "Northern AND Gateway" and the first 20 results per search were then considered. Third, for any pages that lacked internal searching services or for those whose services produced unreliable results, the "*site:"* syntax provided through the Google search engine was used to identify documents within the

[4] The Issue Crawler tool also makes it possible to repeatedly conduct this process in order to plot these connections over time. It also contains features capable of plotting websites approximately in geographic space by utilizing the WHOIS system which tracks website locations through their hosting ISP's. These features are not used in this research but could prove useful in conducting subsequent research.

specified website. Of the 100 sites visited, 42 proved to be both relevant and unique and 58 proved irrelevant or redundant.

Print Content

To add to the content collected from online data, articles in print media were included in the discourse network. These were identified through a LexisNexis search. Due to the fact that the volume of articles published about the NGP project is far larger than the timeframe of this research could possibly allow, it was necessary to make decisions aimed at limiting the number of results. First, only a single comprehensive search term, *Enbridge Northern Gateway Pipeline*, was used with the Boolean AND being employed to ensure that all results contained each of these terms. This search was submitted through LexisNexis with the restrictions that results should be drawn only from English language newspapers printed in Canada and only those printed after 1 January 2009. This limited results to publications geographically tied to the area impacted directly by the project and to discursive accounts of the project that have occurred in the last five years. Results were further limited by allowing duplicate identification to operate according to "moderate similarity" as a means of limiting the number of reprinted and redundant articles. Any articles found to repeat despite this were manually omitted.

The resulting list identified 1,296 articles originating from 35 news agencies. These results were then batch sorted first by relevance to the search term and then according to the news agency that printed them. From this list, articles were reviewed and selected when relevant discourse was found. Coding of articles originating from a given news agency was conducted until a minimum of 10% of the articles from that agency had been coded. This provision ensures that an overall average of above ten percent of search results were included and also that the selection of those results would not bias particular news agencies regardless of the number of publications that agency was responsible for. An effort was therefore made to screen for biases in particular news agencies and to avoid a skewing of results to more populated areas with more active news services. Ultimately, 155 articles were selected, totaling 11.96% of the total number of articles returned by LexisNexis. Four newspapers returned results containing no useable discourse and so fell short of the 10% threshold.

Constructing the Northern Gateway Discourse Network

Transforming the articles collected through the processes identified in the previous sections into a network structure capable of representing stakeholder concerns and preferences regarding the NGP project required the use of two specialized software packages: Discourse Network Analyzer (DNA) and Gephi. DNA is coded in Java, allowing it to run natively on most operating systems, and is a collaborative research and teaching tool developed at the University of Konstanz in Germany. Gephi is an open source interactive visualization and exploration platform for the analysis of networks and complex systems.

Discourse Network Analyzer (DNA)

The DNA[5] package is a qualitative content analysis tool with network export functions. This tool was developed by Philip Leifeld as part of a PhD project on discourse networks and German pension politics (Leifeld, 2010, 2013) and has also been used to explore ideological networks in American climate politics (Fisher et al., 2012) and conflict over software patents in Europe (Leifeld & Haunss, 2012).

DNA functions by allowing users to import text documents and annotate statements from persons or organizations within those documents. These statements can then be coded according to a list of user-derived categories that reflect stakeholder concerns or preferences related to a policy position, plan or action. This process requires the researcher to scan through the imported text for desired remarks; these are then highlighted and marked as relevant statements and coded by entering four data fields reflecting the *person* responsible for the statement, the *organization* with which they are affiliated, the *category* in which the statement falls (what the policy concern or preference is), and the actor's *agreement* (if they agree or disagree with that statement).

Statement categories for this research were developed organically during the data collection and coding process. Categories were generated as needed in order to collect various types of statements related to the particular concerns or preferences expressed by stakeholders. Most categories emerged during the first half of the online data collection process. Some categories ultimately proved to be redundant or too similar to distinguish between and so were collapsed into a single category. A few less frequently identified categories were added later during the newspaper data collection phase. In order to ensure that all categories were equally considered in relation to each document, all articles were reviewed a second time with the complete list of categories available for consideration following completion of the initial data collection and coding process. This process resulted in the identification of several instances where statements were overlooked early on that could now be included in categories created later. Several other statements were recoded to more specific categories that emerged subsequently and which better suited the particular statement. Since statements expressing particular viewpoints were necessary in order to record an actor's opinion or attitude towards that statement, categories were created using the specific view or attitude of the first actor to express an opinion on that aspect of the project. Stakeholders who later express related but opposing views would be marked under the same category but as disagreeing with the statement.

From these data, the DNA program was able to use several network algorithms in the network export function to return network matrices of actors that are connected by shared concepts. This function is capable of producing four distinct types of matrices (described below) and exporting them in a variety of file formats compatible with a range of commonly used software capable of rendering network images graphics (Liefield 2010). All networks used in this

[5] Version 1.31 of the DNA software was used.

research were produced by exporting data related to some combination of actors and categories according to one of the following network approaches.

The first network depiction possible is an **affiliation network**, which at its most basic takes the form of a bipartite graph depicting the actors included on one side, and the coded categories with which they are associated on the other. The color of the lines used indicates if stakeholders agree or disagree with the frames identified. This type of network allows for an overview of the actors that cluster around each particular issue. This type of network is described by the following equation:

$$G_{r,t}^{aff} = \left(A, C, E_{r,t}^{aff}\right) with \{a, a^1\} \notin E_{r,t}^{aff} \wedge \{c, c^1\} \notin E_{r,t}^{aff}$$

The second network representation that can be produced is an **actor congruence network**, which is constructed by adapting the data found in the affiliation network. This network will represent the frequency with which stakeholders agree or disagree on the categories created to reflect actor preference or concerns. The more frequently categories result in the formation of congruence or non-congruence between actors, the greater the edge weight assigned to the connection between those actors will be. This provides an indication of how likely stakeholders will be to engage in coalition formation, and how readily the rhetoric used by each will reinforce that of other actors. For example, it is likely that Enbridge Inc., the pipeline developer, will demonstrate greater congruence with oil companies engaged in oil sands petroleum production, and these entities will therefor be joined by connections with strong edge weights. This type of network is developed using the following equation:

$$G_t^a = (A, w_t) \; with \; w_t(a, a') = \sum_{r=1}^{l} | E_{r,t}^{aff}(a, C) \cap E_{r,t}^{aff}(a', C)|$$

The third representation that can be produced is a **concept congruence network** that is developed in a similar way to actor congruence network, but instead considers the ways in which concepts are linked to one another through their shared connection with particular actors. In this network, nodes represent particular categories of stakeholders concerns and preferences, with the lines connecting them representing the number of stakeholders who agree or disagree with a particular rhetorical example. This degree of connection is therefore indicated by the edge weight of that connection. This network allows for the exploration of the diversity of actors expressing information framed in a particular way. This network is captured by the following equation:

$$G_t^c = (C, w_t) \; with \; w_t(c, c') = \sum_{r=1}^{l} |E_{r,t}^{aff}(c) \cap E_{r,t}^{aff}(c')|$$

The final type of network that can be produced using DNA is, a **conflict network**. This network utilizes a dummy variable that is used to identify stakeholders who agree or disagree with a particular category, and depicts the degree of dissimilarity or conflict that exists between stakeholders. In this network, actors or categories can be linked only when they are connected through the expression of information related to a common stated preference, but are opposing in their view of the positive or negative quality of that preference. This means that in each connection, one stakeholder would be recorded as in agreement with a given statement and one noted to be in opposition to it. In this network, the edge weight of connections represents the number of times specific stakeholders are found to be in opposition to others. By organizing the network in this way, it is possible to see the significance or magnitude of each issue of contention in the larger debate over the NGP project. This network is useful in determining if, and on what issues, potential coalitions of stakeholders may differ on particular points, while still maintaining predominantly harmonious views.

Gephi

The final stage of producing the necessary discourse networks requires that network matrices exported from DNA be graphically rendered into useful and interpretable images composed of labeled vertices or nodes connected by appropriate edges or lines. This was done using the open source software platform Gephi version 0.8.2 beta. This platform is developed and maintained by a registered not-for-profit organization located in France, which seeks to provide real time manipulation and visualization tools for network data used in corporate, research, and social applications.

Gephi reads the .graphml file format easily, and so this was the format selected to produce the network matrices in DNA. For each of the networks described above, a network export of that type was conducted in DNA in order to produce a .graphml file that could then be opened in Gephi. Each of these networks is constructed from the same data, consisting of 129 actors coded to reflect their position on 59 categories; what distinguishes them is the network algorithm used to organize the network. This was the final operation conducted using the DNA software.

Once exported from DNA, all data manipulation and visualization were done using Gephi. This involved the application of several techniques such as the use of layout tools and algorithms, the application of filters to remove certain information and basic statistical analysis. Gephi provides a range of these tools through an extended database of community developed plugins, and all of these tools can be downloaded directly from the Gephi community or through the program plugin manager.

Layout algorithms reposition the vertices[6] in a network according to a variety of mathematical functions; this repositioning is useful for obtaining an overall network configuration appropriate for displaying relevant information. A variety

[6] The term 'vertices' is used interchangeably with the term 'node(s)' to describe the objects in network images that represent the actors or categories the network represents and are connected by the lines in the network. Both term are used to avoid word repetition.

of other layout tools is also provided, allowing nodes to be partitioned and ranked according to a range of different measures that can be indicated using progressive scales in color or size. Filters provide the opportunity to remove unnecessary information that clutters network images, thus making them unreadable. Filters can be applied to reflect most differentiating features of network vertices or edges. In many situations, the differentiations provided by the partition and ranking functions serve as the criteria for applying filters, but they can reflect other statistical measures as well. Gephi also provides a useful package of statistical tools that can be used to calculate a variety of useful network descriptors, including a range of degree and centrality measures as well as several other algorithmic calculations that are useful in determining the formation of communities or the significance of individual actors within a network.

Category Co-Occurrence Network

To address the first part of the research question, 'What are the expressed concerns and preferences of stakeholders?', the most useful network configuration to begin with is a category co-occurrence network. In this particular co-occurrence network, nodes represent categories that describe stakeholder concerns and preferences. Edges connecting these nodes are derived from a calculation of common acceptance or rejection of those categories by various actors. Actors themselves do not appear in the network; instead, their influences are converted into the relative line weights connecting the vertices. For example: if actor A and actor B both agree regarding category one and category two, then the line weight connecting these two category nodes would be two. This applies regardless of whether they agree or disagree with the content of category 1 and 2, as long as they share the same opinion. This method of analysis is useful because it identifies the preferences that are expressed most frequently as well as identifying which preferences are commonly expressed together.

The layout used in this network is constructed using the force atlas algorithm (Jacomy, 2009) as applied by the Gephi software. The function of this algorithm is to use a force vector, similar to the Fruchterman Reingold algorithm (Fruchterman & Reingold, 1991), to assign attractive and repulsive forces to the nodes in the network and then relocate nodes to minimize those forces. The result is a network with minimal overlaps and where more highly connected nodes are clustered together. The most highly connected vertices become clustered near the center of the network, with less connected nodes being forced to the outside.

Frequency and Degree

Initially this network is too dense to effectively analyze the individual nodes and connections. However, it is evident that two distinct clusters of nodes exist. A larger central cluster occupies the majority of the network, and a smaller second cluster occupies the upper right corner. Before these clusters are explored separately, it is possible to add meaning to the overall network by emphasizing the most significant nodes (see figures 6 & 7).

Determining which categories are most significant to the public discourse surrounding the NGP and which are most relevant for this analysis will be done in two ways. A first method is according to the *statements frequency*, which is telling of its overall significance in the discursive network, but may be biased towards concerns expressed by more vocal actors. Figure 6 depicts statement frequency by node size and identifies 14 of the 55 nodes as expressed significantly more frequently. Size and color are indicative of frequency, with more frequent preferences being larger and brighter red. An alternative to statement frequency is to emphasize node or preference significance by its degree, or the number of connections it has to other nodes. This eliminates the bias towards more vocal actor preferences, but could also bias categories that are more easily agreed upon. Figure 7 identifies nineteen preference nodes that are significant due to a weighted degree calculation that considers both the number of connections to other nodes and the strength of those connections. When applied to the previous network the additional preferences can be seen. In Figure 7 is indicative of weighted degree with blue nodes being those overlooked previously. Further, some nodes that were highlighted in previous networks are not here.

When the results of these two methods of assigning significance to the categories present in the network are combined, it is evident that 24 of the 55 total categories emerge as the most commonly expressed in connection with one another. Some indicate greater connection to other categories where others are more frequently cited, but these 24 categories are the most significant and most relevant for further analysis. These categories are listed in Table 1.

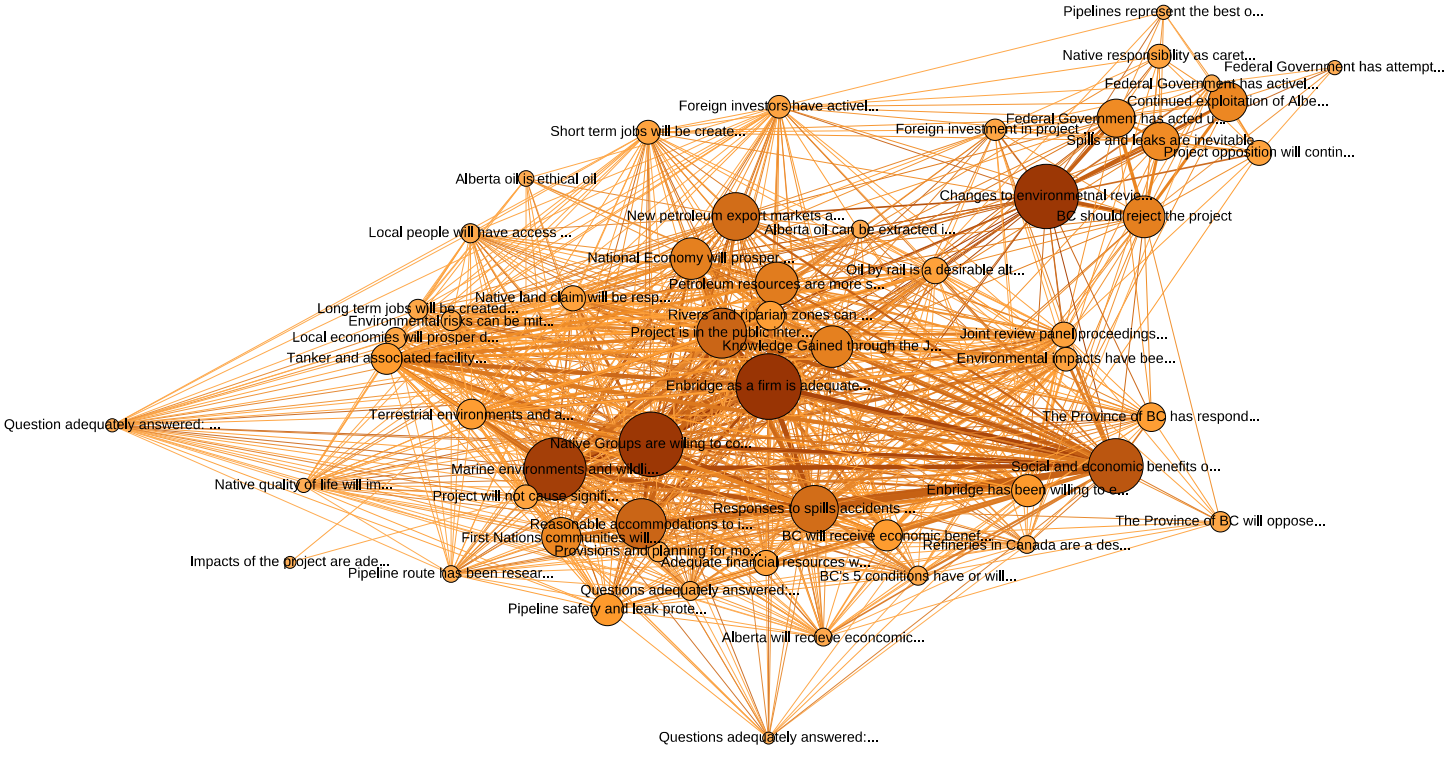

Figure 6 - Category co-occurrence network ranked by frequency

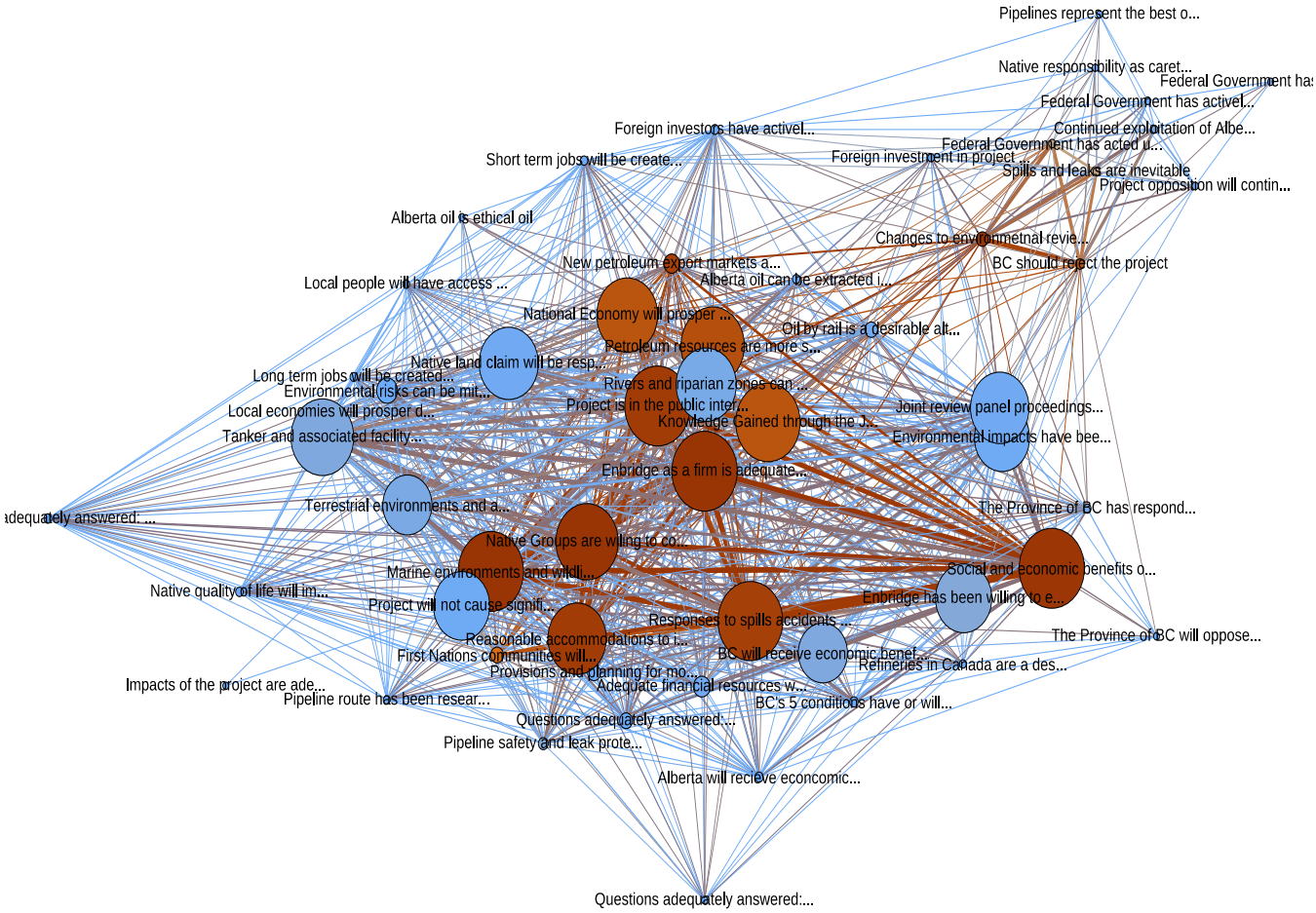

Figure 7 - Category co-occurrence network ranked by degree

Table 1 - Significant categories found in category co-occurrence network

Stated Preference	Frequency (1-46)	Weighted Degree (1-167)
BC should reject the project	**26**	50
BC will receive economic benefits	17	**87**
Changes made to the JRP process by the Federal Government have had a negative impact on its effectiveness	**45**	66
Continued exploitation of Alberta oil reserves will contribute to a warming climate	**24**	12
Enbridge as a firm is adequate to manage project safely	**46**	**167**
Enbridge has been willing to engage with opposition concerns in good faith	18	**95**
Environmental impacts have been researched and planned adequately	11	**93**
Environmental risks can be mitigated by preventive measure	8	**81**
First Nations communities will experience jobs and economic benefits	**24**	69
Joint review panel proceedings have adequately addressed potential impacts	12	**100**
Knowledge Gained through the JRP is adequate to make informed recommendations	**26**	**133**
Marine environments and wildlife will be adequately protected	**43**	**155**
National economy will prosper due to project	**26**	**108**
Native groups are wiling to collaborate with the project	**45**	**116**

Native land claim will be respected	12	**102**
New petroleum export markets are desirable	**31**	75
Petroleum resources are more significant to Canada's energy future than renewable energy sources	**27**	**122**
Project is in the public interest	**33**	**162**
Project will not cause significant adverse environmental affects	11	**95**
Reasonable accommodations to include native participants and native knowledge have been made	**33**	**100**
Responses to spills, accidents and leakages are adequate, available and will be put in place	**31**	**141**
Rivers and riparian zones can be adequately protected	15	**105**
Social and economic benefits outweigh associated risks	**37**	**159**
Tanker and associated facility safety and protection measures are adequate	17	**119**
Terrestrial environments and animals will be adequately protected	16	**87**

Filters

In order to make more specific analyses of the clusters within the network, the network can be simplified so that only the more significant nodes identified are included with all other extraneous vertices removed. This radically simplifies the network pictures but is still rather complex in terms of identifying particular connections. To make only the most significant relationships stand out, this network can then be further filtered by the edge weight associated with each line. This leaves only the most commonly agreed upon categories connected by bold and easily visible lines, as in Figure 8.

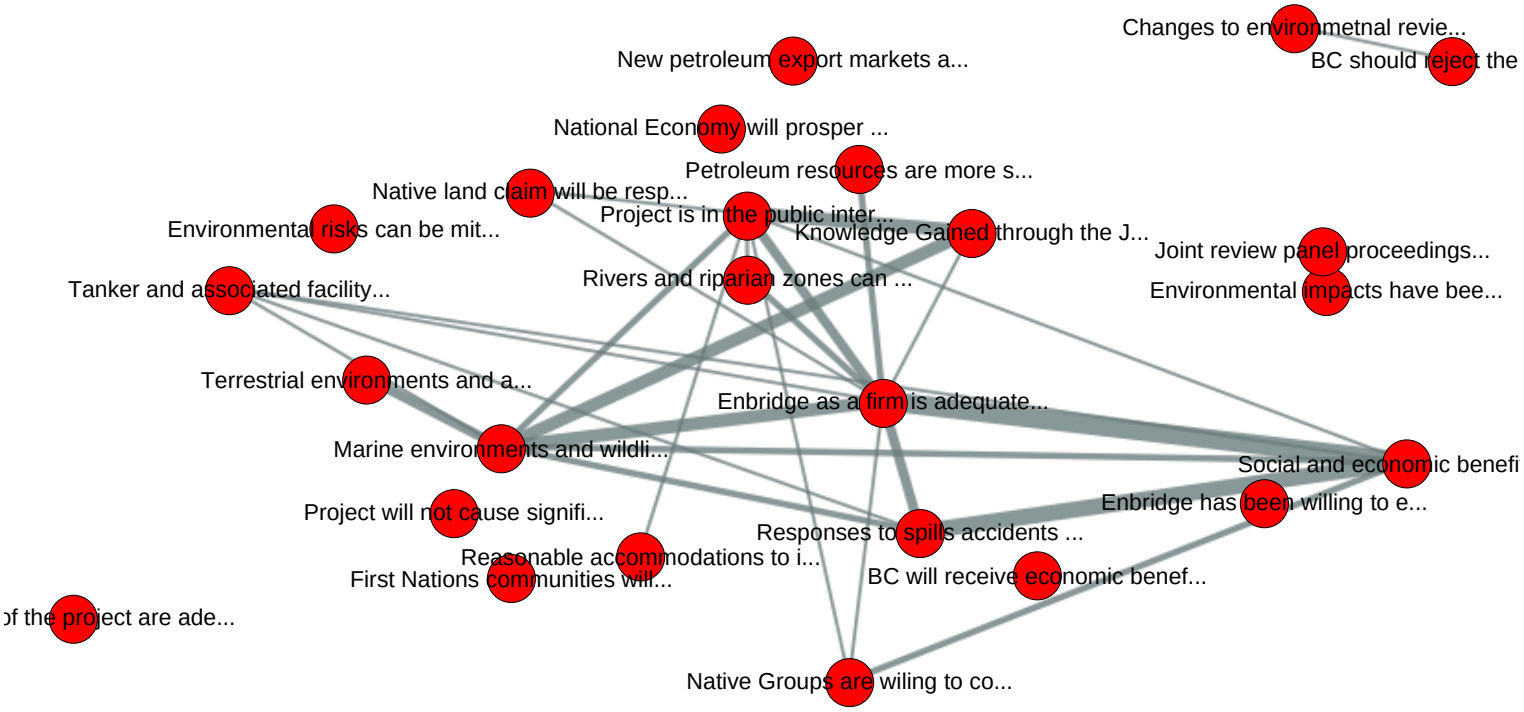

Figure 8 - Significant connections in category co-occurrence network

With the less relevant nodes and lines filtered out, it is possible to visually interpret some of the strongest connections that emerge in the center of this network. One aspect that stands out in this network view is the two clusters of four nodes each that are connected by some of the strongest line weights seen in the network. The connections within both of the four node groups are fully meshed so that each node is connected to each other node. The first of these is comprised of the following nodes:

- **Enbridge as a firm is adequate to manage the project safely**
- Social economic benefits outweigh associated risks
- Response to spills and accidents are adequate, available and will be put in place
- **Marine environments and wildlife will be adequately protected**

Other nodes that connect strongly with this first cluster in at least two places include:

- Native groups are willing to collaborate with the project
- Reasonable accommodations to include Native participants and Native knowledge have been made
- Tankers and associated facility safety and protection measures are adequate

The second cluster of meshed nodes is composed of the following:

- **Enbridge as a firm is adequate to manage the project safely**
- **Marine environments and wildlife will be adequately protected**
- Project is in the public interest
- Knowledge Gained through the JRP is adequate to make informed recommendations

Other nodes that connect strongly with this second cluster in at least two places include:

- Petroleum resources are more significant to Canada's energy future than renewable energy sources
- Rivers and riparian zones can be adequately protected
- Native land claims will be respected
- Tankers and associated facility safety and protection measures are adequate

It is also worth noting that both meshed clusters share two similar nodes (shown in bold). One of these nodes relates to confidence in the ability of the developer to safely manage the project, and the other represents concerns over potential damage that might be done to marine environments. These are likely two of the most critical concerns in the network. Other themes that repeat themselves in this cluster of significant categories relate to the degree of overall public benefit gained through the project and to the participation of native groups.

Modularity

Another way to explore the NGP political discourse network is to return to the complete network before any of the less significant vertices and lines were filtered out and to use an additional algorithm to identify how modular the network is; or put another way, to see how many communities exist within the larger network. The mathematics used in this type of algorithm have been developed by Blondel, Guillaume, Lambiotte, & Lefebvre (2008), primarily for use with much larger networks but still applicable to a network of this size. The basic approach is one in which the algorithm seeks to identify communities within a larger network in such a way that the number of links within the communities are stronger than the number of links between communities. This may not always produce the most appropriate community configuration but usually comes close, particularly in smaller networks where the computational

requirements are less. The particular modularity statistic used is included in the statistics package available for the Gephi software that also includes a randomizing operation intended to increase modularity scores, particularly in small networks, at the cost of additional computational time. This algorithm was able to identify four communities within the larger network Figure 9.

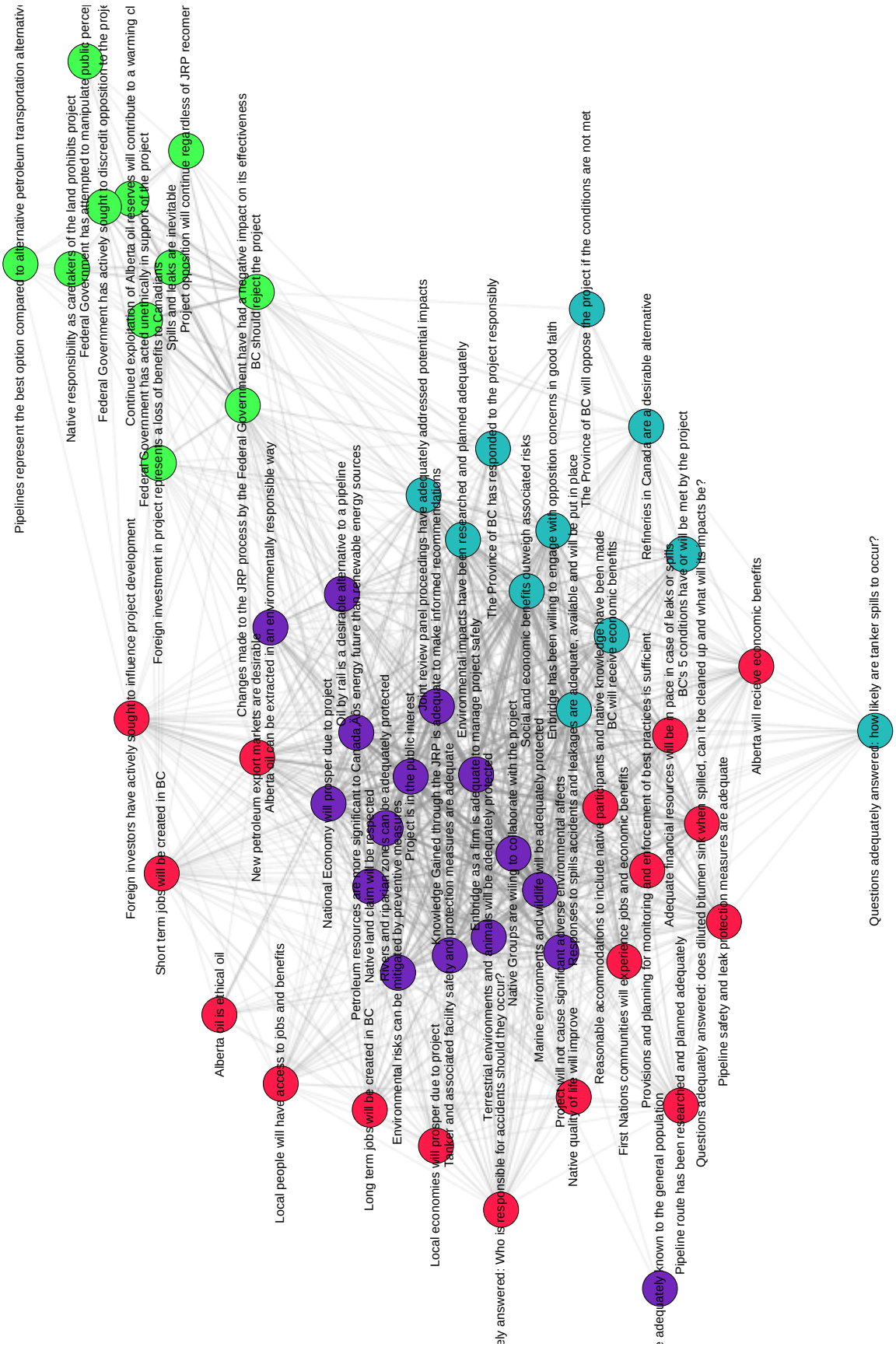

Figure 9 - Communities identified in categories co-occurrence network using a modularity statistic

Two central communities, displayed in purple and turquoise, contain the most categories that have been identified as significant in the preceding section and so deserve special attention. The green community at the top right of the network highlights the smaller cluster of vertices identified at the beginning of this chapter and so will also be explored here. The red community is significantly more scattered and contains no categories that were identified as significant. It is made up of the categories with fewer and weaker connections to other categories and so was pushed to the periphery of the network by the force atlas algorithm. This community is less informative and so will not receive additional attention.

In analyzing these communities, it is important to remember that the vertices associated with a given color are not indicative of isolated communities. These communities are in fact all highly interconnected, and it is only by a small but potentially significant margin that they emerge as distinct. This fact acknowledged, it is interesting to note that the first cluster, colored purple, consists almost exclusively of categories that were identified as significant when either or both frequency and degree were considered. Only three peripheral vertices in this purple cluster were not previously identified as significant. This accounts for their grouping as a community, and suggests that many of their most significant concerns are also similarly held by stakeholders, making the likelihood of finding distinct advocacy coalitions in subsequent actor based analysis more probable. The content of these vertices is also vastly skewed in favour of environmental concerns; with the exception of central concerns over the ability of Enbridge to safely manage the project and two nodes related to the involvement of First Nations communities, all vertices are related to environmental issues.

The second major community, in turquoise, also contains three vertices that were noted as significant, but more striking than the overall significance of this community is the content of the categories it contains. Of the five categories that were identified as being related to the province of British Columbia, four are located within this community. This indicates that although potentially not located directly at the heart of the issue, concerns related to British Columbia may represent a significant position in the broader public debate.

The third community, identified in green, is the most peripheral community and the only one that was evident prior to the application of the modularity algorithm. This is because this community is much more isolated from the central cluster of categories. Due to this remoteness, these categories may not represent the strongest or most frequently expressed views, but they could suggest a cluster of actors who hold these particular views strongly and exchange them frequently enough to become evident in broader discourse. This is even more interesting when, once examined, these categories turn out to represent some of the more hard line or extreme views. Table 2 lists the categories found in this community and Figure 10 provides a more detailed picture of its position in the network, with node size representing betweenness centrality to indicate the categories that act as connections between the broader debate and that relate to these more extreme viewpoints.

It is clear that when either weighted degree or betweenness centrality are considered, the categories "Changes made to the JRP process by the Federal Government have had a negative impact on its effectiveness" and "BC should reject the project" are significant, in that they connect a variety of more extreme views to the central structure of concerns and preferences. Again, it seems that issues that distinctly relate to British Columbia are of significance to the overall public debate, and they also provide a connection to this more extreme tangential range of issues. The other connection points to public debate are related to changes made by the federal government to the JRP process. These two issues connect the broader public discourse to a secondary discourse that seems to highlight themes related to the ethical handling of these issues by the federal government and other project investors and supporters. It also contains several categories that suggest that opposition from First Nations and other groups is unquestioned and absolute. Again, it must be remembered that the affinity any particular group has for these categories is unclear at this stage of the network analysis, and the networks presented thus far merely show that agreement exists regarding these categories. The next section will use a bipartite affiliation network to explore the connections between particular actors and categories.

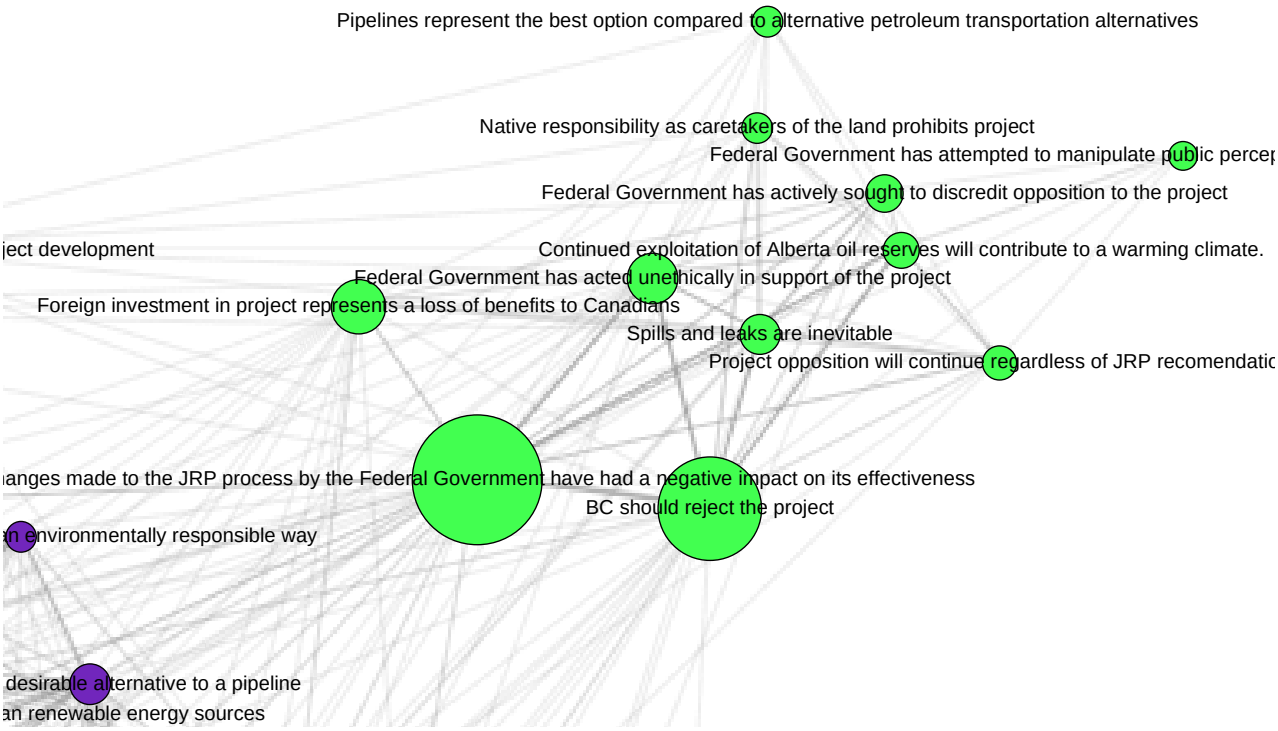

Figure 10 - Extreme categories found in category co-occurrence network ranked by centrality

Table 2 - Extreme categories found in discourse network

Categories	Betweenness centrality	Weighted degree	Statement frequency
Changes made to the JRP process by the federal government have had a negative impact on its effectiveness	54.761	66.0	45
BC should reject the project	40.406	50.0	26
Foreign investment in project represents a loss of benefits to Canadians	13.732	29.0	9
Federal government has acted unethically in support of the project	11.729	35.0	23
Spills and leaks are inevitable	5.905	33.0	23
Federal government has actively sought to discredit opposition to the project	4.597	20.0	5
Continued exploitation of Alberta oil reserves will contribute to a warming climate.	3.898	27.0	24
Project opposition will continue regardless of JRP recommendation	2.883	19.0	12
Pipelines represent the best option compared to alternative petroleum transportation alternatives	1.014	8.0	3
Native responsibility as caretakers of the land prohibits project	.913	13.0	11
Federal government has attempted to manipulate public perceptions of the project in an unethical manner	0	6.0	3

Bipartite Affiliation Network

It is also possible to express the NGP political discourse network in a way that makes explicitly clear the connections between each individual actor and the categories representing stakeholder concerns and preferences. This is done through a bipartite affiliation network, which is a directed network connecting two distinct types of vertices. These vertices are connected by edges that originate from actor nodes and terminate in category nodes. When first developing the political discourse network, stakeholders were identified as exhibiting an opinion or preference on one of the categories and were recorded as either agreeing or disagreeing with that category. This network configuration also allows for the edges that connect actor and category nodes to reflect this agreement or disagreement using color.

Overview

Finding a layout appropriate to display this information is both more and less complex than that found in the category co-occurrence network explored above. It is less complex in that no mathematical process or algorithm was easily available to render the data coherent. It is more complex in that the manual manipulations of the network to achieve this coherence are far more involved. To display an overall picture of all actor category affiliations was impossibly cluttered, so a first step was to limit analysis to the 24 categories that were identified as being significant in the previous category co-occurrence analysis. Rendering a useful presentation of actor affiliation to the remaining categories required a combination of manually imposed groupings of similar actors

according to the type of organization they represent (i.e., environmental groups, government actors, etc.), and an alphabetical sorting of categories, all creatively arranged to allow for the clearest overall picture. Preferences are ordered alphabetically. Actor nodes are clustered according to the type of organization they represent. Actor node size is ranked according to statement frequency to highlight the most vocal actors. Edge color displays agreement (green), disagreement (red), or mixed agreement (blue). This is presented in Figure 11.

Although now configured in a more readable way, it is still difficult to isolate the individual connections between specific actors and the list of categories. However, it is clear that for the most part, actors of a particular type tend to agree or disagree with the same categories.

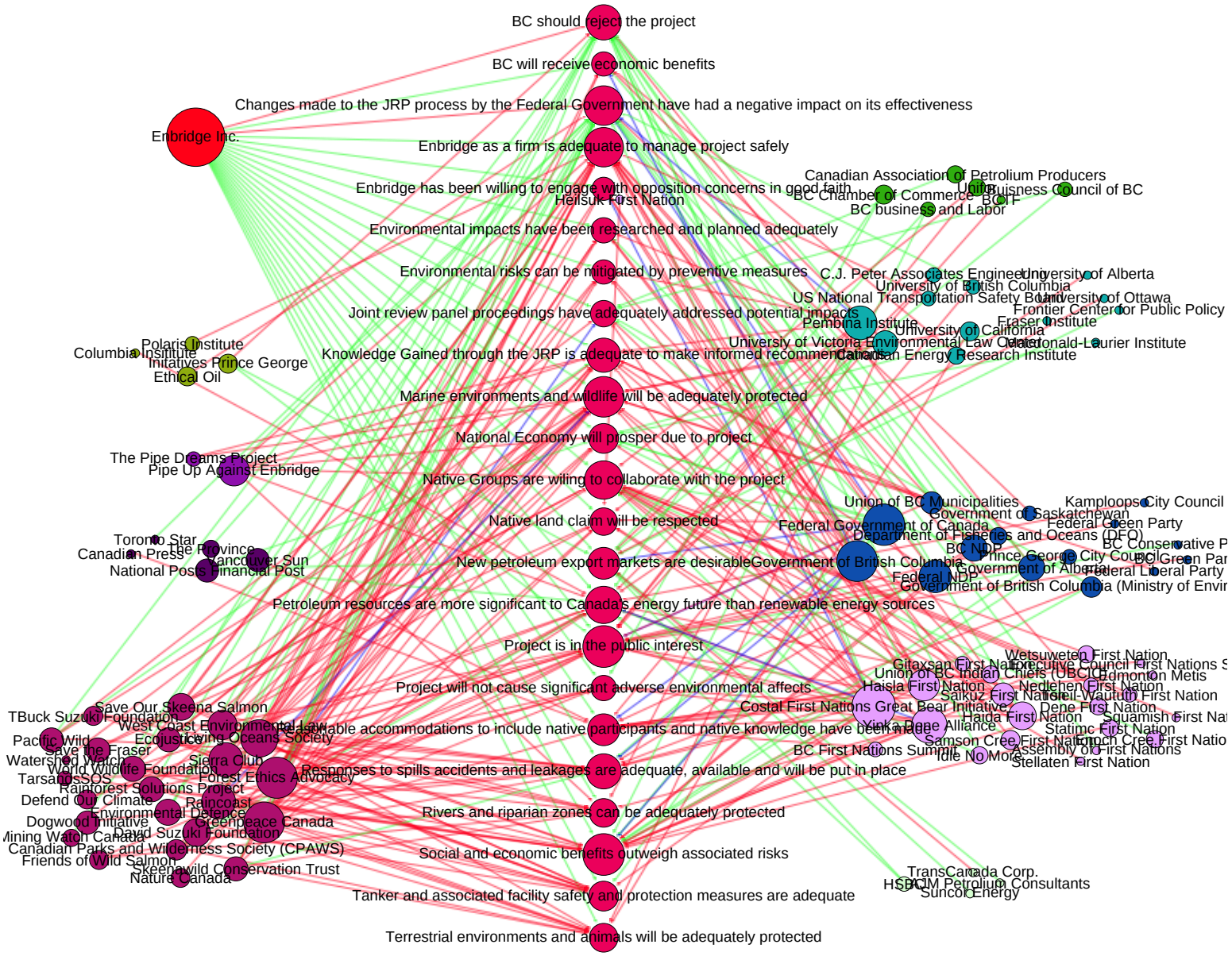

Figure 11 - Bipartite network showing actor category affiliation

Grouping by type

The above network is still somewhat complex to analyze in detail, but it is clear that actor types appear to be fairly consistent in the categories with which they agree. Because of this, actors can be aggregated into group nodes that reflect the overall strength of their connection to particular issues. In Figure 12, each actor type is represented by a single node. The size of the node is reflective of the aggregated statement frequency of the component nodes. The line weight is reflective of the aggregated line weights associated with the component nodes, but the agreement indication is lost in the conversion. What remains is a clear indication of which issues are most frequently of significance to each actor type.

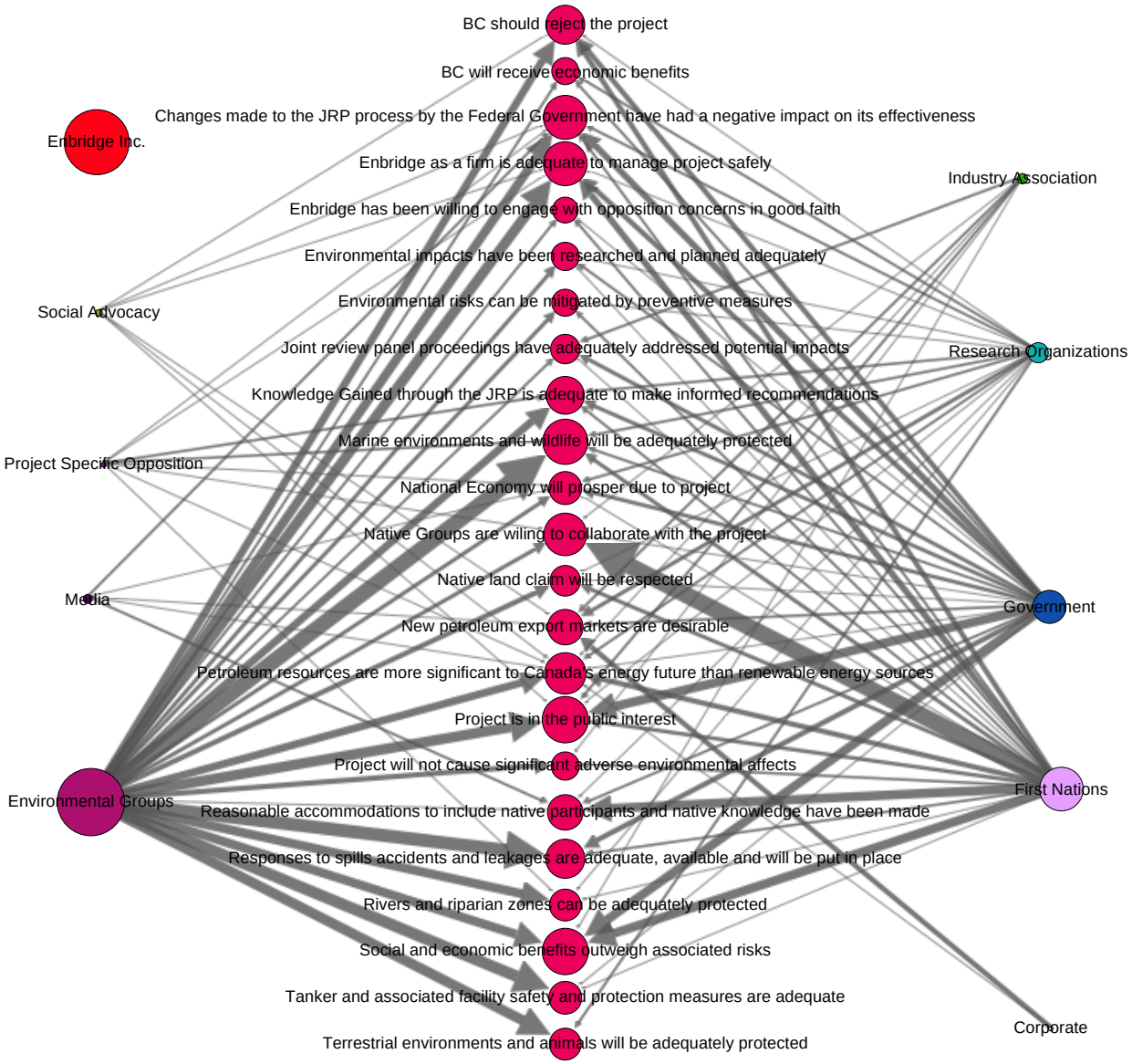

Figure 12 - Bipartite affiliation network with actors grouped by type

When actors are grouped according to their type, it is clear and not particularly surprising that the largest groups have expressed opinions on the broadest

range of categories. Environmental organizations, First Nations and Aboriginal groups and government actors are the most prominent actor types. The environmental organizations respond quite strongly to all categories, whereas First Nations and Aboriginal groups show the strongest connection to categories that relate to participation in the project and review process and concerns over project benefits. Government actors also appear to be significantly interested in social and economic benefits and in the public interest. The developer, Enbridge, also registers a position in relation to each of the categories examined, but is not preferential to any issue. Research organizations have responded to a significant number of categories as well, suggesting that some quantity of expert knowledge is present in the broader public discourse.

To explore further how these different groups relate to the categories in this network, it is possible to examine the actors individually and this magnified view of each actor type is presented below.

Environmental organizations

Figure 12 provides a closer view of how the list of environmental groups included in the NGP discourse network relate to the most significant categories discussed above. In this, and the similar figures presented subsequently, the size of the actor node is ranked according to the number of statements that actor has made to show which actors are the most vocal. The category nodes are also ranked in size, but according to their in-degree, or the number of actors who have expressed an opinion on that category.

Looking at the list of categories, it is clear that some are connected to more actors than others. A detailed analysis of the categories that are the most connected is relevant at this point because it can later be compared to the previous analysis in which the influence of all actors, and not just environmental organizations, was considered. The most prominent categories are displayed in Table 3. It also bears mentioning that while still clearly present in the range of concerns and preferences commented on by environmental groups, many of the broadest environmental categories, such as those related to research into potential environmental impacts and mitigation strategies, appear much less significant than do more specific concerns related primarily to marine environments and the adequacy of safety measures to protect those environments. Indeed, for environmental groups it appears that marine protection and the potential damage done by the proposed tanker fueling station are of the greatest concern, with riparian and terrestrial environmental concerns being present but of less significance.

What can be seen in this network that was not apparent in the category co-occurrence network is the relative agreement or disagreement each actor has for each category. By scanning the edges connected to the category vertices, it is evident that there is a great deal of cohesion in the views of environmental organizations. The categories, *BC should reject the project* and *Changes made to the JRP process by the federal government have had a negative impact on its effectiveness*, are connected by exclusively green agreement edges, with the

remaining categories being connected by primarily disagreement edges. Agreement with the most prominent categories is also presented in Table 3.

Two blue lines, indicative of conflicting agreement, do appear in the network but both originate from large organizations that frequently offer opinions on a range of subjects which increases the potential that a misquote or occasional off message remark could occur. The fact that there are only two such connections from different actors connected to different categories that suggests these may be more anomalous than informative.

It is also possible to make some observations regarding the environmental actors themselves, the most prominent of these are listed in **Error! Reference source not found.**Table 4. Of the environmental organizations included in the network, it appears that Forest Ethics Advocacy, Greenpeace Canada, and the Living Ocean Society are the most vocal stakeholders, registering positions on approximately 50 percent of the categories[7]. Raincoast, the Sierra Club, West Coast Environmental Law, The David Suzuki Foundation, Save Our Skeena Salmon and Environmental Defense are all fairly comparable in terms of the frequency with which they express their concerns and preferences; however, some discrepancy exists in the number of categories to which they respond. The West Coast Environmental Law, for example, responds to six of the categories, whereas Environmental Defense responds to only three. This could indicate how focused and specific the core beliefs of these organizations may be.

[7] Forest Ethics Advocacy and The Living Ocean Society responded to 12 of 24 categories and Greenpeace Canada responded to 14 of 23 categories.

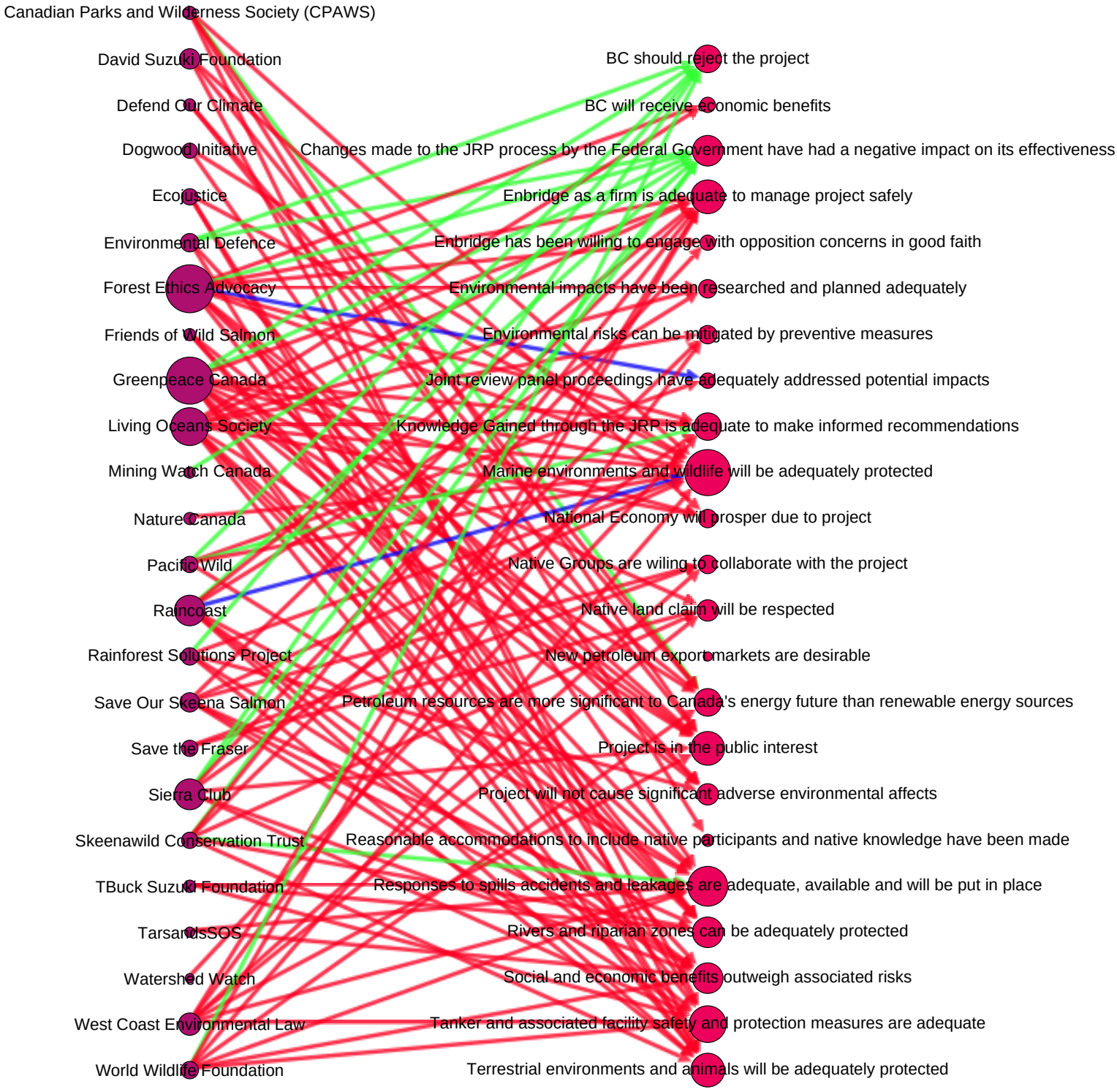

Figure 12 - Bipartite affiliation network showing environmental groups connected to significant categories

Table 3 - Most prominent categories for environmental groups

Most Prominent categories	In Degree	Primary Agreement
Marine environments and wildlife will be adequately protected	12	Disagreement
Responses to spills accidents and leakages are adequate, available and will be put in place	10	Disagreement
Tanker and associated facility safety and protection measures are adequate	9	Disagreement
Enbridge as a firm is adequate to manage project safely	8	Disagreement
Project is in the public interest	8	Disagreement
Changes made to the JRP process by the federal government have had a negative impact on its effectiveness	7	Agreement
Rivers and riparian zones can be adequately protected	7	Disagreement
Social and economic benefits outweigh associated risks	7	Disagreement

Table 4 - Most prominent environmental actors

Most Prominent Actors	Categories responded to	Statement Frequency
Forest Ethics Advocacy	12	39
Greenpeace Canada	14	38
Living Ocean Society	12	29
Raincoast	8	22
Sierra Club	7	22
West Coast Environmental Law	7	14
David Suzuki Foundation	3	12
Save Our Skeena Salmon	5	11
Environmental Defense	4	10

First Nations Groups

The results of the same layout processes that were applied to environmental groups are now applied to First Nations groups and can be seen in Figure 13. Again, actor size indicates statement frequency, or how vocal an actor is, whereas category node size relates to its in-degree, reflecting how many First Nations groups have expressed a preference for that category. Line colors also follow the same coding scheme as before.

What is most striking about the configuration of First Nations and Aboriginal group affiliations with the categories examined (Table 5) is the remarkable significance of the category reflecting the willingness of First Nations to collaborate with the project. The in-degree for this category is 13, almost twice that of the next most commonly referred to category. Agreement with this category is somewhat mixed, but with a majority of First Nations actors indicating unwillingness to collaborate with the project, and only three indicating a willingness to participate under some conditions. It must be noted that not all of these stakeholder organizations represent distinct groups, as the subsequent actor analysis will explore further.

Other significant categories reflect a rejection of the idea that accommodations made to include First Nations participants and knowledge have been adequate and that the potential for project benefits to outweigh risks is unlikely. It seems that with such significant grievances with the project development process, these groups have focused on expressing their overall rejection of, and opposition to, the project rather than on discussing details of the project that will not change the overall opinion of the majority of First Nations groups. It is therefore likely that a strong majority of this actor group hold the deep core belief that the NGP project should be opposed.

Other than the three organizations expressing a conditional willingness to participate in the project, the only other categories that First Nations groups agree with are those framed in such a way as a positive response indicates an opposition to the project. These are *that BC should reject the project* and that *changes made by the federal government have negatively affected the JRP process*. It seems clear that the overall and prevailing position of First Nations groups is one of opposition to the NGP project.

Looking more closely at the actors themselves (Table 6), many of the actor nodes used in this network represent specific tribal bands that have spoken publicly regarding their position on the project; however, a significant number also represent various multi-band alliances that perform either governance or advocacy roles spanning the interests and territories of multiple First Nations. Including both types of actors together in the network runs the risk of double counting some actors who express their opinions both independently and through these alliances. Because this practice influences the character of the general discourse, which is what this network hopes to capture, this issue is not seen as a problem.

The two most vocal actor nodes in this network are large multi-band organizations that have emerged largely in response to the NGP project and others like it, including Keystone XL. Coastal First Nations Great Bear Initiative and the Yinka Dene alliance offer the most frequent comments on the categories examined, and due to the size of their membership they can also be thought of as speaking with the most voices.

Some of the more administrative or bureaucratic organizations of the First Nations type, such as the BC First Nations Summit, The Assembly of First Nations, and the Union of BC Indian Chiefs, have been long standing institutions representing First Nations' interests. However, these organizations have been some of the least vocal on NGP issues, and further, the BC First Nations Summit has expressed a willingness to participate with the NGP project while First Nations from the province of British Columbia, or the multi-band organizations who purport to represent them, have indicated the exact opposite position. These older institutional organizations remain relatively inactive in comparison to newer actors such as the Great Bear Initiative or the Yinka Dene Alliance, and in some cases they come into conflict with these groups, suggesting that these older institutions were either ill-suited to channel the prevailing concerns or that

these concerns were sufficiently significant for these new institutions to be purpose built to express resolute opposition to the project.

A final significant observation regarding the bands which have independently expressed opinions on the NGP project focuses on the three actors who did indicate willingness to participate in the project under some conditions. One is the BC First Nations Summit, as mentioned. The other two expressing willingness belong to the Enoch Cree and Samson Cree First Nations, bands belonging to the Cree nation located in Alberta. These are the only two Alberta First Nations to appear in this network, and the only First Nations identified in this network to indicate willingness to participate in the project. Although there are only two bands from Alberta included here, the evidence they offer does indicate that Alberta First Nations are more supportive of the NGP than those in BC.

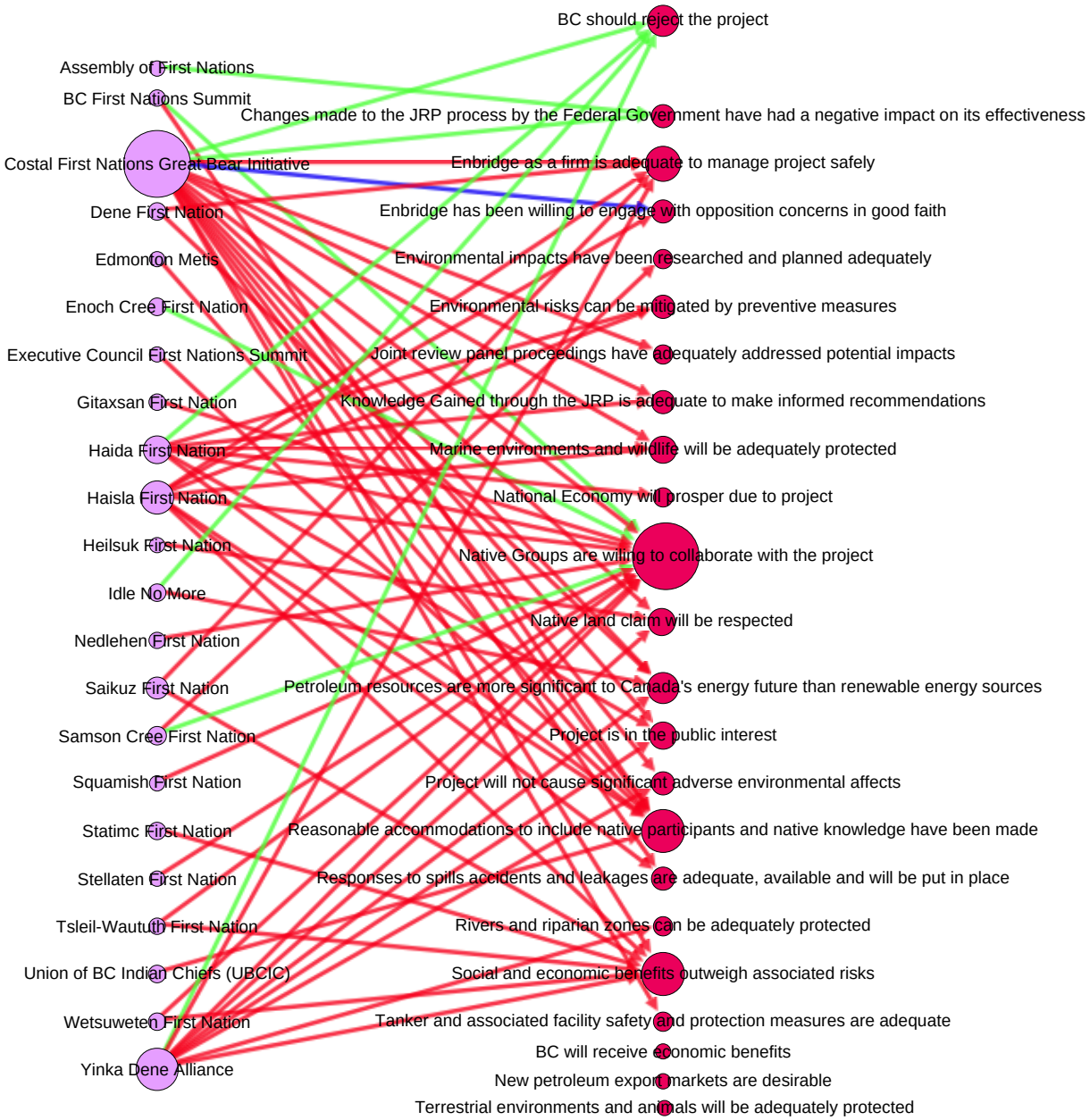

Figure 13 - - Bipartite affiliation network showing First Nations groups connected to significant categories

Table 5 - Most prominent categories for First Nations

Most Prominent Categories for First Nations	In Degree	Primary Agreement
Native groups are wiling to collaborate with the project	13	Mixed
Reasonable accommodations to include native participants and native knowledge have been made	7	Disagree
Social and economic benefits outweigh associated risks	7	Disagree
Enbridge as a firm is adequate to manage project safely	5	Disagree
BC should reject the project	4	Agree
Petroleum resources are more significant to Canada's energy future than renewable energy sources	4	Disagree
Marine environments and wildlife will be adequately protected	3	Disagree
Native land claim will be respected	3	Disagree
Project is in the public interest	3	Disagree

Table 6 - Most prominent First Nations actors

Most Prominent First Nations Actors	Categories responded to	Statement Frequency
Costal First Nations Great Bear Initiative	16	47
Yinka Dene Alliance	8	25
Haisla First Nation	7	17
Haida First Natoin	8	12
Saikuz First Nation	2	7
Samson Cree First Nation	2	4

Government Groups

Government actors are similarly displayed in Figure 14. This category is somewhat different from the previous two in which environmental or Aboriginal groups shared a very similar set of agendas and affiliations. Although the primary occupation of all actors included in this category is governing, there are in reality three levels of government with very different levels of authority, responsibility, interests and constituency bases. The government agencies considered here are listed in Table 8.

At the most macro level, the federal government is responsible for national interests and international relations. Power at this level is significant and includes, for the ruling party, the prerogative to make a final decision regarding the NGP project. Issues and debates over Canadian party politics and constituent riding boundaries aside, the collective responsibility of this political organ is to the Canadian population as a whole. However, more than sixty percent of Canada's population resides in the provinces of Ontario and Quebec, leading to a tendency for greater focus of parliamentary attention on those provinces.

At a meso level exists the provincial Governments, which also hold significant power within their own territory. In relation to the NGP project, much of this power is related to the ability to issue or withhold key permits and licenses necessary to operate in the region. Again, the concentration of population along the southern border of all provinces leads to a tendency towards greater attention to those areas, with the potential exception of Alberta which has considerable development in the Calgary and Edmonton areas and, more recently, further north near Fort McMurray.

At the micro level exists municipal governments, which have relatively little power or influence that could influence the NGP project; however, many municipal governments could be significantly impacted by the proposed project. As a result, the varied municipal authorities located in British Columbia have elected to speak with a single voice on the NGP issue through the Union of BC Municipalities.

Looking more closely at the government actor affiliation network, it appears that the broadest questions of overall value are of greatest significance, with the top two categories representing the overall public interest and the cost benefit potential for the project. These are closely followed by categories that reflect two issues that would understandably be of significant concern to legislative bodies; one concerns the impact of changes made to the legislation governing the JRP process, and another issue relates to the participation of the BC provincial government in the project.

It is perhaps typical of government stakeholders that the agreement associated with all four of the most referred to categories is mixed. The most significant categories are listed in Table 7. A firm belief that the project is in fact in the public interest is limited, it seems, to the BC provincial Conservative party. Its federal counterpart, who controls the current government, registers a mixed opinion regarding the overall interests of the project. Since the final decision regarding project approval rests with this body, it is perhaps only prudent of the administration to avoid advocating in one direction or the other. The cost-benefit appraisal of the project seems to be more favorable with the federal government, the government of Alberta, and at least one BC municipality who are all in agreement that potential benefits do outweigh the potential risks associated with the project. At both the federal and provincial level, the New Democratic Party (NDP) opposes this position, and the BC provincial government (currently led by the Liberal Party) has a mixed position. Regarding changes made to the JRP process, the overall assessment supports a position that something negative has occurred as a result of legislative changes. Only the province of Saskatchewan sees the changes as not having had negative impacts, and even the Federal Government, the agency responsible for the legislation, has rendered a mixed response.

The role of British Columbia and the BC government in this project and the preceding decision making process is significant. Although BC does not have the authority to approve or disapprove the project outright, there is a great deal which the province could do to block it if it were so inclined. In this actor

category, the only government actor to support participation in the project is the government of Alberta. The government of BC itself has stated that it will likely not support the project, a sentiment echoed by other provincial parties. The union of BC municipalities has also resolved that the province should reject the project. The Federal Government does not respond on this category.

Beyond the categories just discussed, it is interesting that most other categories receive mixed agreements. The only consensus to occur also paints a rather bleak picture, in so far as there is general disagreement that Enbridge as a firm would be adequate to manage the project safely and that knowledge gained through the JRP process is adequate to make an informed decision. The only category agreed upon is that the national economy will prosper as a result of the project, there being no question about that at any level.

In terms of the actors themselves, the Alberta provincial government is by far the most frequently vocal, registering four times the number of statements as the Federal government who is the next most vocal actor and has responded to the largest number of categories. The Alberta government, however, limits comment to only four categories, all highly supportive of the project. The provincial government of British Columbia, although initially hesitant to take a stand on the project, has ultimately expressed dissatisfaction with the risks associated with the project and the collective ability of all parties to manage those risks, ultimately coming out against the project. The BC municipal governments, through the BC Union of Municipalities, also support this position. The initial hesitance and long position forming process of the BC government is one reason why some blue lines indicating mixed agreement exist in the network, reflecting that the position of the government has changed over time.

The Federal Government also indicates several mixed opinions. Although it is quite firm on several core issues associated with the project, such as its likelihood of improving economic growth in a reasonably safe and environmentally acceptable manner, it is conflicted on issues such as the participation of First Nations, the desirability of new petroleum markets, the effectiveness of its own legislation and the overall public interest of the project. It should be noted that many of the conflicting statements may have occurred as a result of opinions being expressed by members of the current government who have won a seat in the parliament but are not members of the leading Conservative Party and so may have different perspectives and allegiances.

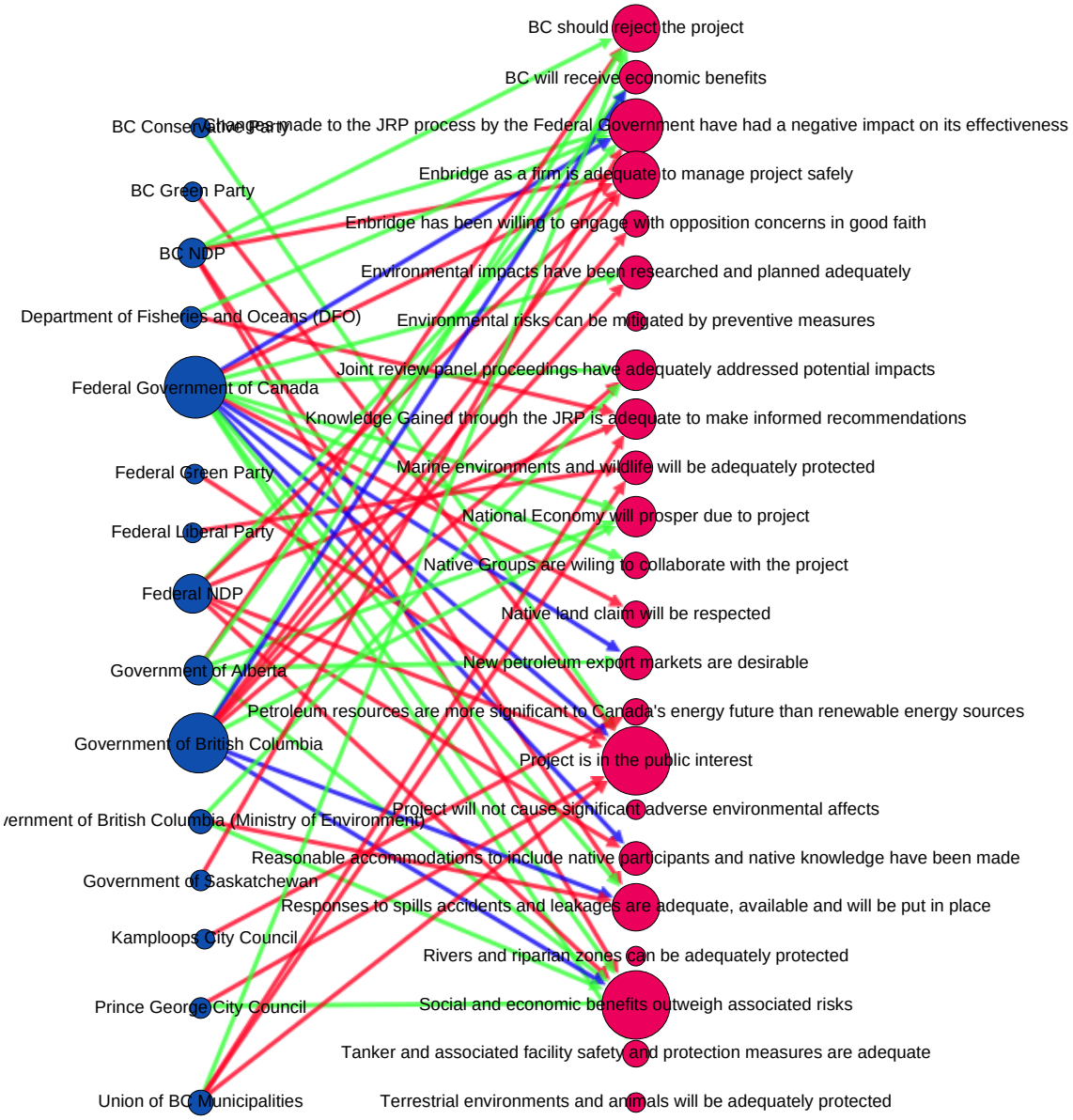

Figure 14 - Bipartite affiliation network showing government actors connected to significant categories

Table 7 - Most prominent categories for government actors

Most Prominent Categories for Government	In Degree	Primary Agreement
Project is in the public interest	7	Mixed
Social and economic benefits outweigh associated risks	7	Mixed
Changes made to the JRP process by the Federal Government have had a negative impact on its effectiveness	5	Mixed
BC should reject the project	4	Mixed
Enbridge as a firm is adequate to manage project safely	4	Disagree
Responses to spills accidents and leakages are adequate, available and will be put in place	4	Mixed
Joint Review Panel proceedings have adequately addressed potential impacts	3	Mixed
Knowledge gained through the JRP is adequate to make informed recommendations	3	Disagree
National Economy will prosper due to project	3	Agree

Table 8 - Most prominent government actors

Most Prominent Government Actors	Categories responded to	Statement Frequency
Federal Government of Canada	13	40
Provincial Government of British Columbia	9	38
Federal NDP	6	19
British Columbia NDP	5	10
Provincial Government of Alberta	4	160
Union of BC Municipalities	4	5
Government of British Columbia Ministry of Environment	3	3

Research Organizations

The presence of research organizations in the NGP discourse network is significant in so far as the concerns and preferences expressed by these organizations should represent positions informed by solid and peer reviewed research. It was observed during the coding of the network that upon the release of several studies and reports related to the NGP pipeline, the authoring organizations were frequently identified by media outlets and asked to make their position clear.

Figure 15 displays the various research organizations that made comment on issues related to the NGP project. The most frequently referenced category relates to the desirability of new petroleum export markets, with two organizations opposed to the formation of new markets and one in favor. A similar category related to the significance of petroleum in Canada's energy future is also present, and among research organizations shows a firm rejection of the idea that petroleum should play a more significant role than renewable resources. There is also some mixed agreement as to the impact of changes made to legislation governing the JRP.

There is consensus among research organizations that neither marine nor terrestrial ecosystems will be adequately protected and that knowledge gained through the JRP process is inadequate to make an informed recommendation regarding the project. Given the added weight that the research behind these positions provides, this would seem to be a significant factor in determining the project's overall feasibility and should be a key consideration in decision-making processes.

The twelve actors comprising this (Table 10) group are not homogeneous in nature; five are universities or university departments, five are independent research organizations, one is a commercial engineering firm that endeavors to undertake independent research and one is the United States National Transportation Safety Board.

One significant feature of this network is the prominence of the Pembina Institute, which could also have been categorized as an environmental

organization. The primary mandate of the Institute relates to clean energy transitions, but they were classified as a research organization in this analysis because of their large research interest and capacity. Pembina predominantly conforms to the prevailing agreement structure described above, but shows a conflicting position regarding the changes made to the JRP process.

Another significant feature of this network relates to the single connection made between the US National Transportation Safety Board (USNTSB) and the category suggesting that Enbridge as a firm is inadequate to safely manage the project. The USNTSB ultimately concurred with this statement in a widely publicized report reviewing Enbridge performance in the aftermath of several pipeline malfunctions that occurred on Enbridge operated lines in the US ((USNTSB), 2010). The full list of significant categories is included in Table 10.

Figure 15 - Bipartite affiliation network showing research organizations connected to significant categories

Table 9 - Most prominent categories for researchers

Most Prominent categories	In Degree	Primary Agreement
New petroleum export markets are desirable	3	Mixed
BC will receive economic benefits	2	Disagree
Changes made to the JRP process by the Federal Government have had a negative impact on its effectiveness	2	Mixed
Knowledge gained through the JRP is adequate to make informed recommendations	2	Disagree
Marine environments and wildlife will be adequately protected	2	Disagree
National Economy will prosper due to project	2	Agree
Petroleum resources are more significant to Canada's energy future than renewable energy sources	2	Disagree
Terrestrial environments and animals will be adequately protected	2	Disagree

Table 10 - Most prominent research organizations

Most Prominent Actors	Categories responded to	Statement Frequency
Pembina Institute	8	21
University of Victoria Environmental Law Center	5	0
University of California	2	4
Canadian Energy Research Institute	1	3
C.J. Peter Associates Engineering	1	2
United States National Transportation Safety Board	1	2
University of British Columbia	2	2

Developer

Enbridge, the developer of the NGP project, is unique in its position as an unequivocal advocate for the project. It is worth examining Enbridge's categorical connections separately for this reason, and little surprise is found in this particular set of connections. The developer responds to all the issues examined, but is not notably more concerned with any. Enbridge agrees with all categories that utilize a positive framing of the project, and the only categories disagreed with are those suggesting that BC should not participate in the project and that the changes made to the JRP had any negative effects (Figure 16).

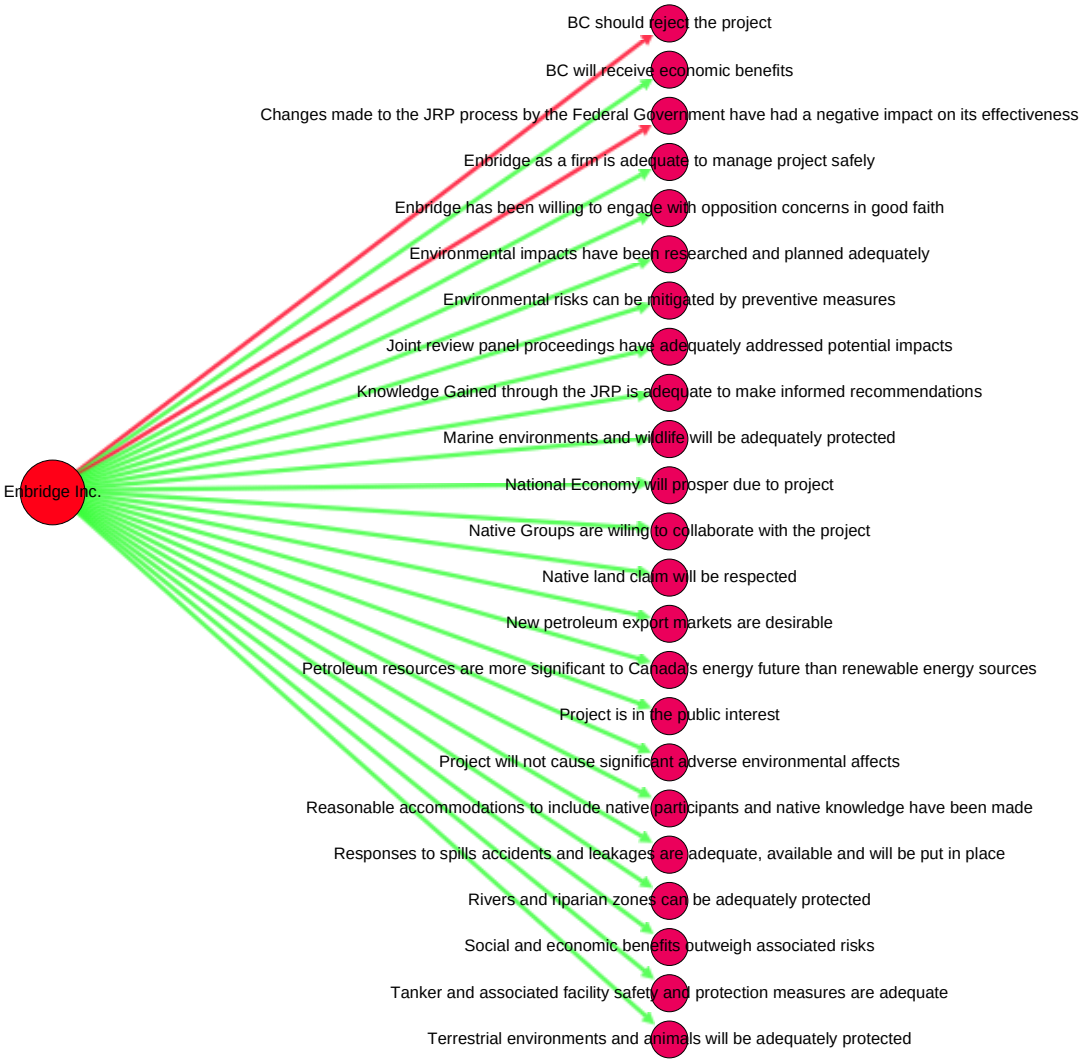

Figure 16 - Bipartite affiliation network showing the developer connected to significant categories

Remaining Groups

The remaining groups present in the networks represent less central stakeholders and provide fewer insights into the overall configuration of both actors and categories. Each group's connection to, and agreement with, the network categories follows generally expected patterns. Project opposition groups are unanimously focused on expressing the inevitable and unacceptable nature of the negative aspects of the NGP project, as well as the inadequacy of the JRP process to take these problems into account. Businesses and the professional organizations that represent them take the opposite position, stressing the overall benefits of the project and the total adequacy of the review process. Social justice organizations generally conform to the positions of environmental groups, but do not significantly factor into the broader social discourse. Finally, several media organizations have elected to express editorial opinion or otherwise made comment beyond merely reporting the positions of others, but these again are relatively insignificant in the overall network. These connections can be seen in Figure 17.

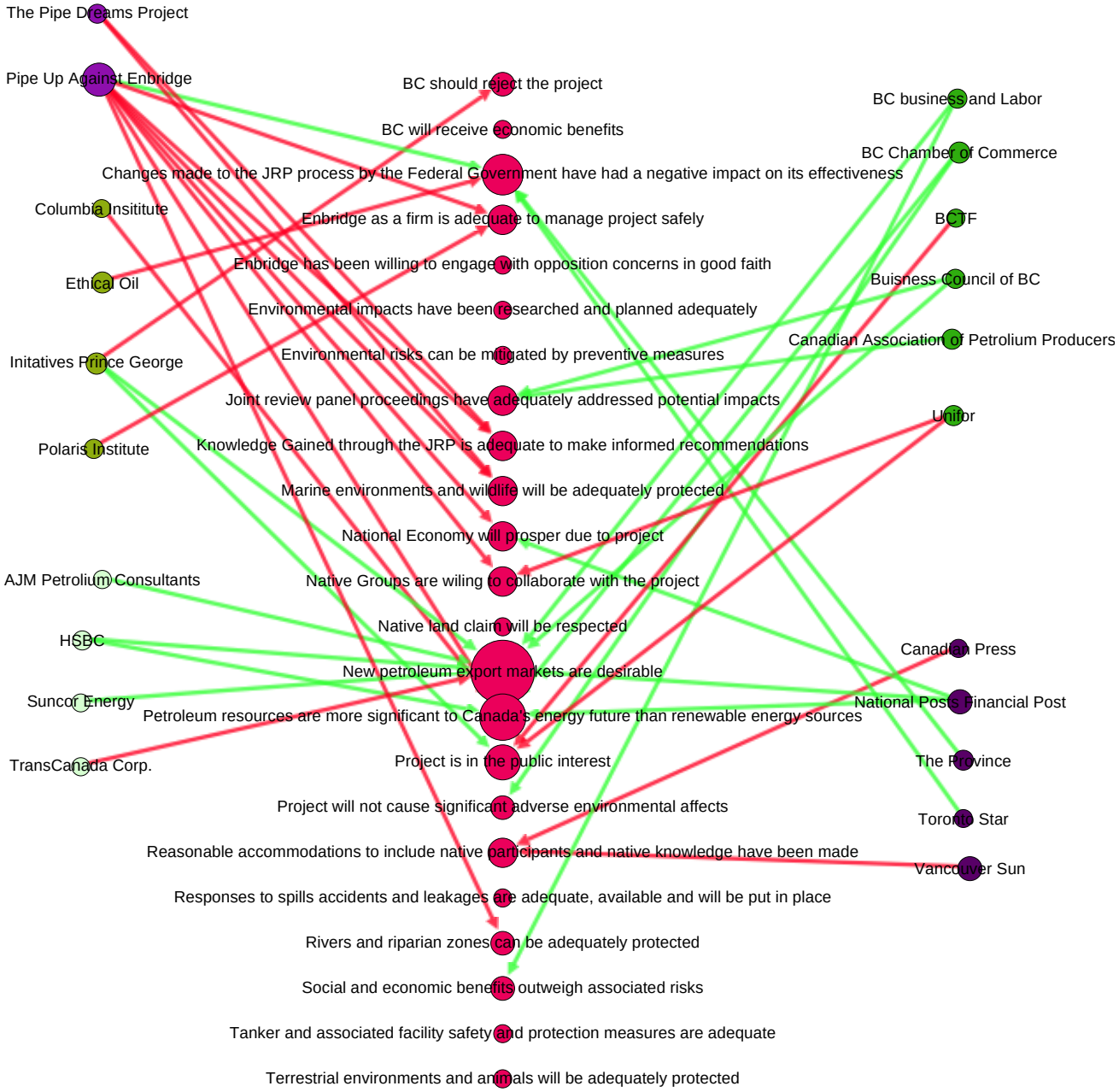

Figure 17 - Bipartite affiliation network showing remaining actor types connected to significant categories

Connections to extreme categories

Because the previous category co-occurrence network indicated a distinct cluster of extreme positions related to the NGP, it is also relevant to see which actors are connected to these categories. Figure 18 indicates which actors connect to these more extreme categories. Primarily, First Nations and environmental groups indicate the greatest agreement, but several research organizations and a range of government actors also connect to these issues. This likely indicates that although more extreme than the most central concerns and preferences identified, these are still relevant and important issues to many actors. Several of the most extreme categories level serious accusations against the Federal government of Canada. These objections are connected primarily to large environmental organizations as well as to a smaller number of First

Nations groups. However, this position is also supported to some extent by independent research organizations with the Pembina institute finding that *the Federal Government of Canada had acted unethically in support of the project* and the University of British Columbia finding that *Legislative changes made to the JRP had negatively impacted its effectiveness.* Another interesting category indicates a large number of First Nations agreements with the statement that *responsibility as caretakers of the land prohibit the project* and are supported by several environmental groups. Further, both actor types indicate a willingness to oppose the project regardless of the recommendations of the JRP.

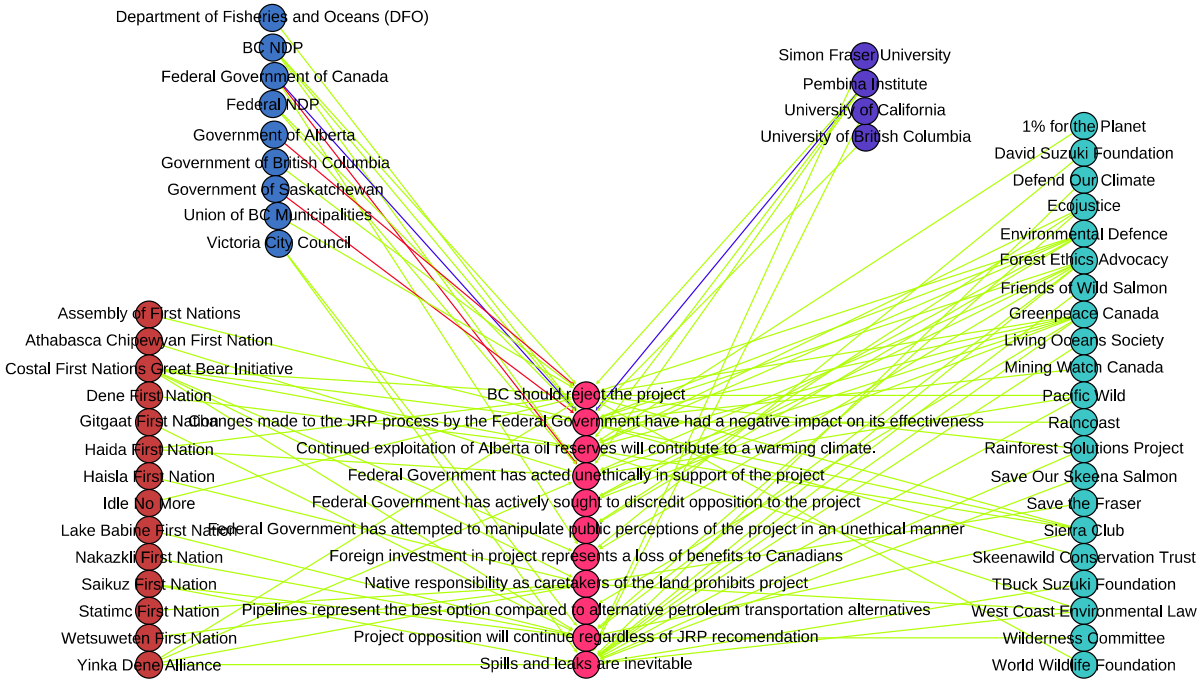

Figure 18 - Bipartite affiliation network showing actor types connected to extreme categories

Actor Co-Occurrence Agreement Network

A third possibility for exploring the NGP discourse network is through an actor co-occurrence network. This network is similar to the first co-occurrence network presented at the outset of this chapter, with the significant difference that the vertices in the network represent actors rather than categories. In the actor co-occurrence network, actor nodes are connected to one another with edges weighted according to the number of commonly agreed upon categories. If two actors respond similarly to a single given category, this accounts for an edge weight value of one between those two actors in the network. If they respond similarly to five categories, the corresponding edge weight will then be five. This type of network will provide the clearest account of connections that can be assumed to exist between actors as a result of their similarly expressed concerns and preferences regarding issues within a particular policy subsystem, in this case that related to the NGP project. This network is then suggestive of the likely

configuration of advocacy coalitions seeking to influence the outcomes of the project approval and development process.

The network formatting and layout tools used in this network are similar to those used in the category co-occurrence network, with some additional layout options utilized to highlight particular connections. To begin, a basic overview is presented using the force atlas algorithm (Figure 19). This layout tool alone again leaves the network picture too complex to be analyzed in detail, but it provides a snapshot into the basic structure of the network. In this initial network, layout node size is indicative of statement frequency, with colors adjusted to indicate actor type using similar groupings as were explored in the previous network.

Observations that can be made of the overall network at this resolution are limited to the fact that there are two notable clusters evident; one very dense cluster occupies the central position in the network and the other much less dense cluster stretches into the lower quadrants of the network. The dense central cluster primarily consists of a mix of environmental organizations and Aboriginal groups; however, the NDP at both the provincial and federal level appear strongly connected to this cluster as well. The strongest connections to Aboriginal groups in the primary cluster are with multi-band alliance organizations such as the Yinka Dene Alliance and the Great Bear Initiative. These alliances claim to speak with the voice of all associated First Nations, but some First Nations appear to connect only weakly with these organizations, if at all. This raises the question of whether the First Nations who exhibit weak connections to the multi-band organizations are in fact weakly connected to those groups, or if because they are represented by those multi-band organizations, they do not feel the need to register independent positions on the categories examined. Many of the individual First Nations who are weakly connected to the multi-band organizations in this network are official members of these organizations. Unless strong conflicts emerge in the subsequently conducted conflict analysis, it is therefore assumed that a lack of cohesiveness between Aboriginal organizations is not specifically indicated by weak connections between First Nations and multi-band organization. This view is supported by the preceding analysis that showed that, at least within provincial boundaries, First Nations and Aboriginal organizations were remarkably cohesive.

The lower secondary cluster is centered on Enbridge and includes many corporate and industry organizations that are tightly connected to the Alberta provincial government. The makeup of this cluster reflects and supports the results of the previous analysis, indicating that those constituent organizations primarily agree with the categories describing the project positively since they are clustered around the developer. This network is much less dense with fewer actors included within it, and the type of actors that make up this cluster distinctly differs from those found in the primary cluster. Some exceptions to this pattern can be found, with the two Alberta Cree First Nations bands that agreed to participate in the project appearing in this cluster.

The Federal government, and to a lesser extent the government of British Columbia, connect both clusters. The BC provincial government connects only weakly to the secondary cluster and is strongly tied to the primary cluster, while the Federal government is stretched fairly evenly between the two. This formation also corroborates the preceding analysis, which indicated the greatest number of mixed agreements coming from these two actors.

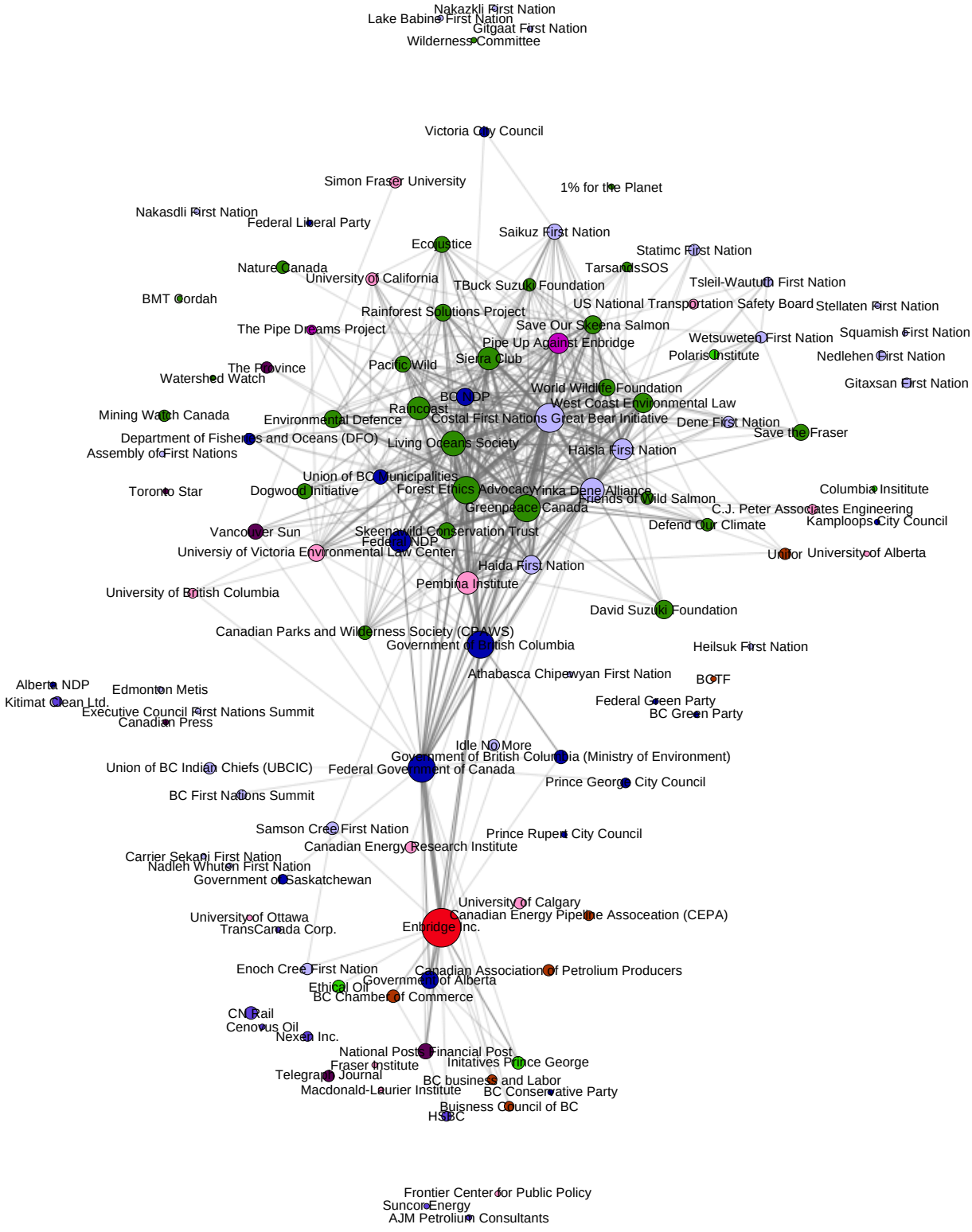

Figure 19 - Actor co-occurrence network

In order to make the network more readable, it is possible to filter the edge connections by weight to make the strongest connections significantly clearer by eliminating the weaker ones. It is also possible to rescale the node sizes to reflect their betweenness centrality rather than their frequency. This will highlight the stakeholders situated as a go-between or connection point for other stakeholders who may not otherwise be in direct contact with each other. This position of betweenness, and the bridging role it indicates, can identify an actor that poses a particular significance or power in the network and in the potential advocacy coalitions it represents. These features are combined in Figure 20.

The central cluster clearly remains much larger and denser than the lower cluster when the network is filtered by the edge weight of the connections. Within this cluster, the change in node size to betweenness centrality highlights the significance of the Coastal First Nations Great Bear Initiative as well as several of the most prominent environmental organizations identified in the analysis of the preceding affiliation network, including Green Peace, Forest Ethics Advocacy and the Living Ocean Society. The combination of the strong links between these organizations and their large size reflecting the scope of their influence suggests that these groups form the core of a likely coalition between environmental and First Nations groups.

Another large node in the network is, of course, Enbridge who is the center of the secondary cluster of project proponents. This cluster becomes much less dense when filtered by edge weight, but it still maintains connections to several diverse actor types, including research, government, media and professional organizations. Although these connections are maintained following filtering, there are virtually no direct connections between these other organizations themselves. All associations are dependent on a common connection to the developer, resulting in the very high centrality of the Enbridge firm.

The Federal and BC governments also register very high betweenness centrality, which is not at all surprising since these are the two actors who must endorse the NGP project if it is to proceed. BC is clearly more closely connected to the larger opposition cluster, with the Federal Government remaining stretched between the two camps.

Application of the modularity algorithm used before confirms the above analysis of coalition structures by providing similar results. Figure 21 displays four communities indicated by color. The red and turquoise colored communities represent primarily environmental and First Nations groups respectively. However, there is still quite a bit of overlap and displacement of nodes between the two groups, which is not surprising considering their close connections. The green community perfectly encompasses all of the stakeholders who seem to hold views supportive of the project, but also surprisingly includes the Government of British Columbia. The remaining purple nodes are again peripheral actors who are grouped together due to their mutual lack of connection. This algorithm does little to add to the analysis, but does improve confidence in the conclusions drawn as they are seemingly supported by a mathematical search for communities.

The take away message of this actor co-occurrence agreement network is quite clear. A large coalition of First Nations, Aboriginal groups and environmental advocacy organizations form a strong opposition to the NGP project. These actor types have champion organizations that have produced the most frequent and most diverse comments on the majority of the most significant issues found in the overall discursive environment. A modest number of large, resource rich, environmental groups seem to exist harmoniously in parallel to one another, while First Nations seem to pool their voices and their influence behind two significant multi-band organizations. This coalition of stakeholders will henceforth be referred to as the opposition coalition. Exhibiting contrary positions to this coalition, a smaller cluster of organizations centered on a single powerful actor, the developer Enbridge, can be seen. This coalition is supported strongly by the Alberta government and the corporate sector and will now be referred to as the developer coalition. The Federal government is the connecting point for these two communities, reflecting its role as decision maker in the project development process. While the Federal government maintains a more balanced affiliation between the two clusters, the BC government is more closely affiliated with the oppositional cluster than with the developer cluster; this is consistent with the findings above that although initially remaining uncommitted, BC increasingly voiced opposition to the project as events progressed.

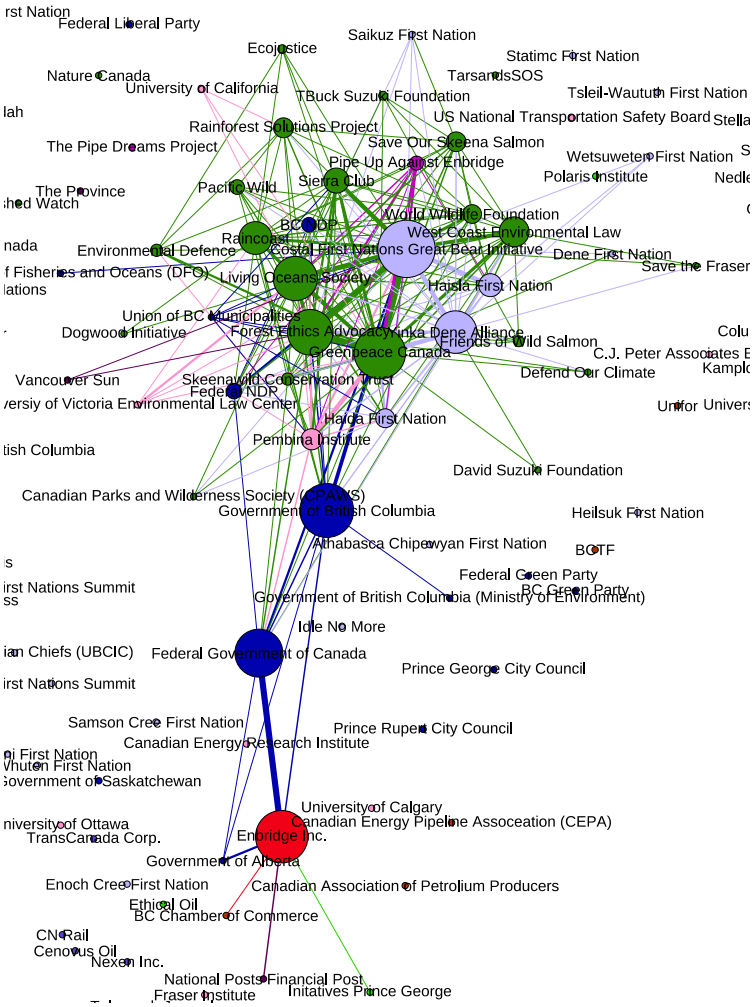

Figure 20 - Actor co-congruence network with edges filtered by weight and nodes ranked by centrality

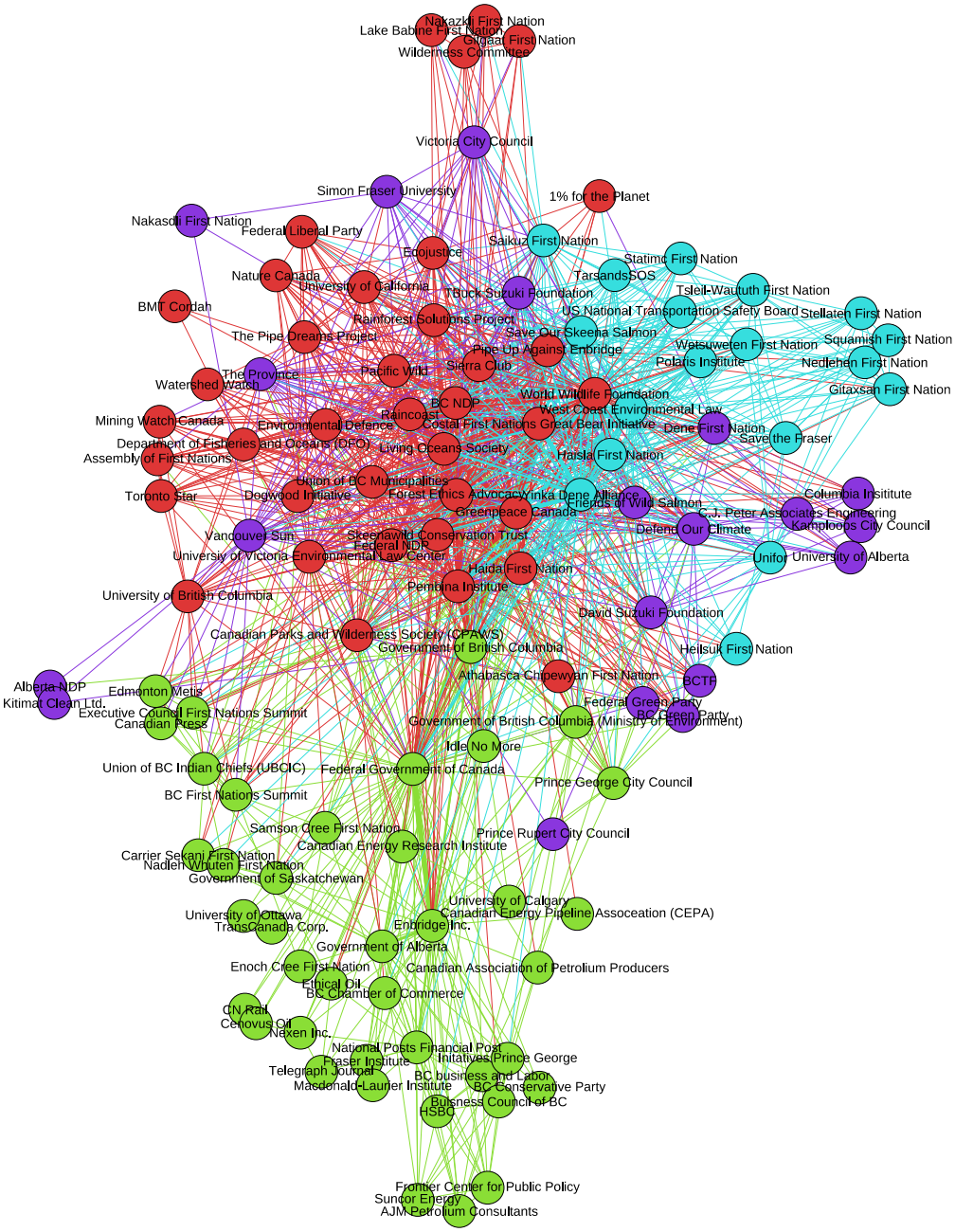

Figure 21 - Actor co-occurrence network with communities identified through a modularity algorithm

Actor Co-Occurrence Conflict Network

One final layer of information that can be extracted from the NGP discourse network requires reproduction of the actor co-occurrence network seen above, with edge values now indicating conflict rather than agreement. Where the previous network added a line value connecting two vertices when the two actors represented by the vertices express similar agreement to a category, the conflict network assigns a line value when the two actors express differing views on a category. A simplified version of this network with edges filtered by weight is presented in Figure 22 in which node size is indicative of degree, or the number of conflicting connections an actor has.

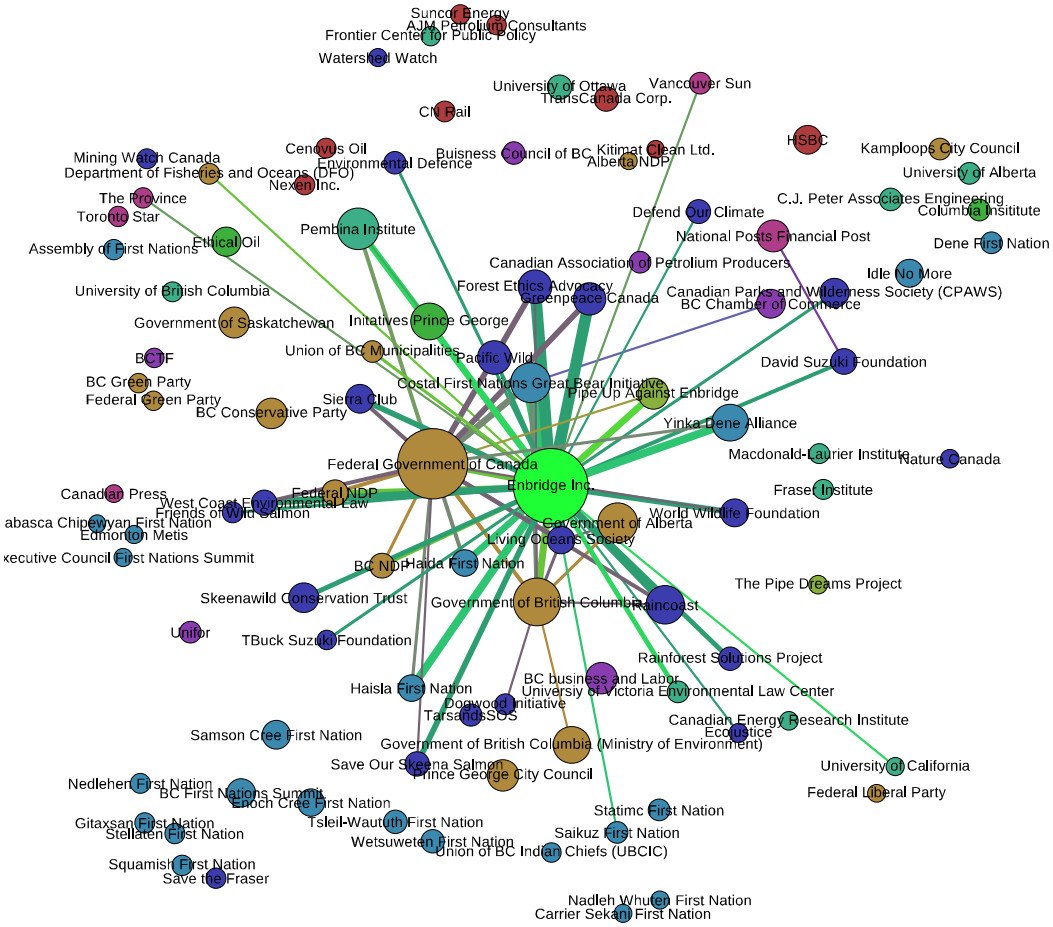

Figure 22 - Actor co-occurrence conflict network filtered by edge weight

It is evident that the Federal Government and Enbridge are involved in the greatest number of conflicts, but are not significantly conflicted with one another. The more prominent environmental, First Nations and Aboriginal groups appear as the most conflicted with both Enbridge and the Federal government. This result indicates that, although the previous network showed the Federal Government as relatively equal in agreement with both the oppositional and developer clusters, there is significantly more disagreement between the government and central environmental and First Nations and Aboriginal groups than there is with the developer. This network shows that the Federal government agrees with roughly the same number of concerns or preferences in each camp, but disagrees much more frequently with concerns and preferences held by First Nations, Aboriginal groups and environmental groups.

The opposite is true of the government of British Columbia, which displays a strong conflict with developers and much weaker conflict with the First Nations, Aboriginal groups and environmental groups that make up the project opposition. This result is less surprising than that showing the conflict between Federal government and the oppositional cluster, as a significantly weaker

degree of agreement was evident between the BC government and developers and so greater disagreement is to be expected.

One final observation of this network is that First Nations and Aboriginal groups do not indicate a significant degree of conflict between one another. This supports the assumptions made above regarding the degree of correspondence between the opinions of First Nations and multi-band organization, showing that the two most prominent multi-band organizations do indeed represent the interests of their member Nations effectively.

Summary of Findings

The preceding sections have analyzed discourse related to the NGP project through four different network configurations. The following summary will briefly discuss the findings of each.

Category co-occurrence agreement network

A category co-occurrence discourse network was analyzed in three ways: first, by assessing the frequency and weighted degree of the various categories; second, by filtering the vertices and edges within the network to allow the strongest and most significant connections to emerge, and third, by using a modularity statistic to identify communities within the broader network.

When the vertices in the network are ranked first by their frequency and then by their weighted degree and the results combined, it becomes possible to assess the relative significance of some elements of the overall population of categories and selectively remove the less relevant and connected concerns that are more peripheral to the overall debate. This allowed the list of categories under analysis to be reduced from 55 to 24. This list can be seen in Table 1.

The readability of specific connections within the network improves significantly after simplifying the list of categories under consideration, but to further enhance this network image, remaining edges were filtered so that only those with the greatest weight remain. This procedure is useful to this analysis, as the edge weight in this network is directly derived from the number of actors who share a position on that category and therefore is indicative of how central that category may be within any potential advocacy coalitions. This method of analysis yielded a much smaller network in which two tightly meshed clusters of categories connected very strongly to one another and to a small number of additional categories. This highlighted four themes in the concerns and preferences that were most commonly expressed: the ability of the developer to manage the project safely, the protection of marine environments, the involvement of First Nations participants and whether or not the NGP is in the overall pubic interest.

Finally, returning to the original unedited and unfiltered network, a modularity statistic developed to highlight the statistically most likely communities within larger networks highlighted four such communities, three of which prove significant. The first two communities analyzed contain between them virtually all of the significant categories previously identified, with the first of these two containing the vast majority. These two communities were the most centrally

located within the network and were very densely connected. What is interesting about the second community is that it contains an unusually high number of categories that related to issues specific to the province of British Columbia. This is a potential indication that these issues are more closely connected with a subset of the overall population of stakeholders considered in this network, which as a result causes these categories to become more clustered. This possibility should be kept in mind when considering the formation of advocacy coalitions and their affiliated belief systems.

The third community analyzed was also interesting; even though it was significantly removed from the central network, the two vertices that connect this community to the central network were both previously identified as significant, and display very high betweenness centrality scores due to their role in connecting this community to the broader network. In addition, many of the categories within this third community represent more extreme positions by expressing the most resolute and unconditional opposition to the project. This clustering could indicate the presence of a coalition of actors who hold these extreme viewpoints; however, it is also possible that, because this network only shows agreement between actors and does not indicate agreement or disagreement with the content of the categories, a subset of actors could resolutely oppose these categories as being too extreme, and these actors would then be clustered in the co-occurrence network. To determine which actors are connected to which specific categories, another type of network configuration is necessary and these connections were explored through an affiliation network.

Affiliation network

Following the category co-occurrence network, a bipartite affiliation network was constructed and a grouping of actors according to the type of organization they represent was introduced to organize the subsequent analysis. The findings are summarized according to each identified actor type in the affiliation network configuration.

For environmental groups, there is an overall high degree of consensus in terms of the agreed upon categories. A central core of several very vocal organizations is surrounded by a still significantly active group of smaller organizations. Their overall position is one that rejects the NGP project and its potential benefits as incommensurate with the potential harm that could occur as a result of spills, leaks and accidents. Categories related to marine environments appear of primary significance, with concerns over terrestrial and riparian areas being present but less prominent. Strong consensus exists that BC should reject the project and that legislative changes affecting the JRP process are negative.

For First Nations groups, a prevailing disagreement with a unique category indicating willingness to participate in the project dominates the list of significant concerns. With the exception of a single organization, BC First Nations and multi-band organizations are unanimous on this issue that participation in the project is impossible, and that without First Nations participation, so is the NGP project itself. Alberta First Nations are more willing to participate in the project and to cooperate with the developer. Although many bands have spoken

independently about NG issues, the primary actors representing First Nations interests are two large multi-band organizations that purport to speak for many voices against the project.

Government actors fall under one of three levels of government. The federal government supports the project overall, but is somewhat reserved on certain topics, potentially due to its role as final arbiter and decision maker. For the current Conservative administration, national economic benefits are a primary consideration, and research and planning into the project is seen as adequate. Despite having several strong views that tend to promote the project, opinions from the federal government are frequently mixed.

The Alberta provincial government is overwhelmingly in favor of the NGP project and its immediate development, finding all forms of planning and environmental review adequate. The British Columbia provincial government has ultimately come out against the project, citing a combination of environmental concerns, lack of Aboriginal agreement and perhaps of most significance, sparse economic incentives for its province as reasons. Questions as to the adequacy or effectiveness of the JRP process also emerge for the BC government. Municipal governments in BC have collectively moved to support the BC provincial government's position against the project.

The tendency from research organizations is that the organizations themselves make comment in areas informed by the research they have conducted. This has resulted in environmental research that has predominantly, but not exclusively, argued against the development of petroleum resources and markets for reasons related to climate change and carbon emissions, and unanimously has recognized that both marine and terrestrial environment are unlikely to be adequately protected if the NGP project is approved. Economic research suggests that the national economy will indeed prosper as a result of the project, but that the province of British Columbia will see little of this economic benefit. Finally, reviews of the JRP process itself suggests that knowledge gained through this process is inadequate to make informed recommendations regarding the project.

Other actor groups generally conform to logically expected positions, with corporate and industry actors supporting the project and social justice and project opposition groups rejecting it. The media appears in the network but is not a significant factor.

Actor co-occurrence agreement and disagreement network

Two final network configurations were used which indicate actor co-occurrences according to one of two algorithms intended to highlight agreement or disagreement. The agreement network produced two clusters of actors. A primary cluster was predominantly made up of First Nations, Aboriginal groups and environmental groups, but also included government actors in the New Democratic Party at both the BC provincial and federal levels[8]. A second, smaller

[8] The NDP are consistently present, but are seldom dominant actors in either provincial or federal politics. The NDP is often thought of as a 'third party' that is unlikely to win a leadership

cluster centered on the project developer and included a variety of actors primarily related to corporate or industry organizations as well as to the Alberta provincial government. These clusters seem to indicate the presence of two major coalitions with primarily opposing views on the NGP project.

Both of these clusters are connected to the BC and Federal governments. The Federal government demonstrates a fairly even split in agreement between the two clusters, while the BC government shows much more agreement with the opposition cluster of First Nations and environmental and Aboriginal groups than with the developers.

When the betweenness centrality of actors is considered, it seems that the opposition cluster is defined by two central multi-band Aboriginal organizations that appear to speak effectively on behalf of most First Nations and a small group of well-funded environmental organizations. Centrality measures place Enbridge Inc. at the center of the smaller developer cluster and indicate that virtually all significant connections run through the firm.

When the conflict network is included in this analysis, the finding that the BC government is much more closely tied to the opposition coalition is confirmed, as far greater conflict exists between BC and the developer. More interesting, however, is the indication that the Federal government registers far greater conflict with central First Nations, Aboriginal groups and environmental groups than it does with the developer coalition, suggesting that the Federal government is ultimately much more allied with developers.

role over the Conservative or Liberal parties at either the provincial or federal level, but they sometimes play a significant role as an official opposition.

5 Joint Review Panel Final Report and Policy Recommendations

This section address the second research sub-question regarding how the expressed concerns and preferences of stakeholder coalitions are addressed by the Joint Review Panel (JRP) through policy recommendations. The substantive content of this chapter is based on a thorough reading of the JRP final report (Panel, 2013b), interpreted in the light of the findings of the preceding discourse network. This is a useful means of evaluating the recommendations made by the JRP because the discourse network is intended to be reflective of a broader social discourse regarding the NGP project. Table 11 provides a summary of all the significant categories identified in the discourse network, indicating the preferences of actor groups and the treatment of that category in the JRP report.

The goal of this section is to explore the content of that report far enough to account for any substantive distinctions that may occur between it and the broader public discourse surrounding the NGP project. As would be hoped and expected in an environmental review process such as that undergone by the JRP, there is considerable overlap between the broader discourse and the JRP report. In fact, of the 24 most significant categories identified in the broader discourse, 20 are prominently featured in the JRP report. Many more specific concerns are addressed in the JRP report than were identified as significant in the network analysis, with much greater attention paid to addressing specific technical questions. As a result, the following analysis will acknowledge the substantive similarities, but will devote more attention to situations in which a particular issue or concern is missing from one source, or where a particular category is treated quite differently. Because both the JRP report and the research perspective used here draw on a sustainable development background, the three pillars of SD offer a useful common denominator by which to hold up and compare the two. As such, the contents of the JRP report will be broken down according to issues relating to *people, economics,* and *environment*, with a fourth category added to address issues of *safety, risk and knowledge* that span all three pillars.

Report summary

The primary stated objectives of the JRP are to accomplish three tasks (Panel, 2013b):

- Assessing what significant effects the project could have on people and the environment and how these effects might be mitigated (controlled, reduced, or eliminated) in accordance with the Canadian *Environmental Assessment Act*, 2012
- Considering whether the project is in the public interest and therefore should be recommended for approval under the *National Energy Board Act*
- Setting out conditions for safe and responsible construction and operation of the project

In assessing the significant effects that the project might have, the JRP has organized its investigation according to the three-pillared principles of sustainable development, devoting specific attention to the effects the NGP

project may have on people, the economy, and the environment. Each of these areas is addressed in turn in the JRP final report, with a final chapter assessing safety and risk.

People

The JRP report places significant emphasis on the inclusion of First Nations participants and traditional forms of knowledge alongside the concerns of the broader population. The report specifically takes the view that the public interest, which it seeks to uphold, must be understood in local, regional and national terms (Panel, 2013b, p. 11). First Nations' interests are seen as indicative of local concerns, with the knowledge these opinions provide being related to local traditions and use of land. The report cites participation by First Nations as:

"…an opportunity for Aboriginal people to learn more about the project and to place on our record their views about:

- Their traditional knowledge with respect to the environmental effects
- The effects any change in the environment resulting from the project may have on their current use of lands and resources for traditional purposes, and
- The nature and scope of their potential or established Aboriginal and treaty rights, the effects the project may have on those rights, and appropriate measures to avoid or mitigate such effects "
  (Panel, 2013b, p. 16)

Although the specific concerns raised by people are addressed in subsequent sections, the JRP report acknowledges that many participants, particularly those from First Nations communities, expressed a concern for "…the spiritual benefits they gain from living in a relatively untouched environment and the importance of preserving those benefits for future generations. Northern Gateway acknowledged these views and also said that the project area has seen industrial activity in the past, including mining, forestry, railway, and energy development" (Panel, 2013b, p. 20). Conversely, others presented the perspective that potential environmental and social impacts of the project were outweighed by the potential economic benefits. The report also acknowledges that some participants were not fundamentally opposed to development of the natural environment, but felt that the developers had failed to make the case that the risk posed by spills and leaks could be adequately mitigated through the proposed technologies and practices.

The panel ultimately concluded that both the JRP process and the actions of the developer demonstrated a willingness of all parties to acknowledge and consider a range of varied perspectives from diverse stakeholders, inclusive of First Nations viewpoints. The JRP report points to the 206 interveners and twelve government participants who contributed to weighing the information presented during the hearing proceedings and the more than 9,000 letters of comment which were received from the public as evidence of this. The use of video and audio telecommunication to allow participants from remote locations to be involved is also cited as strong evidence for the inclusiveness of the JRP process. It is acknowledged that some parties choose not to participate due to

project opposition or disagreement with the regulatory process and that these participants are seen as having given up their opportunity to voice their opinions (Panel, 2013b, p. 15).

Economy

The JRP final report explores the NGP project's potential economic impacts according to a range of considerations. The direct economic impact of the project is evaluated through factors such as the predicted volume of bitumen that will be transported over the lifetime of the pipeline and all taxes and tariffs that will be applied to this process. Indirect and induced economic impacts related to the construction and operation phases of the project are considered in terms of overall impacts on employment, demand for heavy and light manufactured goods and need for support and service industries.

Central to the economic analysis conducted by the JRP is an assessment of the projected crude oil supply in western Canada, which was provided by the developer. This projection calls for an expansion in production from 2.8 million barrels per day to 6.2 million by 2035, with almost all of this due to increases in oil sands production (Panel, 2013b). This increase, combined with evaluations of current and potential refinement capacity in Canada, leads to an economic assessment centering around the ability of the pipeline to accommodate the export of unrefined bitumen, in accordance with the numbers provided by the developer, to refineries located predominantly in Asia. This assessment also accounts for the increase in demand for the condensate necessary for transporting bitumen through pipelines. This demand would be met through delivery of fresh condensate to the new terminal facility in Kitimat, BC and transported thorough the return pipeline to Bruderheim, Alberta for use in future bitumen exports.

The desirability of opening and expanding markets for petroleum exports is hardly questioned in the JRP report; the prospect of developing domestic refining capacity was not being considered as an alternative to the proposed pipeline project. This was a theme identified in the political discourse network, with some actors advocating for a Canadian-run refinery to be built near Kitimat instead of the proposed tanker terminal. The only attention the report pays to this issue is to conclude that such future developments would not be hindered by the proposed project.

A significant focus of the JRP report that was not identified in the discourse network relates to the developer's ability to secure contracts with petroleum producers that would ensure the maximal utilization of the proposed pipeline. The report finds that sufficient commitment is present, and that the pipeline would be used to its full capacity.

At a national economic level, the JRP report considers the projected 30 year returns presented by the developer; these returns include a forecasted $310 billion[9] in Canadian GDP, $44 billion in federal government returns, $70 billion in

[9] Values are in Canadian dollars (CAD)

Canadian labor income and 907,000 person years of employment (Panel, 2013b, p. 31). The benefit of these returns is weighed against claims that economic estimates are overblown and that unforeseen negative economic effects could result. Potential problems that could conceivably occur include the so-called 'Dutch Disease' in which economic circumstances cause an increase in the value of the domestic dollar, making manufacturing and other exports less competitive. This situation could lead to a significant economic downturn, though the chance of this occurring following construction of the NGP is found to be unlikely by the panel.

Regionally and locally, economic considerations in the JRP final report focus more on the distribution of various benefits and the potential for negative economic consequences to occur in particular locations. The two main focuses in the report are on BC as a region and on First Nations communities in both BC and Alberta. BC is recognized as likely benefiting most from the construction phase of the project, but also faces the greatest risk should spills or leaks occur. The developer maintained that negative economic and environmental impacts resulting from such spills would be mitigated by extensive insurance and other funds. The developer also presents a range of initiatives aimed at guaranteeing that a significant number of economic incentives are directed towards First Nations communities in BC and Alberta. These benefits include training programs for First Nations workers, dividing contracts into smaller sizes to make them suitable for smaller regional firms and a tender and bid system that is fair to First Nations contractors (Panel, 2013b, p. 32).

One of the primary means through which the developer sought to bring direct economic benefits to First Nations is through an equity-sharing program that would lend the finances necessary to invest in the project to approved groups. This loan would then be repaid with a portion of the profits generated from the operation of the pipeline, leaving participating First Nations as owners and financial shareholders in the project. The developer claims that 15 of 18 of these offers have been accepted in Alberta, and 11 of 22 were accepted in BC. However, the developer refuses to release the names of the bands who have agreed, citing confidentiality agreements, and few have come forward voluntarily.

Ultimately, the finding of the JRP is that national economic interests are well served by the project. Although often difficult to estimate accurately, regional economic benefits can also be reasonably expected, and any economic burdens would be minimal and justified. The report concludes that the developer's efforts to insure that First Nations benefits are fairly realized are adequate and that the project is in their economic interest, despite the view of many BC First Nations that "the relative value of ecological goods and services are difficult to estimate and are therefore limited in their capacity to be utilized in decision making… and that… more work would be needed to fully understand the potential costs" (Panel, 2013b, p. 33).

This report seems to suggest that economic benefits to First Nations and other groups are not only certain and desirable, in the view of the JRP, but that they are

also more significant than other measures of value. This is evidenced by the fact that despite the acknowledged reality that much of what is valued by many participants in the JRP process, including ecological goods and services, are inadequately understood and cannot appropriately be utilized in decision making. Nonetheless, the JRP has judged the NGP project as being in the public interest, despite this inability to recognize the values expressed by many participants.

Environment

The basis of the JRP assessment that is then undertaken in the interest of protecting the range of ecosystems potentially impacted by the NGP rests on an evaluation of the case made by developers during the review process. The developers argue that, through better technology and other initiatives, the project could be constructed and operated with levels of safety and environmental disturbance that are better than or equivalent to those required of similar projects already in operation. In making this case, developers responded to the concerns of citizens, environmental organizations, First Nations and other participants of the joint review process, leading to a thorough and systematic account of best practices and technologies that would be utilized should the project be approved. The list of environmental concerns addressed by the developer and featured in the JRP final report is far lengthier and more detailed than the concerns identified in the boarder discourse through network analysis. The environmental issues outline in the JRP report covered a range of issues relating to marine, terrestrial and riparian environments.

It is of note that concerns over air quality were a part of the case presented by developers to the JRP, but were focused entirely on atmospheric impacts caused by the pipeline construction and operation and did not include any account of the inevitable carbon produced either through the extraction of the bitumen from the Alberta oil sands or through the refinement and eventual combustion of these fossil fuels. The possibility that additional crude oil production in Alberta will impact global carbon levels was a concern raised by several participants in the review process, most notably the environmental groups, but this issue was explicitly not considered in the findings of the final report. Reasons for this exclusion are discussed in the following section on incongruity between the discourse network and the JRP report.

In order to address the potential environmental impacts of the NGP, the developer has proposed specific mitigation and prevention measures, and additional requirements were added by the JRP. Some of the more significant initiatives proposed are noted to include:

- Thick-walled pipe, shorter intervals between isolation valves, and complementary leak-detection systems to reduce the likelihood and consequences of releases into the environment
- Trenchless crossings (drilling or boring) under many fish-bearing streams and rivers to avoid disturbance of bed and banks
- Habitat improvements and offsets to compensate for wildlife effects
- Tunneling through two mountains to reduce slide hazards
- Navigation improvements and use of escort tugs to reduce the risk of tanker accidents

- Reduced tanker speeds to lessen effects on navigation, fisheries, and marine mammals
- A whale monitoring vessel in place from May through October to survey the core humpback area before tanker passage and recommend course adjustments
- A Fisheries Liaison Committee as a mechanism for mitigating the potential effects of the project on marine fisheries

(Panel, 2013b, p. 47)

The JRP report ultimately finds that the evidence provided by the developer and other experts is sufficient for a decision regarding the likely environmental impacts of the project construction and operation, despite the disagreement of a number of participants in the JRP process. The conclusions drawn by the panel in light of this evidence are somewhat contradictory in their findings and cryptic in their expression; however, when carefully interpreted it appears that the panel reaches the following conclusions:

First, the panel finds that proposed "mitigation measures would provide environmental protection to species present in the area of the project, whether they are terrestrial, freshwater, or marine species. The degree of protection afforded by mitigation measures would increase if a species is already at risk" (Panel, 2013b, p. 57).

Second, the JRP finds that "…even considering Northern Gateway's proposed mitigation measures and our conditions, the project *would* cause adverse environmental effects, after mitigation, on a number of valued ecosystem components. These include the atmospheric environment, rare plants, rare ecological communities, old-growth forests, soils, wetlands, woodland caribou, grizzly bear, terrestrial birds, amphibians, freshwater fish and fish habitat, surface and groundwater resources, marine mammals, marine fish and fish habitat, marine water and sediment quality, marine vegetation, and marine birds" [emphasis added] (Panel, 2013b, p. 57). The obvious conclusion to be drawn from this second finding in light of the first is that, although somewhat effective mitigation practices are available, they will not be totally effective in preventing harm from occurring.

The third conclusion the report draws is the most convoluted in its wording and states that, "we [the panel] do not recommend a finding that potential effects, from the project alone, are likely to be significant for any of these valued ecosystem components" (Panel, 2013b, p. 57). The complexity of the wording of this finding lies in phrasing the sentence in terms of the recommendation that is not being made. In essence, the panel advises that impacts on the above mentioned ecosystem components would occur, but that they would *not* be significant. A further complexity is also added to this recommendation by the introduction of the caveat that this recommendation applies only to impacts resulting from "the project alone." This in part explains the contradictions introduced by the panel's fourth finding.

Noting that consideration was also paid to the *cumulative effects* on each valued ecosystem component[10] it is found that, "In two cases … project effects, in combination with effects of past, present, and reasonably foreseeable projects, activities, and actions, be found likely to be significant. These were effects on woodland caribou (for the Little Smokey herd of the boreal population of woodland caribou and the Hart Ranges, Telkwa, Narraway and Quintette herds of the southern mountain population of woodland caribou) and eight grizzly bear populations that would be over the linear density threshold (Panel, 2013b, p. 57). The inference that can be made regarding this fourth finding is that despite the previous conclusion that no substantial environment impacts would occur, several populations of at least two species are likely to be significantly affected when cumulative factors are considered. Although acknowledging the significant impacts to these species that would likely occur as a result of the NGP, the JRP "recommend[s] that significant effects in these two cases be found to be justified in the circumstances" (Panel, 2013b, p. 57).

Safety, risk and knowledge

The JRP report goes into significant detail in measuring and assessing the potential risks of leaks and spills and the range of possible consequences should they occur. The safety history of Enbridge is specifically raised by many participants in the JRP as an issue of concern due largely to a rupture in an Enbridge-run pipeline in Kalamazoo, Michigan in 2010. Despite being electronically identified by a manned pumping station, this rupture went unaddressed for several days, resulting in the release of approximately 3,191 liters of oil into the surrounding river system (EPA, 2014). This accident raised the ire of the US Transportation Safety Board who published a scathing report on the safety practices employed by Enbridge ((USNTSB), 2010). The developer responded to the USTSB report by stating that significant adjustments had been made to the corporate culture and practices as a result of the recommendations made by the USTSB.

Beyond concerns over the ability of the developer to deal with pipeline maintenance and monitoring, the JRP report notes that concern has been expressed over harsh weather conditions that occur in the mountains of BC where the pipeline would be located as well as along the proposed tanker route. This leads to additional concerns over spill and leak potential, yet the developer maintains that all such conditions were, or could be, included in the proposed prevention and mitigation initiatives. The potential environmental consequences of spills and leaks were also significantly addressed, with much attention directed to the effects on wildlife and ecosystems. The behavior of bitumen, in comparison to other heavy crude, is of major significance in these concerns, and has resulted in conflicting expert opinions being produced by project developers and opposition. If spilled bitumen were to enter the water system, developers suggest that it would float like any other hydrocarbon product, which would allow for relatively simple cleanup. Opposition groups, on the other hand, suggest that it might sink and potentially form a solid layer over the seabed, causing significant ecological damage and species destruction.

[10] Consideration of cumulative effects is stipulated in the Canadian *Environmental Assessment Act* 2012.

The developer was obliged by the JRP to present a detailed emergency spill response plan, which, among other provisions, would provide additional protection and response measures to sensitive portions of the ecosystem. A major point of controversy between project supporters and opposition related to the transfer of liability for spills from the developer to the operators of tanker vessels located a short distance from the terminal. Many participants have questioned whether or not these unidentified firms would have adequate means to respond effectively to a major spill. To address this concern, Enbridge agreed to maintain $950 million CAD in readily available assets and insurance that would be used for cleanup efforts, but some participants feel that this response is insufficient since the costs associated with major spills could greatly surpass this figure.

Ultimately, the JRP report finds that Enbridge has demonstrated improvements in its culture and practices that make it sufficiently capable of safely constructing and operating the pipeline. While acknowledging that some risk is always present, the potential for spills and leaks are evaluated as low and acceptable given the likely response and available mitigation measures. Significant environmental impacts are anticipated should a spill occur, but mitigation measures and natural processes are considered to make these temporary, with ecological recovery likely. Speculation regarding the behavior of bitumen in water was specifically addressed, with the result that it was determined to be unlikely to sink in solid layers as a result of natural weathering(Panel, 2013b).

All of the findings regarding the potential for safety and other risks associated with the NGP are, of course, rooted in the implicit finding by the JRP that adequate knowledge from which to make informed policy recommendations has been acquired during the review process.

What is Missing from the JRP Report

The content of the JRP report overlaps significantly with the issues raised in the broader social discourse surrounding the NGP project. There were, however, four categories found in the discourse network analyses that were either not raised by the JRP or were specifically omitted from the final report. These categories were:

- BC should reject the project
- Changes made to the JRP process by the Federal government have had a negative impact on its effectiveness
- Continued exploitation of Alberta oil reserves will contribute to a warming climate
- Petroleum resources are more significant to Canada's energy future than renewable energy sources

British Columbia

The first of these points relates to a preference category in the discourse network that refers to the prospect of BC refusing to endorse or provide permits for the construction and operation of the NGP project. This was a major question

in the broader public discourse and related to an ongoing, public exchange between the Alberta and British Columbia premiers. BC Premier Christy Clark initially made strong demands of the Alberta provincial government, led by Premier Allison Redford, regarding the financial gains that BC might expect. After some heated exchange through the media, a more amiable dialogue emerged between the two premiers. The Alberta government remained adamant that it was not responsible for the profits of British Columbia and stated that Clark should seek greater compensation from the company through tariffs levied at the Kitimat tanker facility. Much of this exchange was likely influenced in part by the local political considerations of each premier, neither of whom wished to appear soft to constituents.

The position taken by the Government of British Columbia since 2012 is a provisional acceptance of the project, subject to five conditions that must be met. These conditions are:

1. Successful completion of the environmental review process. In the case of NGP, that would mean a recommendation by the National Energy Board Joint Review Panel and subsequent approval by federal cabinet that the project proceed;
2. World-leading marine oil spill response, prevention and recovery systems for B.C.'s coastline and ocean to manage and mitigate the risks and costs of heavy-oil pipelines and shipments;
3. World-leading practices for land oil spill prevention, response and recovery systems to manage and mitigate the risks and costs of heavy-oil pipelines;
4. Legal requirements regarding Aboriginal and treaty rights are addressed, and First Nations are provided with the opportunities, information and resources necessary to participate in and benefit from a heavy-oil project; and
5. British Columbia receives a fair share of the fiscal and economic benefits of a proposed heavy-oil project that reflects the level, degree and nature of the risk borne by the province, the environment and taxpayers.
(Newsroom.gov, 2012)

The wording of several of these conditions is highly vague which, as a result, makes adequately meeting these requirements virtually impossible. The second and third conditions, stipulating 'world-leading' responses to leak and spills prevention and cleanup, has no official definition and so is up for interpretation by the BC government. The definition of 'a fair share' of the fiscal and economic benefits expressed in condition five is similarly vague and open to interpretation. Condition four, which stipulates that Aboriginal legal rights be fully addressed, is a major barrier not likely to be fully resolved any time soon. As the discourse network shows, Aboriginal opposition to the project is much stronger in BC; coupled with the fact that official treaties do not extend beyond the Alberta border requiring that aboriginal land title disputes be resolved through the court system, this suggests that a legal challenge from any of the many BC First Nations could forestall legal resolution of the NGP project for the duration of a lengthy court proceeding. A number of First Nations bands have filed law suits attempting to prohibit the federal cabinet from considering the JRP final report in their decision making process, some arguing that the report inadequately identifies or addresses impacts to the environment or on First Nations communities, others positing that the review process failed to meet the legal requirement for consultation with native communities (Canadian-Press, 2014).

Although the JRP report does address the concerns listed in the BC government's conditions to some extent, it does not at any point address the reality that the provincial authority responsible for more than half of the territory to be crossed by the proposed pipeline and the site of the proposed tanker terminal may potentially move to block the project. This is perhaps not entirely unexpected, given that the JRP process is primarily concerned with providing the Federal Cabinet with adequate information and recommendations regarding the project's impact on the public interest and not with the political ramifications of provincial opposition. Nonetheless, this aspect of the NGP issue is a critical element affecting the ultimate outcome of this project, particularly considering the significant power that the province of BC wields.

Changes to Canadian environmental legislation

Another issue that is evident in the discourse network but not the JRP final report relates to the function of the JRP process and the procedural changes that resulted from alterations to its governing legislation in 2012. The primary concerns raised about these changes relate to the length of the JRP proceedings, the scope of the potential impacts investigated by the panel and the consideration of project alternatives.

The substantive changes made by the *Canadian Environmental Assessment Act* (CEAA) 2012 have significant impacts on the number of projects that will receive impact assessment and the type of assessment that certain projects will receive. The majority of these changes apply primarily to small and medium projects and so do not affect the NGP; however, some significant changes do have consequences for the JRP process proscribed for projects of this scale.

The first change to attract public opposition relates to the length of the JRP process. CEAA 2012 limits the timeframe of any Joint Review process to 24 months. Network analysis identified a number of parties who felt that this two-year window was insufficient for adequate scientific evidence to be presented in order to make an informed assessment of the issues being addressed by the panel. These were primarily environmental groups challenging the thoroughness of the scientific review of effects on affected ecosystems.

Critics of the JRP process also highlighted that consideration of environmental effects under CEAA 2012 is limited to effects on fish and fish habitat, aquatic species at risk, migratory birds, federal lands and aboriginal peoples. As well, a federal authority must only consider changes to the environment that are "directly linked or necessarily incidental" to that federal authority's exercise of power in relation to the project (CEAA 2012). This contrasts with the previous CEAA, which considered effects on all aspects of the environment: land, water, air, organic and inorganic matter; all living organisms; and interacting natural systems. This change in wording, and the limits on the scope of investigation that they imply, limit the JRP process to considering only the environmental impact directly related to the project under consideration. This eliminates from the JRP report any consideration of the '*in*directly linked' or '*not*-necessarily incidental' impacts, including the impact of the nearly doubling in size of the Alberta oil

sands as facilitated by the improved export capacity that the NGP would provide. Also excluded are the impacts resulting from the transportation of the exported bitumen beyond the Kitimat tanker facility, the impacts of the refinement process necessary to render bitumen into a useful fossil fuel and the impacts resulting from the combustion of those refined hydrocarbons. This limitation is explicitly mentioned in the JRP report; hence no effort is made to hide this shortcoming. Nonetheless, it prevents the JRP process and its final report from considering issues related to global warming, climate change or other issues related to international sustainability goals.

In the broader public discourse, critics have raised concerns over changes to the previous CEAA that removed the requirement for consideration of the need for the project and of alternatives to a project in the course of a federal environmental assessment, despite both factors being key considerations for achieving sustainability. As well, the requirement to consider the capacity of renewable resources that are likely to be significantly affected by the project to meet present and future needs is removed from CEAA 2012. This effectively eliminates the possibility of including in the JRP process any discussion of the desirability of pursuing an energy future that is not heavily dependent on, and invested in, fossil fuels. As well, it precludes discussion of the value of an energy future involving renewable resources.

Congruity and Incongruity with Discourse Network

Continuing with the three pillars structure, it is relevant to make some comment on the major similarities and differences between the findings of the discourse network analysis and the JRP final report in the areas where they do overlap. This section will discuss each of the three focal areas of sustainable development, as well as the evaluation of risk, safety and knowledge.

People

In the area of human concerns, the findings of the discourse network presented in Chapter Five highlighted issues almost exclusively related to First Nations rights. The issues raised included concerns surrounding the traditional practices of First Nations and the respectful preservation of Aboriginal land and title, as well as the inclusion of First Nations participants and use of traditional knowledge in decision-making processes. The willingness of Enbridge to participate with opposition groups in general was also mentioned. Other concerns related to impacts on non-Aboriginal communities were present in the discourse network, but did not rank among the most significant categories and so have received little attention here.

The attitude that prevails in this discourse network is one in which First Nations and Aboriginal groups, supported strongly by environmental and social advocacy organizations, feel that the impacts of the NGP project would significantly impact traditional practices and infringe on land titles. Most First Nations and Aboriginal groups are explicitly unwilling to collaborate in any way with furthering the project and will instead actively oppose it. Many of these groups also see participation in the JRP process as desirable, if only to further this end;

however, the issue of Aboriginal land claims is an ongoing and fluid area. Although the JRP may be one venue in which these issues are discussed, the actual definitions and boundaries of Aboriginal title in BC are not explicitly clear since there are few existing treaties west of Alberta. Judicial bodies at both the provincial and federal level are presently determining the extent of First Nations authority and control over as yet undermined land areas. The implications of this is that the authority over use and decision making processes that First Nations communities have over traditional land is unclear, but being defined currently in such a way that the range of land considered to be traditional territory is more clearly defined and the ability of First Nations to exercise authority over that land more firmly established. This also has implications in terms of what constitutes adequate consultation with Aboriginal peoples.

As the above account of the JRP report indicates, significant time and attention was dedicated to the exploration of First Nations concerns and preferences. Additional attention was devoted to small, medium and large communities along the proposed pipeline route. This section of the report is relatively analogous to the issues identified in the discourse network, albeit with greater detail attending to non-Aboriginal communities. The overall direction of the issues raised in the JRP proceedings was also congruent with the analysis of the discourse networks. Both indicated supportive positions, suggesting that economic concerns represent valid justification for potential risk, as well as strong oppositional perspectives expressing the position that the risks were not worth the reward.

What is incongruent between the two is that the discourse network observes an overwhelming opposition to the project from Aboriginal groups, both from those who participated in the JRP process and those who held objections to the review process itself, while the JRP report finds that Aboriginal perspectives have adequately been incorporated into the reports findings. This finding in the report is in conflict with the attitudes and opinions held by many of the First Nations participants who maintain that their traditional land claim is still violated by the proposed project, regardless of the conditions placed on its construction. In light of the final report, the JRP process is considered to have failed at adequately considering the knowledge and experiences brought forward by First Nations participants. This objection is highlighted by the fact that at least ten Aboriginal groups have subsequently filed lawsuits with the Supreme Court of Canada seeking a judicial review of the JRP report. The Gitga'at First Nation has focused their criticisms on a general failure of the JRP to consult with Aboriginal groups (Canadian-Press, 2014). Other bands, such as the Gitxaala First Nation, have made more specific allegations, stating that the information presented to the JRP regarding impacts on traditional First Nations practices has been inadequately considered. Nine expert witnesses representing the Gitxaala Nation produced and submitted 7,500 pages of evidence and a 320 page submission asserting that tanker traffic in Gitxaala territory would significantly impact traditional fishing practices, yet this information was seen as being dismissed and ignored (Gitxaala, 2014).

Economy

Discourse network analysis highlighted that questions have been raised as to the economic benefits generated by the NGP project at the national, regional and local levels. Nationally, the impact on Canada's economy was a concern. Regionally, the potential economic benefits that could be obtained by the province of British Columbia were questioned. At the local level, the concerns of greatest significance related to jobs and economic returns to be experienced by Aboriginal communities. In addition to specific economic impacts, it was noted that the desirability of new petroleum export markets was also a significant question.

National Economy

There is little evidence found in the discourse network suggesting concern that the project, if constructed, would fail to result in an increase in national GDP. There is strong consensus that the NGP project would benefit the Canadian economy, and this position is empirically supported by research conducted through several research organizations. What many stakeholders do question is the implied choice to increase the GDP through an increase in oil production and export. This is closely related to the issue of the desirability of new petroleum export markets, which stakeholders in the large oppositional coalition identified as undesirable due to the inherent increase in non-renewable energy that this would entail. Those stakeholders supporting the project tend to see new export markets purely in terms of their financial benefits, a position that is much more in line with the findings of the JRP report.

Regional Economy

Regional concerns identified in the discourse network focus largely on BC, and the perception is that the province will only benefit minimally in terms of economic return, while at the same time being vulnerable to the majority of the potential negative impacts of the project. This concern is expressed through the five conditions the government of BC has issued in order to ensure its cooperation in the project; these five conditions highlight the need for both greater economic incentives to fairly compensate BC for the risk it takes and for clear measures to be put in place to reduce that risk.

The JRP report does not specifically take the BC government's five conditions into account; it instead argues that safety and risk reduction are a consistent part of all aspects of the review and project development process, and that the economic benefits BC is likely to experience will primarily result from the economic stimulation that building the pipeline will cause. Less economic benefit will be experienced during the 30-50 year lifespan of the project, but ongoing jobs created at the Kitimat tanker station are pointed to as a source of provincial economic benefit.

Local Economy

Local economic concerns found in the discourse network focused primarily on the realization of benefits by First Nations. Some concerns over non-Aboriginal communities were identified, but were far less prominent in the network. The concerns expressed generally stated that other forms of material benefits that were valued by First Nations, such as the ability to hunt, trap, fish and gather,

would be negatively impacted by the project. Regardless of the financial incentives provided by the project, loss of these non-financial forms of value would result in a fundamental erosion of traditional culture and practice in these communities.

The JRP report recognizes the distinct values held by Aboriginal groups and acknowledges that it is ill equipped to weigh these forms of cultural value alongside economic considerations. Protection of traditional First Nations practices is seen largely as an issue related to the mitigation of impact of the project. The form of value that the JRP focuses on in relation to First Nations communities emphasizes policies intended to ensure Aboriginal employment in the project construction and operation as well as opportunities for Aboriginal groups to become investors in the project through an equity-sharing program proposed by Enbridge.

Environment

The discourse network highlighted concerns over marine, terrestrial and riparian ecosystems, although concern over marine environments was most prominent. The prevailing attitude of project proponents was that potential impacts to these ecosystems have been thoroughly researched and can be adequately protected by proposed mitigation and safety measures. Project opposition unsurprisingly takes the opposite view: that these environments are diverse and complex and will in fact be negatively impacted to various and potentially unknowable extents. This opposing position is supported in research presented by some research organizations identified through the discourse analysis, but is also in some cases contradicted by research presented by the developer. Not all of the research identified in the discourse network was admitted into the JRP proceedings, with several publications related to impacts on whale populations near the Kitimat tanker terminal and the behavior of bitumen in seawater in particular being omitted. The government of BC takes the stance that inadequate research has been conducted to make an informed decision and expresses considerable concern over impacts to marine and terrestrial environments.

The findings of the JRP were, as noted, that minimal environmental impacts would be experienced primarily during the construction phase, and that some significant impacts could likely befall certain populations of terrestrial animals. These risks were nonetheless found to be acceptable consequences in light of other benefits. This conclusion of the JRP report contrasts with the position of the oppositional coalition identified in the discourse network, both in that it places greater emphasis on terrestrial rather than marine impacts and in that it sees other benefits as potentially outweighing those impacts.

The environmental concerns provided by the discourse analysis are in many ways much broader than those raised in the JRP report in so far as these concerns reflect apprehensions over not only the imminent impacts to the environment, but also the ultimate ramifications of unknown factors such as long term implications of Alberta oil production. The long-term impacts of the Alberta oil industry were prominent concerns of actors within the oppositional coalition

found in the discourse network, but they were specifically omitted from consideration in the JRPO report. This example reflects a general tendency for the JRP report to focus primarily on quantifiable environmental impacts that can be evaluated in terms of associated costs and the effectiveness of proposed mitigation measures intended to address these effects. By contrast, project opponents identified in the broader social discourse questioned the ability of project developers and regulators to predict and mitigate longer-term problems.. This contrast between opinions expressed in social discourse and the conclusion drawn in the JRP report becomes even more evident in the next section related to safety, risk and knowledge.

Safety, risk and knowledge

Concerns over the evaluation of safety, assessments of risk and whether or not adequate knowledge has been acquired relate to the preceding categories in many ways, but they are grouped together here because they are more reflective of the values that inform decision making rather than the issues over which decisions are made. The categories of this type reflected in the discourse network focused on the ability of the developer to safely mange the project and to respond to potential spills, accidents and leakages in a timely and adequate way. The ability of the JRP to adequately address the full range of potential impacts and to gather adequate knowledge to make informed policy recommendations was also of major concern. Underlying both of these concerns is a fundamental apprehension over the ability of precautionary measures to mitigate negative environmental risks. These concerns in turn relate to a range of perceptions of the relative balance of social, economic, and environmental benefits that form the crux of any evaluation of whether or not the project is indeed in the public interest.

Safety issues are fairly polarized in the discourse examined in constructing the discourse network presented in chapter four. The project developer coalition is firmly of the perspective that adequate safety practices are available and will be in place within Enbridge as a firm, as well as incorporated in the project design and construction to such an extent that all reasonable and necessary precautions have been taken and risks minimized to acceptable levels. This coalition expresses the belief that all aspects of the project are fully understood and adequately addressed by the JRP and that the actions recommended through the JRP can mitigate undesired impacts. This perspective ultimately leads to the conclusion that the NGP project is significantly in the public interest.

The oppositional coalition, in contrast, views safety issues as substantial and unresolved. The comprehensiveness of the review process was questioned, both in terms of the scope of its investigation and the completeness of the knowledge that was gained through the review process. A number of environmental organizations and First Nations maintain that inadequate scientific knowledge was considered to justify the conclusions drawn in the JRP final report. Ecojustice, representing several of the key environmental stakeholders, and a range of Aboriginal groups, all of whom are members of one of the two major First Nations alliances, have filed lawsuits demanding that the findings of the JRP

report be overturned or revised in light of missing or inadequately considered evidence

These legal challenges asserting that the JRP process was concluded without adequate knowledge are further supported by two major research reports that have been produced since the release of the JRP final recommendations. One, produced by Fisheries and Oceans Canada[11], provides a much overdue recovery strategy for North Pacific humpback whales, a strategy which was legally required to be completed as a result of the *Species At Risk Act* (SARA), but whose release was significantly delayed. This report suggests that increases in tanker traffic off the BC coast would be detrimental to whale populations. The second report, released by Environment Canada and funded by the developer, was conducted as one of the 209 conditions imposed by the JRP to explore the effect of bitumen in seawater. The report concluded that under likely conditions faced off the BC coast, bitumen is liable to sink, thus rendering the majority of proposed cleanup approaches and technology ineffective.

Concern over negative environmental impacts and the ability of the developer to safely mange the project were prevalent in the network and in the JRP report, reflecting concerns over the adequate installation of safety equipment, response planning etc., at one level and concern over the developer's ability to utilize these resources adequately once in place at another level. These questions regarding the installation and effective use of protection and mitigation measures underlie the most fundamentally subjective categories regarding whether or not the project will generate sufficient benefits to offset potential risks. The resulting conclusions from this calculation will determine whether or not the project is, in fact, in the public interest.

Government actors who do not fit easily into either of these primary coalitions show less consistent perspectives. The Government of British Columbia expresses far less certainty on safety issues, offering mixed opinions on the adequacy of knowledge in the JRP, the ability to respond to spills, accidents or leaks and the weighting of social, economic and environmental costs and benefits. The Alberta Government takes a more definitive stance in defense of Enbridge and the potential of mitigation measures to prove effective. The Federal Government maintains some reservations as to the safety record of Enbridge, but is fully in support of the knowledge gathered through the JRP. As demonstrated through the discourse network, the Federal Government's belief is that, despite being explicitly of the opinion that expected social and economic benefits outweigh the potential risks of the project, it is still mixed in its responses as to whether or not the project is indeed in the public interest. This position could reflect some internal inconsistencies between ministries of the Federal Government or an unwillingness to endorse publicly the project prior to the official decision.

[11] The Department of Fisheries and Oceans (DFO) has the lead federal role in managing Canada's fisheries and safeguarding its waters. The Canadian Coast Guard (CCG), a Special Operating Agency within the DFO, is responsible for services and programs that contribute to the safety, security, and accessibility of Canada's waterways.

The perspective presented in the JRP report is much less ambiguous and almost perfectly reflects that of the developer coalition in considering Enbridge as sufficiently capable of managing the project. Although recognizing that proposed mitigation measures are unlikely to be wholly effective in preventing negative impacts, the JRP report concludes that the desired benefits outweigh these sufficiently to justify the project. The report also reaffirms the completeness of its own knowledge or ability to gather further knowledge through the conditions it places on the project, supporting its ultimate finding that the project is in the public interest and should proceed.

Interests Best Represented

As the findings of the discourse network analysis are compared to that of the JRP final report, a trend begins to become evident. The structures and guidelines that govern the operation of the JRP process provide significant opportunity for diverse stakeholders to present and critique evidence related to the NGP project; however, the final recommendations presented by the panel continually reflects a tendency to side with the developer's account. In the area of First Nations participation and the inclusion of Aboriginal knowledge, there is overwhelming evidence to support a conclusion that a significant number of BC Aboriginal groups are utterly dissatisfied with the findings of the JRP which they feel are in conflict with the contributions they have made to the JRP process.

On economic issues, the JRP report highlights the fiscal benefits of the project itself and considers the potential economic development that radically increased export capacity will bring to the Alberta oil industry. Although there is little dispute over the potential money to be made, arguments suggesting that money made in this way is undesirable for a significant portion of Canadians seem to receive little attention in the JRP recommendation.

In stark contrast to the broad exploration of economic benefits over the next 30-50 years of oil sands operation that this project will facilitate, the examination of environmental impacts was limited to those impacts directly resulting from the project, or being induced by it, within the national boundaries of Canada. This limitation was largely the result of changes to the legal definitions relating to the scope and purview of the review panel process. In those areas of environmental impact that were considered, the extent of the investigation was very detailed and revealed a range of minor and significant impacts to native species and ecosystems. These impacts are acknowledged in the final JRP report, but are regarded as acceptable risks in light of other project benefits, largely those defined in economic terms.

The JRP ultimately finds itself adequately informed to make a full range of policy recommendations regarding the NGP project, the most significant of which being that it is in the public interest and should be pursued. Some participants in the review process, also identified in the broader social discourse, disagree with both the completeness of the knowledge gathered by the JRP and the validity of its appraisal of what might be termed the public good.

As a means of making the diverse and interconnected perspectives related to the concerns and preferences explored in this research more clear, see Table 11. This table organizes each of these categories according to the areas of sustainable development to which they relate, and connects them to stakeholders identified though the discourse network and the perspectives taken in the JRP final report.

Table 11 - Significant categories indicating actor type affiliations and JRP position

Discourse Network and JRP report compared					
Concerns identified in discourse network analysis	**Actor types who agree**	**Actor types who disagree**	**Actor types with mixed agreement**	**Position taken in JRP report**	**Comments on treatment of concerns or preferences in JRP**
People					
Enbridge has been willing to engage with opposition concerns in good faith	Developer	Environmental, First Nations, BC Govt.	--	Agreement	A significant focus of the JRP process is to engage with diverse stakeholders and Enbridge is seen as having been complicit in this process.
First Nations groups are wiling to collaborate with the project	Developer, Federal Govt.	Environmental, First Nations, Project opposition, Professional organizations	--	Mixed	Collaboration of Aboriginal groups with the JRP process and the NG project as a whole is seen as mixed, but was evidently not a significant concern in light of the report findings.
First Nations land claims will be respected	Developer	Environmental, First Nations, Research	--	Agreement	This was a focus of the JRP report as stipulated in Canadian legislation, and all necessary legal issues were addressed in the JRP report; however, the issue of First Nations land claim and treaty agreements in BC is continually disputed and is a highly fluid. Ultimately the position taken by the JRP could be called into question as a result of a range of legal disputes currently being processed through the court system.
Reasonable accommodations to include First Nations participants and Aboriginal knowledge have been made	Developer	Environmental, First Nations, Federal NDP, Research, Media	Federal Govt,	.Agreement	Significant attention is paid to including First Nations participants in the review process; however the final report reflects that the perspectives and knowledge gained through this participation have had little impact on the final policy recommendations suggesting First Nations participation and knowledge were not significant in the formation of policy recommendations.
Economy					
BC will receive economic benefits	Developer	Environmental, First Nations, Research	BC Govt.	Agreement	BC is seen to benefit most from induced economic benefits resulting from the development and construction phase of the project.
First Nations communities will experience jobs and economic benefits	Developer, Corporate	Environmental	First Nations	Agreement	The distribution of economic incentives to First Nations is a significant focus of the JRP report which focuses on a range of instruments designed to provide enhanced employment opportunities to Aboriginal populations, and through an equity sharing program offered by the developer.
National Economy will prosper due to project	Developer, Federal Govt., BC Govt., Alberta Govt., Research, Media	Environmental, First Nations, Project opposition	--	Agreement	Economic prosperity is a very significant aspect of the JRP report focusing primarily on the expanded development of the Alberta oil sands.
New petroleum export markets are desirable	Developer, Alberta Govt., Media, Professional	Environmental, First Nations, Project Opposition	Corporate, Social advocacy	Agreement	These markets are seen as necessary for the development of the oil sands and the realization of associated economic benefits and so are significant.

	associations				
Environment					
Continued exploitation of Alberta oil reserves will contribute to a warming climate	Environmental, First Nations, Research	Developer	--	Omitted	Climate Change was explicitly acknowledged as a concern raised by participants in the JRP process but was not afforded any consideration in final policy recommendations due to the specific conditions placed on the JRP by the *Canadian Environmental Assessment Act.*
Environmental impacts have been researched and planned adequately	Developer, Federal Govt.	Environmental, First Nations, BC Govt., Research,	--	Agreement	This is a significant and central concern of the JRP report in its function as an environmental impact assessment, and the report is predicated on an adequate account of impacts. Subsequent research and legal challenges contradict this position.
Marine environments and wildlife will be adequately protected	Developer	Environmental, First Nations, Federal Liberal party, Union of BC Municipalities Research, Project opposition	--	Mixed	Marine environments are a significant and central concern of the JRP report in its function as an environmental impact assessment; however, minor impacts are seen as acceptable. Subsequent research has identified potential additional marine impacts on whale populations; these are reflected in legal challenges to the JRP report.
Project will not cause significant adverse environmental affects	Developer, Professional associations	Environmental, First Nations	--	Mixed	The potential for negative environmental impacts is a significant and central concern of the JRP report in its function as an environmental impact assessment; however, policy recommendations show a considerable tolerance for adverse environmental impacts.
Rivers and riparian zones can be adequately protected	Developer	Environmental, First Nations, Research, Project Opposition	--	Mixed	Rivers and riparian zones are significant and central concerns of the JRP report in its function as an environmental impact assessment; however, minor impacts are seen as acceptable.
Terrestrial environments and animals will be adequately protected	Developer	Environmental, First Nations, Research	--	Disagreement	This is a significant and central concern of the JRP report in its function as an environmental impact assessment; however, policy recommendations indicate that identified impacts on terrestrial animals are acceptable.
Safety, Risk and Knowledge					
Enbridge as a firm is adequate to manage project safely	Developer	Environmental, First Nations, Federal Govt., BC Govt., Federal NDP, BC NDP, Research, Project opposition, Social advocacy	--	Agreement	Enbridge's capacity for safety is a significant and central concern of the JRP report in its function as an environmental impact assessment, and its final report is predicated on the ability of the firm to operate at the highest possible safety standard.
Environmental risks can be mitigated by preventive measure	Developer, Professional associations	Environmental, First Nations, Research	--	Mixed	This is a significant and central concern of the JRP report in its function as an environmental impact assessment, and it is evident in the JRP's policy recommendations that this is perceived as possible both theoretically and in the case of the NGP project.
JRP proceedings have adequately addressed potential impacts	Developer, Federal Govt., Alberta Govt., Professional associations	Environmental, First Nations	BC Govt.	Agreement	This is a significant and central concern of the JRP report in its function as an environmental impact assessment, and the report is predicated on an adequate account of impacts.
Knowledge gained through the JRP is adequate to make informed	Developer	Environmental, First Nations, Federal Govt.	--	Agreement	It is logically implied that the JRP feels itself adequately informed to make recommendations. Legal challenges dispute this.

recommendations		(DFO), Research, Project opposition			
Project is in the public interest	Developer, Professional associations	Environmental, First Nations, Federal NDP, Federal Green Party, Union of BC municipalities, BC Green party, Research, Social advocacy	Federal Govt.	Agreement	This is a significant and central concern of the JRP report in its function as an environmental impact assessment and is evident in the JRP's policy recommendations. The definition of public interest seems to differ significantly between the JRP report and the preferences indicated through the discourse network.
Responses to spills, accidents and leakages are adequate, available and will be put in place	Developer	Environmental, First Nations, BC Govt., BC NDP	BC Govt.	Agreement	This is a significant and central concern of the JRP report in its function as an environmental impact assessment and is evident in the JRP's policy recommendations.
Social and economic benefits outweigh associated risks	Developer, Federal Govt., Alberta Govt., Professional associations	Environmental, First Nations, BC NDP, Federal NDP	BC Govt.	Agreement	Weighing costs and benefits is a goal of the JRP process, and the final policy recommendations support the position that social and economic benefits outweigh all potential risks, as they are perceived.
Tanker and associated facility safety and protection measures are adequate	Developer, Federal Govt.	Environmental, First Nations	--	Yes	This is a significant and central concern of the JRP report in its function as an environmental impact assessment and is evident in the JRP's policy recommendations.
Overlooked by Joint Review Panel					
BC should reject the project	Environmental, First Nations, Research	Developer	BC Govt.	Omitted	NA
Changes made to the JRP process by the Federal government have had a negative impact on its effectiveness	Environmental, First Nations, BC NDP, Federal NDP	Saskatchewan Govt.	Federal Govt., Research	Omitted	NA
Continued exploitation of Alberta oil reserves will contribute to a warming climate	Environmental, First Nations, Research	Developer	--	Omitted	NA
Petroleum resources are more significant to Canada's energy future than renewable energy sources	Developer, Corporate, Industry associations	Environmental, First Nations, Research	--	Omitted	NA

6 Discussion and Conclusions

Discussion

The preceding research has explored the proposed Northern Gateway Pipeline (NGP) project and the environmental impact assessment and pubic consultation process known as the Joint Review Panel (JRP), with the intention of assessing the JRP in terms of its ability to effectively function as a site of environmental governance that supports the fundamental principles of sustainable development. This intention was expressed in the research question which asked*: In what ways has the Joint Review Panel evaluation of the Northern Gateway Pipeline Project contributed to effective environmental governance and resulted in appropriate policy recommendations?*

In order to answer this question in a structured and satisfactory way, two research sub-questions were asked. The first focused on perceptions of society at large and asked: *What are the expressed concerns and preferences of stakeholders regarding the NGP and how do these connect stakeholders into advocacy coalitions?* To answer this question, a survey was conducted of the broader social discourse surrounding the NGP issue as it manifested in online and print media sources. This discourse was collected and organized through a series of software applications that allowed for a detailed qualitative analysis of the content of this discourse and some limited quantitative analyses of the networks produced. This process resulted in a detailed understanding of the elements of this discourse that were common to particular stakeholders and provided the information needed to make inferences on the likely configuration of actor coalitions around particular core beliefs.

The second research sub-question asked: *How are the expressed concerns and preferences of stakeholder coalitions addressed by the JRP through policy recommendations?* To answer this question, the discourse network was compared to the final report produced by the JRP, in which the conditions placed on the project and their final policy recommendations to the Federal Government of Canada are outlined. This comparison allows for an exploration of the JRP report in terms of both the content of the report and its recommendations, and the stakeholder interests that are best represented in those recommendations can then be identified.

The preceding chapters have been devoted to analysis and insight into both of these sub-questions. This information must now be compiled and interpreted in order to allow for comment on the effectiveness of the JRP as a site of environmental governance in order to fully answer the primary research question. To answer this question, it is necessary to synthesize the previously discussed data that was collected on the NGP and JRP, in order to allow for some broader observations to be made describing the policy subsystem surrounding

the NGP. Here, this research connects once again to some of the theoretical perspectives that it was based on, as discussed in chapter two. The Advocacy Coalition Framework (ACF) describes the events related to this issue as occurring within a policy sub-system, which is defined largely by the coalitions of stakeholders who engage with each other over given policy issues within it. The following section will discuss three fundamental polarizations or conflicts that structure the policy sub-system related to the NGP and the stakeholders in it, organizing them into advocacy coalitions. Each of these conflicts will be explored and connected to the results of the JRP final report. These are by no means an exhaustive list of the observable phenomena within the research conducted, but are the most significant aspects to focus on in drawing final conclusions on the effectiveness of the JRP.

Fundamental values and coalition formation

The stakeholders identified in the discourse network are diverse; however, the type of group or organization to which a stakeholder belongs is strongly indicative of the range of concerns and preferences that they found to be significant, and generally predicted their attitude towards the NGP. It is therefore justifiable and convenient to discuss stakeholder's attitudes in terms of the type of organization that they represent.

To this end, one of the most polemic distinctions that can be identified between groups relates to the inherent value of economic wealth in comparison to the intrinsic value of natural environments. This division is directly addressed by a category used in the discourse network: *social and economic benefits outweigh associated risks*. Expressing an opinion on this category represents a fundamental assertion of stakeholders' values, or to return to the language of the ACF, their deep core beliefs. According to the ACF, these beliefs are ingrained at the most primitive level and are reinforced by all other less central beliefs. Although the specific category mentioned is only one of many, the value division it points to directly underlies the views of stakeholders on virtually all other categories. It is difficult to conceive that opinions on the adequacy of protection measures or the completeness of the environmental assessment could be reached without appealing to a stakeholder's fundamental valuation of natural versus economic rewards.

Looking at this fundamental value marker orders stakeholders into two coalitions that are remarkably consistent with the overall coalition structures identified throughout the discourse network. This result supports the use of the ACF since this research shows that beginning from a core value judgment, stakeholders will form opinions and attitudes on other specific issues in a way that supports this core belief. This tendency of attitudes and less central beliefs to fall into line behind a core belief tends to produce a narrative with which actors identify and conduct themselves. The theoretical exception to this trend is organizations such as decision making bodies and research organizations who are at least intended to be informed by the best possible knowledge, and abstain form taking value laden positions. Whether or not this impartiality is true in practice is not always clear.

Each of the coalitions identified in the discourse network has such a narrative regarding the NGP. A first narrative describes the position taken by the groups who generally oppose the project. According to the discourse network, these are the environmental organizations, native groups, project opposition groups, social justice organizations, and a few government parties such as the NDP (both federal and BC provincial) and the BC Green Party. In this narrative, the value of the natural ecosystems that exist both on land in costal waters is seen as vast and fundamental to tradition, lifestyle and wellbeing. Direct extraction of resources provides many material goods and stimulates economic activity, but also has the potential to cause unexpected damage for which developers seldom take responsibility. From this viewpoint, aesthetic and spiritual values associated with the traditional us of natural environments are seen as at least equally important, if not more so, than the monetary value associated with resource extraction. This non-monetary form of value can be connected to economic issues indirectly through ecotourism or other low impact activities, but is primarily regarded in non-financial terms. The result of this belief system is that natural resources are seen as renewable but vulnerable, and once destroyed, as irreplaceable by any means. This necessitates the most precautionary and reverential approach possible to assessing impacts to and extracting resources directly from the natural environment. Viewpoints that recognize only financial value, or that seek to offset environmental loss through financial means, are perceived as a threat capable of destroying precious and irreplaceable natural resources.

There is variation in the specific ecological resources valued between groups and the significance they hold; for example, some First Nations are more closely tied to the land and river systems of the interior while others indicate a connection to the coast. In general, First Nations groups express a dependence on natural resources as both a means of meeting their direct physical needs and as a way to define their unique cultural identity. Environmental organizations, on the other hand, reflect more on the philosophic satisfaction of experiencing natural environments or on the intrinsic rights of animals and ecosystems to exist. A fundamental belief of both actor types is that ecosystems and natural environments hold a value that is experienced at a personal and individual level that cannot be expressed or compensated for in financial terms.

A second narrative describes the perspective held by the developer, the corporate community, industry and professional organizations and the Alberta Government. There is unquestionable value inherent to natural resources, but in the case of this narrative, most of this value is based on resource extraction and is therefore monetary. This narrative essentially describes resource-based capitalism, and seeks to assess the value of natural resources that can be used for human purposes in financial terms. Projects and developments which further this end are fundamentally valuable insofar as they further the deep core belief that natural resources can be utilized most effectively by exchanging them through economic transactions. Natural environments and ecosystems are seen as excellent at producing such valuable resources, and are generally perceived to be fairly robust and adaptable. Nonetheless, it is felt that steps should be taken to

prevent damage to natural environments wherever possible, but in a way that facilitates the continued extraction of resources rather than restricting it. Perspectives that seek to prevent resource development are seen as naive and hypocritical, ignoring the fundamental demand for goods and services modern society exerts.

Both of these narratives were common in evidence used during the JRP process, and the final report acknowledges these varied positions. The polemic nature of these viewpoints creates a set of political preferences that is not simple for any process of environmental governance to address. Balancing these opposing views in policy recommendations is very difficult due to their appeal to fundamentally different and generally incompatible values. Facing this difficult situation, the JRP made extensive efforts to give each of these narratives a voice through its proceedings and includes a clear recognition of the values that were expressed by diverse stakeholders in its final account. The final report included consideration of extensive economic projections, as well as the spiritual and existential values that could not be quantified economically. Ultimately, however, the JRP report concedes that values that could not be monetized were difficult to weigh in their findings and so were also difficult to factor into final policy recommendations.

> *We accept the view of Coastal First Nations that the relative values of ecological goods and services are difficult to estimate and are therefore limited in their capacity to be utilized in decision-making.* (Panel, 2013b, p. 33)

The result of this being that the benefits which are easily defined in financial terms are seen as sufficient to justify a range of identified moderate to significant impacts on ecosystems, due to an inability of those ecosystems to be quantified in similar financial terms. This finding must inevitably be seen as conforming to the developer's narrative far more than that of the opposition coalition. Although some transparency is afforded to this inconsistency (as in the above quotation), passages hinting at the low weighting of non-monetary forms of value are buried deep within the text of the JRP document.

The role of knowledge and technology in assessing risk

A second underlying conflict or contradiction between the two coalitions identified in this research relates to the assessment of risk. Risk assessment is a critical aspect of the JRP process, as assessing the risk posed by the NGP is just as important as considering the benefits to be gained from it. A number of the categories that appeared in the discourse network are related to risk assessment, and require an evaluation of perceived risk in order for stakeholders to register a preference for or against the category. Within the categories relating to risk, two common themes appear: one emphasizes the completeness or adequacy of knowledge and information related to the NGP, and the other reflects the assessment of how effective technology can be in mitigating risk. Table 12 shows a list of these categories.

Table 12 - Categories related to risk

Knowledge
Reasonable accommodations to include native participants and native knowledge have been made
Environmental impacts have been researched and planned adequately
Joint review panel proceedings have adequately addressed potential impacts
Knowledge gained through the JRP is adequate to make informed recommendations
Technology
Environmental risks can be mitigated by preventive measure
Responses to spills, accidents and leakages are adequate, available and will be put in place
Tanker and associated facility safety and protection measures are adequate
Both
Marine environments and wildlife will be adequately protected
Project will not cause significant adverse environmental affects
Rivers and riparian zones can be adequately protected
Terrestrial environments and animals will be adequately protected

The relative position taken on these issues by the two competing coalitions identified is not difficult to discern. The narrative describing the views of the developer coalition generally sees the range and extent of knowledge gained through the JRP process, which was used in determining the panel's final policy recommendations, as complete and appropriate. The research presented by the developer in the initial project proposal and at the request of the JRP throughout the panel proceedings represents the largest body of research on the NGP; however, a range of independent research was also included and was subject to review by all participating parties.

Environmental evaluations in the JRP report identified minor negative impacts on marine, river and riparian ecosystems, and some significant impacts on terrestrial ecosystems. The evaluation of technologies offering impact prevention and mitigation is generally very favorable, but acknowledges that no preparation is foolproof and that any accident or spill would have significant consequences at least temporarily. The developer narrative sees these evaluations as fair, complete and in-line with the JRP's final recommendations. Commitments to pursue the best and most informed technological methods of environmental protection are seen as contributing to the already robust and regenerative nature of the ecosystems in question, as natural processes of ecosystem recovery are also included in the developers planning. In the event of catastrophic malfunctions, the developer outlines the financial resources that will be used to fund recovery efforts and to compensate affected parties.

Contrasting this position is a narrative that describes the position of the opposition coalition, which is less cohesive than that of the developer coalition. This narrative covers a range of issues about the traditional uses of, and aesthetic values that diverse stakeholders find in, an equally diverse range of environments and ecosystems that are in close proximity to some part of the NGP. The information collected in the JRP proceedings is seen as extensive, but not comprehensive. For some of the smaller stakeholders, the technical details presented in the JRP proceedings were more voluminous and contained greater technical detail than they felt capable of adequately assessing in the available time. Larger groups, particularly environmental organizations, felt that the body of research accepted into the JRP was inadequate and overlooked several key

reports that would have altered the assessment of environmental impacts (see discussion in chapter five). Despite variance in the technical capacity to assess the completeness of the knowledge evaluated in the report, all stakeholders in this coalition regard the information presented in support of the project as overly favorable, placing unjustified confidence in the ability of technological measures to mitigate negative impacts. The ecological systems these measures are to protect are viewed as vastly more complex and more fragile than even the best science can fully safeguard. Since the full impacts of the project cannot be known in advance and the fragility of ecosystems is also ultimately inestimable, both the research and the available technology are seen as insufficient and their acceptance by the JRP is seen as a failure to reflect an adequately precautionary approach to decision making.

Compounding this perceived lack of knowledge and failure to adopt an adequately precautionary approach is the specific omission of environmental impacts related to the upstream expansion of the Alberta oil field, and the downstream combustion of the petroleum products ultimately produced from the bitumen exported from Alberta. The comparative scope and extent of the economic evaluation of the benefits to be derived from significant growth in the Alberta oil sector which the NGP would directly facilitate stands in harsh contrast to the environmental assessment, which specifically omits any discussion of the environmental impacts of expanding the oil sands or of the global environmental impact of contributing large quantities of hydrocarbons. Even the most moderate of the oppositional coalition members view this imbalance in the weighting of economic and environmental impacts as rendering the findings of the JRP review fundamentally invalid.

The role of petroleum in Canada's energy future

A final conflict that the discourse network analysis of the NGP policy area identified relates to future energy production and consumption in Canada. Canada has a diverse energy portfolio that is centered around a combination of reliable energy sources such as oil, natural gas, hydro-electricity, uranium for nuclear power generation and coal (N. r. Canada, 2014). These sources adequately provide for Canadian energy needs. The trade balance of these different energy products reflects the import of refined fuels and natural gas, and the export of unrefined crude products (CAPP, 2014). In light of this situation, the major outcome of the NGP would be to increase the net domestic export of unrefined fuel, rather than to have a direct impact on energy sources available for domestic use. The amount of crude oil potential available for export from Canada is considerable, and so could significantly impact global energy markets.

The position taken by the developer coalition regarding Canada's role and responsibilities in this area is that with such an abundant energy resource available, it is essential to Canadian economic growth and prosperity that these resource be brought to market. This is the premise on which the original NGP application is based. The NGP is seen as a logical extension of the strategy already reflected in Canada's energy portfolio, as well as in the economic strategies laid out by the Federal Government (G. o. Canada, 2013). Some

stakeholders in the developer coalition, as identified in the discourse network, expressed a desire for increased domestic refinement capacity as opposed to export potential. The position of the developer, which was reflected in the JRP final recommendations, was that the NGP would not discourage such investments in domestic capacity in the future and so this issue was not a factor in assessing the project.

The opinion expressed by the opposition coalition is unsurprisingly much different. Stakeholders in this coalition express a general concern over the nature of the crude oil produced in the Alberta oil sands, and in some cases, the legitimacy of extracting this energy resource at all. Native groups primarily view the direct ecological impacts of the extraction process as being too costly to the ecosystems surrounding the extraction sites in Alberta. Environmental organizations echo these concerns, but also tend to emphasize the potential consequences that the extraction process could have for the global biosphere, as well as the impacts related to the downstream combustion of the products extracted.

On these grounds, oppositional groups see the expansion of this industry as unethical, inadvisable and potentially representing a fundamental disservice to future generations who may experience the most significant consequences of these impacts. Approval of the NGP would be seen as further evidence of the Federal Government prioritizing polices that maximize domestic economic returns, while moving further away from policies that address global climate issues. Some stakeholders also felt that such a move would indicate a move away from exploring other renewable energy sources and an acceptance of Canada as a petroleum producing and dependent nation.

The JRP final report takes no position on these issues, other than to exclude itself from the discussion. As structured under CEAA 2012 the legal boundaries of the Joint Panel Review Agreement do not provide an adequate mandate to explore or consider the above issues. To quote the report directly:

> *Many people said the project would lead to increased greenhouse gas emissions and other environmental and social effects from oil sands development. We did not consider that there was a sufficiently direct connection between the project and any particular existing or proposed oil sands development or other oil production activities to warrant consideration of the effects of these activities. (Panel, 2013b, p. 17)*

The logic of this standpoint seems to be a bit like saying that there is insufficient evidence to suggest that building highways has any direct impact on the cities they connect, and so considerations related to cities should not influence the design of highways. The upfront dismissal of any impact assessment or expressed concern related to Alberta oil production clearly limits the possibility of a broader conversation about the impacts of petroleum markets, and Canada's role in those markets. Without this element of the discussion, any discourse over the desirability of the NGP relates to its ability to provide concrete benefits to Canadian citizens over the construction and operational lifespan of the pipeline

itself. If the 'indirect' impacts of the Alberta oil fields were allowed to enter into this discourse, it would be possible to engage in a broader discussion regarding the sustainability of the Alberta oil fields and fossil resources generally, as well as the long-term, multi-generational impacts of, and strategies for dealing with, issues like peak oil and climate change.

Research question answered

The network analysis presented in chapter four identified a large number of observable connections that exist between actors themselves, and between actors and their expressed concerns and preferences on the NGP. The analysis of policy recommendations of the JRP presented in chapter five highlights both the content of the final report and the substance of the final policy recommendations made to the Federal Government. The final JRP report was inconsistent or incomplete in comparison to the broader social discourse indicated in the network analysis, and inconsistencies were found between the panels own account of the JRP proceedings and the final recommendations made in the report as well. The meta-analysis of these findings presented at the beginning of this chapter addresses these discrepancies in terms of three primary conflicts which emerge between stakeholders, organizing them into opposing advocacy coalitions, and which therefore structure the landscape of the policy area surrounding the NGP.

Following from these results, the implications for the JRP as an example of effective environmental governance must be addressed. Despite efforts to define the meaning of environmental governance as put forth in chapter three, there are no established criteria by which to define or evaluate effective environmental governance. Each effort at environmental governance must address a unique range of situations and offer policy solutions that are appropriate to the time, place and people who are affected by them. In order to answer the primary research question, "*How has the Joint Review Panel contributed to effective environmental governance by providing policy recommendations on the Northern Gateway Pipeline project?"* in a satisfactory way, two criteria are used. First, have the JRP proceedings and policy recommendations been internally consistent with their self-stated purposes? Second, has the JRP process achieved the ends for which it was intended?

Internal consistency

The declared objectives or purpose of the JRP were stated as follows in the JRP final report:

- Assessing what significant effects the project could have on people and the environment and how these effects might be mitigated (controlled, reduced, or eliminated) in accordance with the Canadian Environmental Assessment Act, 2012
- Considering whether the project is in the public interest and therefore should be recommended for approval under the National Energy Board Act
- Setting out conditions for safe and responsible construction and operation of the project

(Panel, 2013b, p. 8)

The first of these objectives is to assess the significant effects on people and the environment. Although the technical assessment of many aspects of the project

was extensive, the preceding analysis identifies several examples of reputable research being omitted from consideration. The present research is in no way adequate to render any judgment on the extent or validity of any missing information, and can only show that a significant number of stakeholders perceive this information to be missing. Aboriginal perspectives regarding the significance of traditional practices, knowledge, and responsibilities are acknowledged in the JRP report, but the legal primacy these factors would have over the NGP do not appear to be reflected in the panel's final recommendations. Another consideration is the omission of any analysis on the environmental impacts resulting from the Alberta oil sands development. The technical justification offered is highly unsatisfactory to many oppositional stakeholders, and states that these are not directly related impacts according to legal definitions. When taken together, the above factors suggest that the JRP's evaluation of environmental impacts and its understanding of the stakeholders is unlikely to allow for satisfactory assessment of the impacts on the environment or on people. This suggests that the first objective of the JRP was not adequately met.

The second objective of the JRP was to determine whether the project was in the public interest. To do this, an obvious first step would be to identify what public preferences and concerns related to the project might be. The three-year period of public consultation and technical information gathering which constituted the JRP proceedings stands as a seemingly admirable effort to satisfy this requirement and no fault is found with the efforts made to include the perspectives of diverse stakeholders. A seemingly representative account of these perspectives is included in the JRP final report; however, this seems to be where the complete representation of perspectives ends. As the account of the JRP recommendations presented in chapter five indicates, there is a decided tendency to reflect the perspective and interests of the developer coalition over the opposition coalition in the final recommendations outlined in the report. The present research is fundamentally structured around viewing organizations rather than individuals as stakeholders. It is not a great stretch to postulate that the developer coalition, being composed primarily of corporate interests, is less reflective of the average concerned citizen than is the opposition coalition, which is composed of a range of First Nations, environmental and social advocacy organizations. With this in mind, it seems justified to conclude that this research indicates that the final recommendations of the JRP do not reflect the full range of public interests, as they were identified through either the JRP proceedings themselves or through the discourse network analysis conducted in this research. It appears then that the JRP has fallen short of its second objective as well.

The third stated objective involved the setting out of the necessary conditions for the safe and responsible construction and operation of the project. This is a highly technical issue, requiring a level of analysis that this research is incapable of applying. The applicability and appropriateness of the 209 conditions placed by the JRP on the NGP are therefore beyond the scope of this research. What is evident, however, is that what is perceived as 'safe and responsible' is far from consistent between stakeholders and that determining what conditions could be

placed on the project in order to ensure the necessary degree of safety or responsibility was far from clear in the JRP proceedings. For stakeholders in the developer coalition, 'safe and responsible construction and operation' means applying the best available information and technology to a problem and knowing what the likely risks and contingencies associated with the project might be. Once these variables have been established, the setting of conditions to uphold these standards is a matter of identifying and implementing a set of best practices. The JRP review seems to be adequately equipped to accomplish this. Again, any more informed evaluation is beyond this research, but the conditions placed by the JRP do seem extensive and appropriate to mitigating known and likely risks associated with the project. For stakeholders in the opposition coalition however, 'safe and responsible construction and operation' has a very different set of implications. 'Safe' suggests that the objects, ecosystems and environments of value to these groups will remain safe to experience and enjoy now and in future generations. 'Responsible' implies that the interests of those future generations are regarded as highly as the interests of the present, and that caution is exercised in order to ensure those interests are met. The implication of this definition is that the risks associated with the NGP are too great to accept since leaks and spills are always possible, even when the best technology and practices are implemented.

The intent of the JRP report was always to explore best practices in technical and procedural terms, and to outline these practices in conditions to which the NGP must conform. The degree of reflection on the deep values of stakeholders presented in this research is not consistent with this objective, so it is unfair to conclude that the JRP failed on this point. This research is unable to make a judgment on this third objective, but it is adequate to note that no range of conditions is likely to make the construction and operation of the NGP appear safe and responsible to stakeholders that do not see the project as in their interests.

Achievement of intended purposes

The intended purpose of the JRP is to provide two fundamental services: the first is to conduct an environmental impact assessment and the second is to serve as a forum for public engagement of issues related to the project being assessed. These two functions are evident in the CEAA, which governs the review process. CEAA 2012 provides a mandate that reads:

> The Government of Canada, the Minister, the Agency, federal authorities and responsible authorities, in the administration of this Act, must exercise their powers in a manner that protects the environment and human health and applies the precautionary principle.

(CEAA 2012, p6)

Among other intended applications of the JRP, the CEAA 2012 indicates the following purposes:

- To promote cooperation and coordinated action between federal and provincial governments with respect to environmental assessments;
- To promote communication and cooperation with aboriginal peoples with respect to environmental assessments;

- To ensure that opportunities are provided for meaningful public participation during an environmental assessment;

(CEAA 2012, p6)

The ability of the JRP to provide a comprehensive environmental impact assessment has been addressed in the previous section and elsewhere in this research. A number of specific impacts have been assessed thoroughly, but ranges of broader impacts were specifically omitted from consideration. Findings have also suggested that the prevailing perspective represented in the JRPs final recommendations tends to reflect the least precautionary attitudes evident in the JRP proceedings or identified in the broader discourse. To the limited extent that this research allows conclusions to be drawn on the effectiveness of the environmental assessment undertaken by the JRP, the conclusion is that the review was incomplete.

The structure of this research does allow for more analysis regarding the function of the JRP as a site of public engagement. Referring back to the work of Maarten Hajer, the emergence of new forms of environmental governance occurs in an 'institutional void', where previous institutional practices have become ineffective. The traditional distinctions in polity have also broken down and according to Hajer, "polity has become discursive: it cannot be captured in the comfortable terms of generally accepted rules, but is created through deliberation" (M. Hajer, 2003, p. 176). This necessitates new institutional venues and processes within which polities can structure themselves and contribute to policy formation. However, for these new institutions to function, Hajer notes that "the issue of legitimacy also has to be related to the process of policy making as there might not be the possibility to refer to the 'umbrella' of formal political institutions for legitimacy" (M. Hajer, 2003, p. 191). Therefore, the effectiveness of any policy recommendations that can come from processes of environmental governance rest as strongly with the legitimacy of the process as with the content of the policy recommendation. By applying these theoretical insights, the JRPs effectiveness as a site of environmental governance and its ability to fulfill its intended purpose can be seen as mixed. The JRP seems to function quite well in terms of its technical and procedural processes, by engaging with stakeholders in a variety of locations and allowing for discourse on topics relevant to those stakeholders to emerge over a multi year period. Government, Aboriginal and public actors have all been allowed to express their positions, meeting the stated purposes set forward by the CEAA regarding public engagement; as well as the need pointed to by Hajer for polities to form through discursive processes. However, in attempting to provide effective policy recommendations, the JRP seems to have failed to reflect the balanced perspective of these various stakeholders or coalitions thereof, and so fails to reflect the polities that emerged through this instance of environmental governance.

Since the policy recommendations of the JRP reflect the views of the developer coalition so well and the range of opposition stakeholders so poorly, it is hard to see this process as having gained broad public legitimacy. Without legitimacy, it is difficult to see efforts at environmental governance as effective. Although showing initial promise as a site of stakeholder engagement, the JRP process falls short of providing an effective example of environmental governance due to a

failure to translate the richness of the policy environment into policy recommendations that are generally regarded as legitimate.

Final Reflections

The methodology and execution of this research contains a variety of strengths and weaknesses, and ultimately identifies a range of opportunities for additional research that could extend on the results presented in this analysis.

Strengths

The greatest strength of this research was the effectiveness of the discourse networks methodology to gather and analyze data related to the policy area being researched. As noted, this network approach allowed for both content- and actor-focused analysis of the data, which offered a more nuanced understanding of the policy area than either could alone. The nuanced quality of the information produced through this approach contributes strongly to the ability of this research to utilize the ACF. Because the ACF is a framework in which to contextualize events and actors in a policy arena, its ability to inform research is limited by the richness of the data used to describe the policy sub-systems being examined.

Combining discourse networks with the ACF also addresses two of the major criticism that previous practitioners of the ACF have received. As noted by Wiebel (2009), both a lack of clarity regarding methodological approaches used in developing ACF case studies, and ambiguity or weakness in data collection practices, contribute to case studies that are lacking in transparency and are therefore inappropriate for ex-post comparison. Because these two concerns are aptly resolved here by the use of discursive network methodology, which is highly transparent in its methodology and data collection, this research is also seen as increasing the legitimacy of discourse networks theory and extending this approach to new policy questions. For the same reasons, this research also provides a relevant case study to the body of ACF literature.

Weaknesses

Weaknesses that can be pointed to in this research primarily relate to the type and volume of data collected in producing the discourse network. Although the data gathering techniques used were excellent, the volume of data collected was only minimally sufficient to create meaningful networks. Additional data collection would potentially produce more and stronger insight into the subject matter. Because all of the data gathered for this research was derived from online and print media, the possibility of a media bias must also be considered as a potentially biasing factor in the results. Although diverse media sources were surveyed, an overall bias due to the editorial preferences of publishers is possible. This bias could also be reflective of a southern Canadian perspective, as the majority of the population and media outlets are located along the southern boarder. The methodology of this research did not make it possible to account for the repetition of opinions by stakeholders who might have expressed the same example of discourse in multiple media outlets, which can be seen as a potential limitation. This was viewed as acceptable for this research, however, because even the repetitions become a part of the broader social discourse and

so could be legitimately included. Filtering examples of discourse to unique expressions by particular individuals could produce interesting results however.

A final limitation of this research, which was defined as an accepted constraint at the outset of the project, was a lack of explanatory power or the capacity to identify causal mechanisms related to the function of the JRP. Because the theoretical background of this research drew strongly on the ACF and not a more causally predictive theory, explanatory power was sacrificed in the interest of gaining greater clarity into the structure of political systems.

Recommendations

Recommendations for further research proceed from addressing these acknowledged limitations and weaknesses. Gaining greater insights into the JRP and NGP through future research could be accomplished by combining new research questions with alternative theoretical backgrounds. Evaluation of explanatory research questions by use of a causally predictive model, such as punctuated equilibrium theory (Baumgartner & Jones, 1993), might provide insight into causal processes and could potentially allow for speculations into likely future implications of the JRP process and policy recommendations.

In any such future research, it would be useful to explore a more diverse range of data sources. One data source that had to be omitted from this research due to time constraints was the transcriptions of the JRP proceedings themselves. If these were coded and made into a discourse network, an even more insightful comparison to the network produced in chapter four, or a similar network would be possible. Another useful data source could be found by changing the focus of analysis from organizations to individual stakeholders. Although highly time consuming and subject to the inherent shortcomings of interview research, a comprehensive interviewing of residents of northern Alberta and BC could produce a much more direct and accurate account of concerns and preferences related to the NGP, which if mapped in network software would be highly reflective of the broader social discourse at a much higher resolution.

Generally, collecting larger volumes of data would improve the reliability and accuracy of discourse networks in future research and could provide for the use of an additional function of discourse network analysis not undertaken in this research. In producing the discourse network, it is possible to code the instances of discourse with the date they were generated, and it is then feasible to divide the network rendering of discourse data into slices indicative of the broader social discourse at different points in time. These time slices can also be combined into an animated rendering of the network as it grows and changes over time. This provides the opportunity to explore how actors and concepts might move or change their affiliations within the policy area over the course of policy formation and implementation, and adds a range of longitudinal opportunities to this form of research.

Conclusions

The Northern Gateway Pipeline represents a significant issue to Canadian citizens and the review and approval process embodied by the Joint Review

Panel have significant implications. The project involves a wide range of positive and negative impacts, and is the first of its kind to be evaluated under the current Canadian environmental legislation. The ultimate ramifications of the project are still, of course unknown, as only time will indicate how far the project will progress, what its impacts will be and how these impacts will be interpreted. This research does not propose to provide any predictive insights into future events, but what only became known at the time of writing is that the Federal Government of Canada, upon review of the recommendations of the JRP, has resolved to endorse and approve the NGP project subject to the review panels conditions.

The focus of this research was an exploration of the ability of the JRP to engage with diverse, and in many cases fundamentally opposing, stakeholders regarding the NGP and to translate the results of this engagement into policy recommendations. The findings of this research support a conclusion that although the JRP was able to engage effectively with stakeholders, it falls short of translating that engagement into recommendations which reflect that input in a balanced way and raised many concerns regarding the completeness or effectiveness of the environmental review conducted. These concerns are also reflected in events that have transpired over the course of this research, as legal challenges have been raised by oppositional stakeholders, who continue to oppose the NGP and attempt to undermine the recommendations of the JRP. The approval of the project by the Federal Government of Canada only adds emphasis to the significance of these challenges and the ongoing struggle between opposing coalitions.

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