



**NEW BRUNSWICK COMMISSION ON
HYDRAULIC FRACTURING – VOLUME I**

The Findings

FEBRUARY 2016





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Our Journey

For the better part of a year we have considered the issue of shale gas development in New Brunswick, a topic that elicits strong emotions over its potential risks and benefits for New Brunswick residents. On the surface, activist anger appeared to dominate the public discussion, but once we dove a bit deeper, we discovered the issue of shale gas was also rooted in weariness and fear felt by all sides that New Brunswick is incapable of change.

While the three of us were new to the conversation, for most of the people we met with, the Commission simply represented one more government-sponsored initiative in a seven-year process that, to date, had satisfied no one. Our work was shrouded in doubt before the Commission began. We knew that if we were to complete our assignment, we would have to do things differently.

We are, as defined by our mandate, a citizen-focused commission. We believe this is an important distinction from other independent commissions, the majority of which are expert panels that have studied the issue from a technical and scientific perspective, weighing the pros and cons of the scientific literature. Science-based research is critically important to understanding the technical aspects of this issue – and this report relies heavily on the work of these technical experts – but it alone cannot guide the development of effective public policy.

Our primary concern has been to understand the root causes of the conflicts surrounding the shale gas issue and to identify how New Brunswick might move forward – but first we must define what we mean by the term ‘moving forward’. It isn’t in reference to the hydraulic fracturing debate specifically, rather to a complicated symptom of a much larger and far

more stubborn problem. We believe it is time for us – New Brunswick residents – to move forward in our relationship with each other and with our public institutions and private sector. Why? Because New Brunswick is stuck on a well-trodden path that is leading us in circles.

A new approach for how to work together to solve contentious public issues is required, armed with strong public policy to guide us in a direction to which we all aspire – a province that is safe, secure and prosperous. To begin, New Brunswickers must recognize that there are competing, and at times, conflicting definitions of what that approach is. To move forward will require Indigenous people, communities, industry and government to work collaboratively to design solutions that adhere to community values and aspirations.

While the past cannot be reversed, New Brunswickers can attempt to counter it by working to change the tone and substance of the conversation – the first step in developing a new approach to community-focused development. Our Commission has tried to do this by respecting our fellow citizens’ right to dissent, by recognizing that we are partners with Indigenous people in sharing this land, by reaching into New Brunswick’s civil service and academic community for expert advice, and by reflecting in our findings New Brunswickers’ desire to find workable solutions for complex public issues.

To begin the Commission reviewed the results of the Government’s earlier work including its public engagement sessions. As we learned, for most involved the sessions were a frustrating exercise with all sides – government, opponents and industry – describing a feeling of powerlessness in the face of larger forces. Opponents described an empty exercise, designed to allow government to ‘tick off the box’ of public engagement and then move on.



Public officials described it as stressful and at times demoralizing, walking into rooms of angry citizens and feeling powerless to lower the tension in the room. Industry representatives describe it as a model that didn't allow them to adequately tell their story. The Commission saw no value in replicating that exercise because, as explained in our findings, this is an old model of consultation that may have outlived its usefulness. Trust is built over time by investing in people who have a mutual respect for each other, even though they may disagree on issues. In fact, we believe that is the only way people have ever solved complicated problems.

Understanding that, a deliberate choice was made to have one-on-one and small group conversations with people who wanted to meet with us and with technical experts who provided the Commission with requested scientific, geological and economic briefings. This allowed us to engage with people in a respectful and more substantive way. Most of the sessions were at least an hour in length, and through these meetings the Commission was able to explore a broad spectrum of opinions.

To honour our pledge of transparency we encouraged participants to provide written submissions for publication on the Commission website as a way for them to publicly tell their stories, unfiltered. Some brought submissions with them to our meetings; others composed their submissions afterwards, taking the time to write thoughtfully about what had been discussed. A few submitted multiple papers, reflecting their thoughts on the evolving conversation. The Commission's website was also where we told our story, posting a list of our meetings, a portion of our extensive reading list and our weekly blogs, the latter of which explained our thought process on some of the larger issues the Commission was asked to grapple with, including social license. Our online work and the public submissions can be found in the report appendix.

Through all these interactions, we began to detect a different emotion: hope. We heard it in the voices of rural municipal leaders who sought common ground on land use issues. We heard it in the voices of a pair of entrepreneurial engineers who have a homegrown technology idea for wastewater. We heard it in the voices of young environmentalists helping to build a province-wide renewable energy movement. We heard it in the voices of Indigenous researchers who are integrating traditional knowledge into the academic community and building capacity for Indigenous-led research. We heard it in the voices of civil servants who want to collaborate with residents to solve environmental challenges. We heard it in the voice of a Corridor Resources employee who brought his family back from Alberta so his children could be raised in New Brunswick. And we heard it in the voice of a Kent County farmer who spoke eloquently about her concerns for her way of life and her desire for a different kind of conversation.

We began our work by steeling ourselves against the expected emotions of weariness, anger, fear and mistrust. We conclude it feeling hopeful. The world is changing and New Brunswickers have told us they are eager to change along with it. We firmly believe that the Government of New Brunswick has before it an opportunity to reset its relationship with New Brunswickers. To do that it will have to change the way it interacts with the people of the province – beginning with hydraulic fracturing and shale gas.

The Government of New Brunswick must move from project-specific consultation to ongoing collaboration because, as we learned through our work, New Brunswick residents are no longer satisfied with simply understanding government decisions; they want to be at the table. They want to be a part of the decision-making process.

Respectfully yours,

Marc Léger

John McLaughlin

Cheryl M.G. Robertson

The Context for our Mandate

Over the past seven years three administrations have worked to address the combination of economic, community development, human health and environmental issues connected to hydraulic fracturing and shale gas development. This work included:

- a series of public consultations by the Government of New Brunswick's Natural Gas Group (2012);
- a review of health impacts by the Office of the Chief Medical Officer of Health (2012),
- the release of the Government's *Blueprint for Oil and Natural Gas* and accompanying *Rules for Industry* (2013), which were developed by the departments of Energy and Mines and Environment and Local Government; and,
- the creation of the New Brunswick Energy Institute (2013), which continues to commission independent research on the human and environmental health impacts of shale gas.

Despite governments' efforts, the end result has been the creation of two solitudes – those who wholeheartedly support shale gas, and those who do not. In each the opposing point of view is rejected and/or underrepresented because low levels of trust in each other has resulted in little desire within either group to bridge the divide. Left out are the people in the middle who either don't know or don't want to say what they think for fear of being ridiculed and/or criticized by either of the two sides.

Against this backdrop, on December 17, 2014, Premier Brian Gallant introduced the *Prohibition Against Hydraulic Fracturing Regulation – Oil and Natural Gas Act*, which placed a moratorium on hydraulic fracturing in the province. It was voted into law by the Legislative Assembly on March 26, 2015 and came into effect on June 26, 2015.¹

In the oil and gas industry, hydraulic fracturing refers exclusively to the process where fluids, sand and chemicals are pumped underground to break away rock and release the natural gas and/or oil locked within. For the purposes of this report, the term hydraulic fracturing refers to the entire industrial process.

The New Brunswick Commission on Hydraulic Fracturing was appointed on March 24, 2015 and was mandated by Premier Gallant to study the issue of hydraulic fracturing in New Brunswick to determine whether the following five conditions can be met:

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



Our mandate was not to determine the fate of New Brunswick's hydraulic fracturing moratorium. That answer correctly resides with the elected members of the Legislative Assembly. What we were tasked to provide is an evidence-based review to inform their deliberations and to hopefully set the table for a different type of conversation amongst New Brunswick residents, Indigenous people, industry and government. To do that the Commission has examined hydraulic fracturing using qualitative and quantitative evidence from the natural sciences, social and health sciences, and the applied sciences including engineering. A review of the major potential impacts and ways to address them can be found in Volume II of this report.

From a citizens' perspective, the Commission also sought to place the facts and arguments about hydraulic fracturing within the context of five larger issues:

- New Brunswick's economic reality;
- The recognition of Indigenous people as rights holders, as defined by the Supreme Court of Canada's decisions regarding the Crown's duty to consult;
- The global movement to address climate change;
- The weakening of citizens' trust in traditional institutions; and,
- New Brunswick's future energy needs within the context of North America's energy mix.

We assert that the crux of the dilemma over shale gas isn't just about the science – it's about the varying levels of trust New Brunswick residents have in all levels of government (federal, provincial and municipal) and the province's resource sector. While the Commission limited its research and its inquiries to shale gas, it quickly became clear that the root causes of the shale gas impasse are directly related to the process for identifying, evaluating and approving any resource development project.

Much of that process is driven by the quality of the relationships local communities and Indigenous people have with government and industry officials. In the case of hydraulic fracturing, while the sense of urgency is gone largely because of low natural gas prices, the memory of that early period remains in communities across New Brunswick. For some residents it is coloured by their experiences with the early promoters of shale gas, some of whom were respectful and helpful, and some of whom were obnoxious and dismissive of concerns voiced by residents. Generally speaking, residents who had interactions with the former are willing to continue the conversation; those who had interactions with the latter are not.

Between May 26 and Dec. 8, 2015, the Commission met with 228 individuals, some on their own and some as representatives of larger groups. The Commission also received 135 submissions, which were about evenly split between groups and individuals representing a mix of opinions including:

- health, such as the New Brunswick Children's Environmental Health Collaborative;
- Indigenous, including the Mi'gmaq Sagamaq Mawiomi and elders from both the Maliseet (Wolastoqiyik) and Mi'gmaq nations;
- faith-based, such as the United Church of Canada;
- academics, such as faculty from the Université de Moncton;
- professionals, including the Association of Consulting Engineering Companies;
- environmentalists, such as the Woodstock Sustainable Energy Group and the Conservation Council of New Brunswick;
- farmers, such as the Agricultural Alliance of New Brunswick;

- municipalities such as the Village of Hillsborough, the Town of Sussex and L'Association francophone des municipalités du Nouveau-Brunswick (AFMNB);
- rural communities, such as the Kent Regional Services Commission and the LSD Association of Rural New Brunswick;
- small business people, such as Munn's Lumbering Co.; and,
- energy companies, such as Emera New Brunswick.

The Commission also met and received submissions from shale gas producers Corridor Resources, SWN Resources Canada and Kicking Horse Energy (now ORLEN Upstream Canada Ltd.), and from members of the coalition aligned against shale gas development, including the Anti-Shale Gas Alliance and local chapters of the Council of Canadians.

The Commission visited Pennsylvania to examine hydraulic fracturing up close and to learn about the impact this industry has had on rural Pennsylvania. Here at home we visited areas where natural gas is being produced or could be produced and spoke with people on all sides of this issue. Commission members also attended events such as the Kairos Forum on Fracking, GovMaker and East Coast Energy Connection 2015 to learn more about community trust, institutional change and North America's energy markets.

The Commission also consulted with civil servants in multiple government departments to better understand Government's ongoing efforts to protect human health and environment, enable wealth creation and to develop policies that are aligned with regional, national and

international climate change targets. In addition, the Commission benefited from specific analyses and reviews undertaken by members of the civil service in support of our work.

From this collection of submissions, research and conversations, six major themes have emerged.

- There is a disconnect between the Government of New Brunswick and residents around issues of economic development and land use.
- This is particularly true for Indigenous people who are highly distrustful of the Government's motives in relation to shale gas and are reluctant to participate in any further conversations until their position as rights holders is acknowledged.
- Navigating the provincial regulatory apparatus is a frustrating experience for both residents and businesses, involving multiple departments, sometimes onerous reporting requirements, confusing directives and a lack of transparency.
- There has often been reluctance to acknowledge problems associated with hydraulic fracturing.
- The government's water monitoring record has caused rural residents to distrust government officials' assurances that it can adequately monitor a new industry.
- It isn't just about water. New Brunswick residents want access to evidence-based, objective information about a variety of human and environmental health issues from a credible source they can trust. Right now, many do not believe traditional sources of information are adequately fulfilling that role.



New Brunswick and the Forces of Change

The world is changing and the people of New Brunswick are changing along with it. We are in the middle of a massive transformation brought about by technological changes that are reshaping global, national, Indigenous and local economies – and in the process, changing how New Brunswickers work and live. We are transitioning away from the manufacturing-centred model of the 19th and 20th century into a new, knowledge-centric era which will be driven by new forms of energy, new transportation systems, increased urbanization and new digital and data-rich technologies. These changes bring with them a mixture of excitement and volatility, particularly for governments, which must respond and manage these changes without fully understanding the long-term repercussions. Add to that the speed with which voters and special interests expect results, and government leaders often find themselves attempting to fix problems on the fly rather than attempting deeper systems change.

To date this has been the story of hydraulic fracturing in New Brunswick. In fact our study revealed that the most contentious issues within this debate are rooted in the following five complex social and economic issues, all of which reach beyond the risks and benefits of shale gas but all of which relate to social license.

Global issues

- Citizen-driven social change
- Climate change

National issues

- Balanced use of our energy and water resources
- Canadians' relationship with Indigenous people

Provincial issues

- Wealth creation and New Brunswick's stalled transition to a new economic/ environmental reality

In order to find a solution to the shale gas impasse, New Brunswick residents, our public institutions and our private sector must be prepared to simultaneously tackle these deeper issues as well. This will require sustained collaboration, empathy and patience from all of us as our public, private and Indigenous institutions evolve to better serve New Brunswick people and communities.

Citizen-driven Social Change

New Brunswick citizens are part of a major global shift: the rise of grassroots, citizen-led movements and initiatives. These movements are driving change – in our economies, our political institutions and our social structures. There are a number of examples of this happening in communities across New Brunswick around a variety of topics such as poverty reduction, aging, literacy, downtown rejuvenation and community-based energy initiatives. They are part of the global transition towards a knowledge-based society that will be dominated by the mobility of information and our ability to use that information to create new products, services, and economic and social models.

Successful systems change requires that public and private sectors make room at the table for community-based organizations – and treat them as partners. Why? Because this is the process for how innovation and change will happen in our knowledge society. It's a model that recognizes

that in order to solve big public problems we need to change entrenched structures, workflows and beliefs within all sectors of society.

For the Government of New Brunswick, this will require a whole-of-government approach to policy development that relies heavily on the collaboration and knowledge found within multi-sectoral networks, and community-based initiatives and movements. It will be increasingly difficult to move forward on major projects, such as shale gas, without the participation of community networks in the decision-making process. To date this is what has happened with attempts to develop shale gas in New Brunswick. Opposition to it coalesced quickly. The Government announced in March 2010 that it had issued Southwestern Energy Co. (SWN) of Houston, Texas a tender for over one million hectares for unconventional oil and gas exploration – the largest in New Brunswick history. That prompted people such as Stephanie Merrill of the Conservation Council of New Brunswick to act.

Merrill had been an advocate for stronger water regulations and had concerns about the possible impacts hydraulic fracturing could have on water resources in New Brunswick. Already connected to volunteer-based water monitoring groups around the province, she went out to talk with people who lived in rural communities within the boundaries of SWN's lease. In November 2010, eight months after the Government's announcement, 50 people calling themselves the Citizens for Responsible Resource Development organized an anti-shale gas rally on the front lawn of the Legislative Assembly. The following August, 1,500 people showed up for a New Brunswick Day rally. The next month, 28 locally-based groups combined to form BanFracking NB, now known as the Anti-Shale Gas Alliance. Then on November 28, 2011 – 20 months after the Government announced its support for shale gas exploration – an anti-shale gas petition signed by 16,840 people was tabled in the Legislative Assembly.²

This loose coalition of environmentalists, Indigenous rights advocates, renewable energy supporters and rural residents was successful because it was bound together by passion and a clearly defined mission that others could rally around – and it used the collective knowledge of the coalition to achieve that mission.

The Government of New Brunswick will need to bring together Indigenous people, the corporate sector, community groups, academic researchers and engaged citizens, to support the development of an energy and environment strategy that the people of New Brunswick can rally around.

Climate Change

The world shifted on Dec. 12, 2015. We now have the world's first universal climate agreement, which carries with it a commitment from 195 signatories to support the long-term goal of limiting rising average temperatures to within 1.5 C of pre-industrial levels, lower than the 2 C threshold that scientists consider to be required to prevent potentially catastrophic climate change. This will require Canada and the rest of the world to be carbon-neutral sometime between 2050 and 2100. Countries have until April 22, 2016 to sign the agreement, which will come into force once it has been ratified by 55 countries that represent 55 per cent of global emissions.³ Signatories are required to prepare, maintain and publish greenhouse gas reduction targets, all of which must be higher than current targets. These targets will be reviewed and revised every five years, starting in 2020. While countries may raise their targets, they are not allowed to lower them.⁴



Canada is working with its counterparts in the United States and Mexico to develop a continental strategy to reduce carbon emissions,⁵ an agreement that will likely impact both Canada's and New Brunswick's existing climate change plans. For instance, New Brunswick is a signatory to a regional carbon emissions plan with the Eastern provinces (Newfoundland and Labrador, Nova Scotia, Quebec, and Prince Edward Island) and the New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont). In August 2015 these 11 jurisdictions agreed to a reduction of 35 to 45 per cent of 2001 emissions levels by 2030, a goal that may be superseded by the still-to-be negotiated continental agreement. Nevertheless, to meet these existing goals New Brunswick needs to increase its use of renewable energy, practise greater energy efficiency and reduce carbon emissions in transportation, industrial activities and government facilities. This is an idea supported by a number of people, such as Lucienne Lanteigne of Moncton, who wrote in her submission to the Commission, "There is an urgent need to start investing in clean renewable energy. There are enormous and varied opportunities to develop new energy sources; we need to invest in these cleaner sources of energy that will also create good jobs. It is quite simply a matter of will and concern for our planet."⁶

All these efforts will change the way energy is produced and consumed. To keep global warming within 1.5° C, New Brunswick residents and businesses must significantly increase use of lower emission sources of energy while decreasing use of fossil fuels, the latter of which is a significant

contributor of carbon emissions. Over a decade ago natural gas was widely regarded as the perfect transitional fuel, and a number of New Brunswick industries, small businesses and institutions, such as hospitals, universities and schools, converted to natural gas. At the time, those decisions were publicly supported by local environmentalists.⁷ It was a popular choice because it produces lower emissions and natural gas-fired generators can be turned on and off quickly, a good partner for renewable energy sources such as wind and solar, which produce power intermittently. However, recent scientific research into the environmental impact of methane emissions, the principal component of natural gas, has raised questions about natural gas and its role as a transition fuel. This is how the issue of shale gas is drawn into the much larger climate change debate.

Beyond natural gas, New Brunswick has been slow in making the transition to clean energy – as a commodity rather than as a series of advanced technologies and services operating within a larger system. Natural gas, oil, and uranium are commodities and extracting these commodities has traditionally supported national and provincial economies, such as coal once did in New Brunswick. However the world is shifting towards integrated energy systems that will be supported by a variety of advanced technologies, most of which will not require fossil fuels.⁸ The Council of Canadian Academies' 2015 report *Technology and Policy Options for a Low-Emission Energy System in Canada* examined the following commercial and pre-commercial technologies for Canadian electricity generation.⁹

Commercial technologies:

- Biomass
- Geothermal
- Hydropower
- Nuclear
- Solar
- Wind onshore and offshore

Pre-commercial technologies:

- Carbon capture for natural gas-fired or coal-fired energy generation
- Tidal

As Canada and New Brunswick increase use of renewable energy, much of which produces energy intermittently, the following energy storage technologies could be of value:¹⁰

- Compressed air systems
- Battery systems
- Hydrogen fuel cells
- Flywheels
- Electrochemical capacitors

Low-emission fuel choices for transportation:¹¹

- Biofuels
- Electricity
- Hydrogen

The Commission heard from individuals, companies and governments that are either ready to begin this transition to a low carbon society or want to accelerate what is already underway.

Balanced Use of Our Energy and Water Resources

Managing our energy and our water resources should sit at the centre of New Brunswick's climate change plans because the two are inextricably linked. New Brunswick needs energy to extract, transport, distribute and treat water. At the same time, water is used in many forms of energy production, such as hydroelectricity, thermal power, nuclear power and, of course, hydraulic fracturing. As stated by the International Energy Agency in its 2015 World Energy Outlook, "Each resource faces rising demands and constraints in many regions as a consequence of economic and population growth and climate change, which will amplify their vulnerability to one another."¹²

Guaranteeing the long-term viability of both our water and energy resources should be central to New Brunswick's energy and environmental strategy. To do that, the Government will need to address the inherent tension between the two, which has been heightened by the hydraulic fracturing issue. This will require governments, businesses and individuals to adopt a more holistic approach to how each uses these two resources, an approach in which cumulative impacts on an ecosystem are considered. Key to this will be defining the role natural gas will play in New Brunswick's future energy mix and how we will monitor and manage the impacts.



Canadians' Relationship with Indigenous People

In his Mandate Letter to the Minister of Indigenous and Northern Affairs, Prime Minister Justin Trudeau wrote, "No relationship is more important to me and to Canada than the one with Indigenous People. It is time for a renewed, nation-to-nation relationship with Indigenous People, based on recognition of rights, respect, co-operation, and partnership."¹³

This is a significant shift in government policy, reflecting the Truth and Reconciliation Commission, the United Nations *Declaration on the Rights of Indigenous People* and a combination of legal, social and economic forces:

- Recent Supreme Court rulings regarding a legal 'duty to consult' with, and where appropriate to accommodate, Indigenous people "before an action or decision is taken that may adversely impact Aboriginal and treaty rights;"¹⁴
- The 2015 report of the Truth and Reconciliation Commission, which made 94 calls to action related to a national policy of assimilation arising out of the treatment of Indigenous children in the Canadian residential school system;
- The Idle No More social movement;
- Growing demand to address the issue of murdered and missing Indigenous women and girls; and,
- The Indigenous youth movement, which seeks to build a stronger sense of cultural identity, self-confidence and self-esteem in Indigenous youth as a path to greater economic success.

Indigenous people in New Brunswick are watching the actions of the federal government very closely, and by extension the Government of New

Brunswick. Both the Mi'gmaq and the Maliseet (Wolastoqiyik) are wary of government actions, particularly around the issues of hydraulic fracturing and local land use. The Commission heard this clearly in the conversations it had and the correspondence it received from Indigenous groups and individuals. The Commission would like to acknowledge the substantial brief provided by the Mi'gmaq Sagamaq Mawiomi, the comments received from the Maliseet (Wolastoqiyik) Chiefs, the meetings with elders, traditional leaders and advocates, and the submissions received from Indigenous communities. While these submissions and meetings were of great value, the Commission's level of engagement with Indigenous people was lower than it had hoped. This lack of participation was likely caused by a number of reasons, most notably the following two factors.

- **A deep distrust of government:** As a government-appointed Commission, we were viewed as an arm of government, most likely sent to either convince Indigenous people to allow development to proceed, or to listen politely so Government could say it consulted Indigenous people. As Alma Brooks wrote in her submission, "The duty to consult has become a meaningless process. Companies meet with INAC Chiefs (Indian and Northern Affairs Canada), whose jurisdiction is limited to within each of their respective reserves; individuals are given a power point presentation and then told the next step is accommodation...A majority of the people do not go to these meetings due to the manipulation of the process and the lack of regard for collective rights."¹⁵
- **A lack of capacity:** New Brunswick's Indigenous communities face significant challenges to acquire the expertise needed to assess the potential impacts hydraulic fracturing could have on their traditional lands. As rights holders, Indigenous people seek to understand the cumulative impact

that development activities might have on their traditional land and water systems. This requires a level of research and understanding of Indigenous knowledge that has not, to date, been fully integrated into New Brunswick's regulatory system. As the Mi'gmaq Sagamaq Mawiomi stated in its submission to the Commission, "Mi'gmaq knowledge has wrongly been dismissed and rejected by the Crown and industry as anecdotal or non-specific. When Mi'gmaq knowledge is researched by the Mi'gmaq in a fulsome manner, it will provide precise and accurate evidence of Mi'gmaq use and occupancy of the land. The Crown and industry's reluctance to adequately fund Mi'gmaq knowledge and Mi'gmaq land use and occupancy studies makes it virtually impossible to develop robust and essential Mi'gmaq knowledge studies."¹⁶

Addressing these two interrelated factors will require the Government to rebuild its relationship with Indigenous people. Only then will Indigenous people in New Brunswick be willing to fully participate in a conversation about hydraulic fracturing. Therefore the Commission has concluded that significant work is needed to strengthen this relationship before a full assessment of the Government's ability to comply with Duty to Consult can be completed, as listed in our mandate.

Wealth Creation and New Brunswick's Economic Transition to a New Economic and Environmental Reality

New Brunswick needs to generate more wealth. That's the bottom line – not just for the Government but also for everyone who lives and works in this province. We consistently finish at the bottom of provincial rankings on most major

analyses of economic indicators and have for some time. Anecdotally, New Brunswickers know this based on their own personal experiences trying to find work or watching friends and family members pack up and leave for work elsewhere.

The Conference Board of Canada's Provincial and Territorial Ranking provides a good overview of our economic challenge. New Brunswick ranks last for income per capita, a measurement that reflects the capacity of people to purchase the goods and services needed to live, such as housing, food and clothing.¹⁷ We also rank last in the Conference Board's rankings on innovation, which includes both breakthrough technologies and the equally important incremental technological changes companies make to increase productivity. New Brunswick is also at the bottom of the pack in attracting venture capital and the number of researchers engaged in R&D.¹⁸

The province's poor economic performance is a huge problem because "a province or country that is not generating enough income is hampered in what it can do in other areas, such as the environment and education."¹⁹ New Brunswick businesses, individuals and governments need to generate more wealth; without it, the changes we want simply will not happen. Companies large and small need to attract capital investment to New Brunswick to invest in the technologies, the processes and the people needed to grow. A more prosperous private sector economy will lead to greater revenue for the Government of New Brunswick, which in turn will improve its capacity to invest in the people and technologies it needs to enable systems change in the areas of health care, education and social services. Stronger local communities will also increase the local tax base for municipalities, enabling greater investment in municipal services such as water and sewage systems, parks and recreation, and downtown renewal.



To do this, the private sector must accelerate its transition to a value-added resources and knowledge-based economy. Value-added industries rely primarily on technology, productivity and skilled labour to create products and services, often from natural resources that are sold at premium prices. This stands in contrast to traditional commodity-based economies, which are more susceptible to market fluctuations, as the past year of dropping oil and natural gas prices and stock market values has illustrated. For instance, in comparison to the poor performance of Canada's energy and mining commodities in 2015, value-added exports grew by about 15 per cent, year over year.²⁰ New Brunswick needs to be part of this larger story. Energy can play a key role in getting us there, but only if we change how we think about it.

As was stated above, New Brunswickers need to regard energy investments as part of the larger advanced technology story rather than simply as a commodity as we have done in the past. This will stimulate greater investment in energy technologies, particularly those that can help us transition to a more affordable, cleaner energy future. In 2014 Atlantic Canada attracted \$160 million in clean energy investments.²¹ It's a start but we can – and must – do better.

The Role of Natural Gas in the New Brunswick Economy

To make the transition to a value-added resources and knowledge-based economy, New Brunswickers need access to affordable, secure and increasingly clean energy. Natural gas is going to be a part of that mix for the foreseeable future. It is generally accepted that natural gas is going to be used in large amounts by institutional, industrial and commercial users in New Brunswick well into the next decade and beyond. Most, if not all, of that natural gas will be produced via hydraulic fracturing from somewhere in North America.

New Brunswick's increased use of natural gas was facilitated by a single event: the arrival of natural gas from Nova Scotia's Sable Offshore Energy Project via the Maritimes and Northeast Pipeline (MNP) in January 2000. The table below illustrates that arrival and the growth of natural gas as an energy source for New Brunswick industrial, commercial and institutional users and the accompanying decrease in heavy and light fuel oil.²²

New Brunswick's economy is now heavily linked to natural gas and will be for many years to come. The question New Brunswick residents must answer is how do we want to access hydraulically fractured natural gas? Do we want to produce it ourselves or purchase it from existing shale gas-producing regions in the United States and/or western Canada?

Both options carry with them significant impacts for our economy and for the lives of New Brunswickers. This is a difficult choice. For industries that are reliant on natural gas, the choice is clear – locally-produced natural gas should be available. As the submission from Enterprise Saint John states, "Of the 25 energy-related investment opportunities identified...15 are expected to be heavily reliant on natural gas as an energy source. With the current price, availability and volatility of the natural gas market, these opportunities are unlikely to be realized."²³

Those who oppose shale gas see the choice differently. As the Anti-Shale Gas Alliance wrote, "Businesses that reap the benefits of gas, and that made decisions to be dependent on gas, did so voluntarily, by themselves, in full control of their destiny, often with the collusion or assistance of the government. Whether the decisions were based on good information, foresight or outside influences is irrelevant. We would argue that the decision to commit completely to natural gas in a province that had a very small infrastructure and customer base for that gas was a risky choice."²⁴

Right now New Brunswick's natural gas users are facing down a looming problem: offshore Nova Scotia natural gas production is slowing down. A 2014 report prepared by Jupia Consulting for the Atlantica Centre for Energy estimates demand

	Industrial		Commercial/Institutional		Residential	
	1999	2013	1999	2013	1999	2013
Electricity	58 %	41 %	49 %	66%	50 %	56 %
Natural Gas	0	43 %	0	19 %	0	2 %
Light Fuel Oil	3 %	3 %	32 %	5 %	19 %	14 %
Heavy Fuel Oil	39 %	10 %	13 %	6 %	2 %	1 %
Other	0	3 %	6 %	4 %	29 %	27 %

Source: Canada, Statistics Canada, Report on Energy Supply and Demand in Canada - 2013 Preliminary (Minister of Industry, 2015). 57-003-X



for natural gas in the Maritimes will outstrip supply by the winter of 2017/18.²⁵ (Full disclosure: Jupia's founder became Chief Economist for the Government of New Brunswick in February 2015.)

In anticipation of this decline, MNP majority owner Spectra Energy has proposed the Atlantic Bridge Project, an expansion of the MNP and Algonquin Gas Transmission systems. It will supply natural gas to New England and Maritimes customers, with an in-service date of November 2017. Three regional users – Irving Oil and J.D. Irving in New Brunswick and Heritage Gas in Nova Scotia – have already entered into long-term service agreements.²⁶ The project will “provide New England and the Maritime provinces of Canada with greater access to traditional and new supply sources in the U.S.”²⁷ In other words, U.S.-produced hydraulic fractured shale gas will arrive in New Brunswick by November 2017.

Natural gas producers and transporters have three possible ways to build market share.

- First, there are existing customers for natural gas. In the near term, this group will likely maintain current natural gas volumes. This group includes large industrial customers Irving Oil, J.D. Irving and Bayside Power, as well as 12,000 customers served by Enbridge Gas New Brunswick in Fredericton, Moncton, Oromocto, St. George, St. Stephen and Saint John, such as Greenarm Group of Companies, Acadian Construction, Commercial Properties, Université du Moncton, St. Thomas University, the University of New Brunswick, the New Brunswick Community College (Fredericton and Saint John) and the Legislative Assembly.
- Second there are potential new local customers, such as NB Power, which could increase natural gas volumes.

- Third there remains the possibility of attracting new, natural gas-dependent businesses if New Brunswick has a guaranteed long-term supply. The Atlantic Potash Corporation falls into the latter category. It has proposed two capital projects; a \$3 billion potash mine at Millstream and a fertilizer plan in Saint John, estimated at just under \$100 million.²⁸

NB Power is one of the few local natural gas users likely to add to the province's overall natural gas volumes. According to the utility, every \$1/MMbtu change in the price of natural gas has an \$8.5 million impact on electricity costs. Seasonal variations in market price can range between \$5/ and \$10/MMbtu. As NB Power stated in its submission, “Stabilizing these seasonal variations would benefit New Brunswickers by \$40 million to \$85 million annually.” The utility predicts the money saved using natural gas rather than fuel oil will be passed on to all New Brunswick customers through lower rates.

Currently, NB Power accesses natural gas-powered electricity via power purchase agreements with two Saint John-based generation stations: Bayside Power, which is owned by Emera, and Grandview Power, a joint venture between Irving Oil and TransCanada. These agreements commit the utility to purchase natural gas-produced power into the next decade. In addition, NB Power is examining whether to convert Coleson Cove to natural gas. Coleson Cove is the largest thermal generator in eastern Canada and NB Power's largest emitter of greenhouse gases. Converting Coleson Cove to natural gas could reduce NB Power's greenhouse gas emissions intensity by 28 per cent.²⁹

Determining whether New Brunswick industries, small businesses and institutions should be served by locally-produced, hydraulically-fractured natural gas is the choice before the Government of New Brunswick. Natural Resources Canada estimates

horizontal drilling and hydraulic fracturing will account for over 90 per cent of Canada's natural gas production by 2035.³⁰ Here in New Brunswick, a total of 50 oil and gas wells have been hydraulically fractured since 1990. There are currently three natural gas exploration and production companies operating in New Brunswick.

Corridor Resources Inc. arrived in 1999 and today holds three leases with a total area of 87,795 hectares in and around the Sussex area of Kings and Albert Counties. Two distinct natural gas plays occur on these lands: the Frederick Brook shale gas formation and the Hiram Brook sandstone formation. The vast majority of its gas production has occurred in the McCully gas field, located in Penobscus, Kings County. Since commercial production began in 2003, the field has produced 51 billion cubic feet (BCF) of natural gas. Corridor is partnered with Potash Corporation of Saskatchewan (PCS) in approximately one half of the wells at McCully. Prior to 2007, McCully gas was consumed at the PCS's Penobscus potash operation, located adjacent to the McCully field. In 2007 Corridor expanded the field and constructed the McCully gas plant. Corridor's plant and gathering system connects to both PCS' Penobscus mine and the Maritime and Northeast Pipeline system, enabling Corridor to reach other customers in the region. On January 19, 2016 PCS announced it was permanently shutting down its Penobscus operations, including its new Picadilly mine. This decision is not likely to have an immediate impact on Corridor's and PCS's gas operations other than more of PCS's gas will be sold via the Maritime and Northeast Pipeline. In public filings, Corridor indicates approximately a 12 per cent annual decline in its reserves and it requires more drilling and hydraulic fracturing to maintain its current reserves. This will only happen if the Government decides to proceed with hydraulic fracturing. To date Corridor has hydraulically fractured 39 wells.

The Frederick Brook shale gas formation, which occurs over all three of the leases, requires further exploratory drilling to determine if production is technologically possible and economically feasible. Based on a preliminary study conducted by independent consultants, the Frederick Brook formation may contain approximately 67 trillion cubic feet (TCF) of natural gas in place. If the Government decides to proceed with hydraulic fracturing, Corridor will likely restart its efforts to raise capital investment for its Frederick Brook exploration and evaluation program.³¹

SWN Resources Canada was granted an exploration licence in 2010 for 1.019 million hectares covering much of central New Brunswick including parts of York, Sunbury, Queens, Northumberland and Kent Counties. The company's exploration program will allow it to categorize potential oil and natural gas resources and assess its commercial and technological feasibility. To date SWN has conducted geophysical (seismic gravity and magnetic) surveys, surface geochemical surveys and aerial photography, which enabled the company to identify areas for further exploration. In 2014 the company submitted four Phased Environmental Impact Assessments to the Government as it proposed to drill up to four exploratory stratigraphic wells. Those potential drill sites are near Lower Saint-Charles and Galloway in Kent County and in Queen's County in the areas of Bronson Settlement Road and Pangburn. If the Government decides to proceed with hydraulic fracturing, SWN would be required to seek further regulatory approval. In July 2015 the Government of New Brunswick extended SWN Resources Canada's exploration licences through 2021.

ORLEN Upstream Canada Ltd. (formerly Kicking Horse Energy Inc.) holds leases totalling 13,300 hectares in the Stoney Creek and Hillsborough areas of Albert County in



southeastern New Brunswick. Its lease areas include both proven oil reserves and potential natural gas reserves. In January 2016 ORLEN Upstream Canada Ltd., a wholly owned subsidiary of Polish oil and gas producer PKN ORLEN S.A., acquired Kicking Horse Energy and all its assets, including its leases in New Brunswick. ORLEN is currently reviewing the former Kicking Horse Energy holdings, including its license in New Brunswick.

Right now, neither the Government of New Brunswick nor shale gas producers know definitively if shale gas and/or oil exist within these licenses or if it can be extracted commercially. Therefore neither the Government, producers nor the Commission can accurately predict either production levels or a timeline for hydraulic fracturing in New Brunswick. Because of this lack of information, the Commission understands that any estimates regarding future government royalties and economic impacts are highly speculative. This lack of information regarding the actual size and potential value of natural gas and/or oil reserves makes it difficult to assess the full spectrum

of risks and benefits. Recognizing that, the Commission notes that private sector investors may be reticent to participate in an exploration program without guarantees that commercial production will proceed if the viability of the reserve is established. In the event that the Government of New Brunswick wants to determine the extent of New Brunswick's reserves without committing to the possibility of commercial development, it could examine the possibility of a federal/provincial geological survey including exploratory drilling.

In conclusion, it is apparent natural gas is a part of New Brunswick's economic reality and will be for the foreseeable future. For this reason New Brunswick residents, Indigenous people, governments and industry can no longer avoid a conversation about hydraulic fracturing and the future of shale gas. Together we must decide if we want to use locally-sourced shale gas to serve our domestic energy needs or continue to purchase hydraulically fractured natural gas from other jurisdictions. If the Government of New Brunswick chooses to proceed, it will need to develop a new model for managing impacts.

Towards An Integrated Risk Management Model

Determining the extent of potential risks hydraulic fracturing poses to New Brunswick communities will depend on the answers to a number of questions.

- What will be the number of wells, well pads and related facilities, such as gas processing plants?
- What will be the density of developments, which could be clustered in specific areas or spread out?
- What will be the pace of development, which is generally expected to be slow over the next decade?
- What will be the location of well pads in relation to water supplies and waste treatment facilities, and the extent to which water pipelines, waterless hydraulic fracturing technologies and onsite recycling systems are employed, all of which will impact the risk level to water resources as well as traffic patterns?
- What will be the impacts of potential increases to individual communities' populations and the resultant economic spinoffs that could bring?

Our detailed review of the potential impacts in relation to these questions can be found in Volume II.

No one in New Brunswick has the answer to the above questions because no one knows the size or commercial viability of the province's shale gas resources. However, understanding what we need to know enables the Government to design an integrated risk management process that is tailored to our province's specific needs. In its 2014 report, the Council of Canadian Academies recommended a comprehensive

risk management framework focused on five elements that could provide the Government with a good starting point.

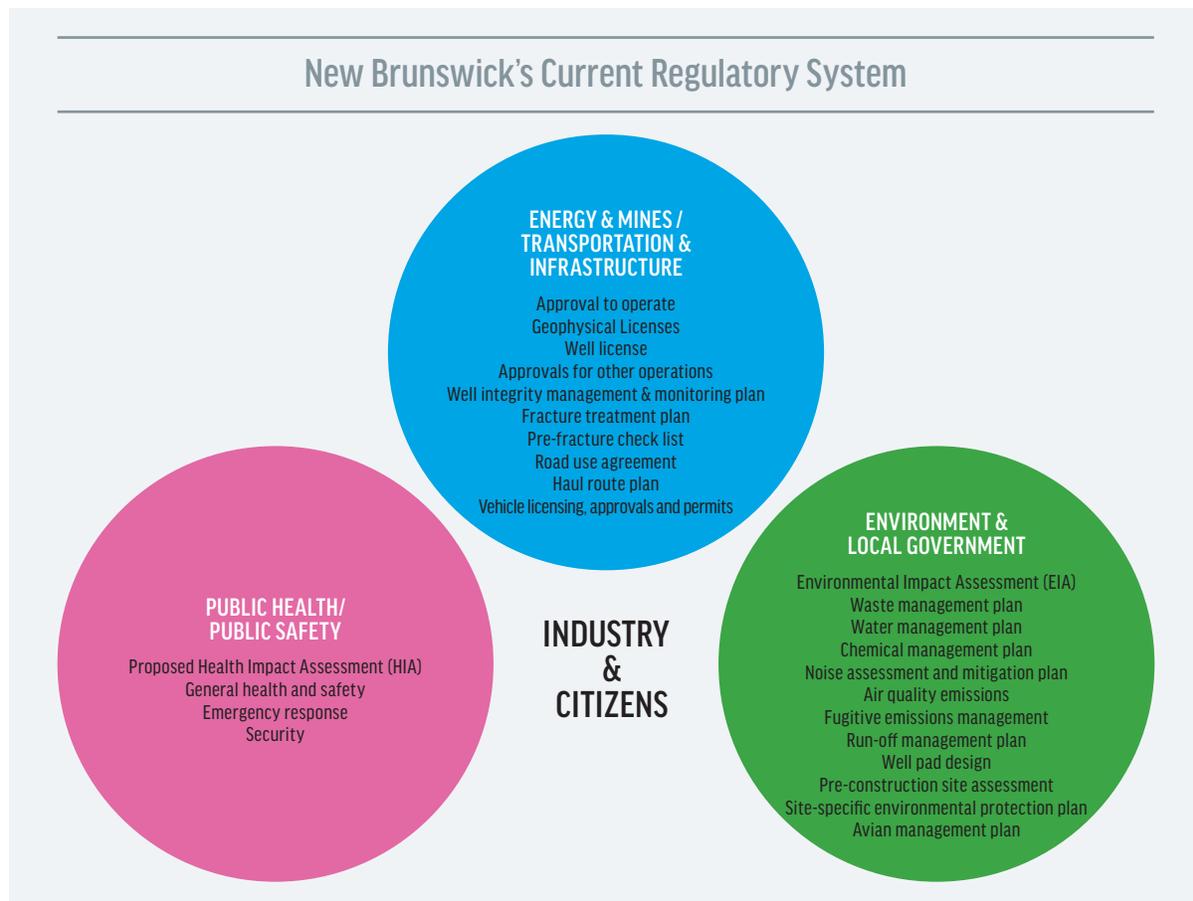
- **Technologies to develop and produce shale gas.** Equipment and products must be adequately designed, installed in compliance with specifications, and tested and maintained for reliability.
- **Management systems to control the risks to the environment and public health.** The safety management of equipment and processes associated with the development and operation of shale gas sites must be comprehensive and rigorous.
- **An effective regulatory system.** Rules to govern the development of shale gas must be based on appropriate science-driven, outcome-based regulations with strong performance monitoring, inspection and enforcement.
- **Regional planning.** To address cumulative impacts, drilling and development plans must reflect local and regional environmental conditions, including existing land uses and environmental risks. Some areas may not be suitable for development with current technology, whereas others may require specific management measures.
- **Engagement of local citizens and stakeholders.** Public engagement is necessary not only to inform local residents of development, but to receive their input on what values need to be protected, to reflect their concerns and to earn their trust. Environmental data should be transparent and available to all stakeholders.³²



This is a framework that points towards the management of its regulatory processes under one entity. This should be an evolutionary process designed to improve efficiencies and ensure the concept of sustainable community development is reflected in regulatory decisions. The Government's current regulatory process for shale gas development, as illustrated below, has created silos of information and authority. This has frustrated industry applicants, Indigenous people and members of the public who want to participate in the process.

A single regulator could eliminate the duplication and inefficiencies within the current regulatory system by leading ongoing, community-focused consultations rather than project-specific assessments.

A single regulator would also eliminate a common problem associated with the resource development sector across Canada: single departments act as both promoter and regulator. This potential for internal departmental conflict is evident in the Department of Energy and Mines, which is responsible for both the development of the province's oil and gas sector and its licensing. Both the Council of Canadian Academies and the Alberta government's 2011 Regulatory Enhancement Task Force report, which led to the creation of a single regulator, cited this as an issue that undercuts the public's trust in government. Reports from New Brunswick's Auditor General, Ombudsman and Chief Medical Officer of Health, among others, have all noted this disconnect in the New Brunswick context.



There is a disconnect between community goals and the Government of New Brunswick's current regulatory system as it relates to hydraulic fracturing. It needs to change for at least three important reasons.

- Both shale gas producers and community groups such as the New Brunswick Anti-Shale Gas Alliance describe the current system as complicated, slow-moving, opaque and unenforceable. As the Water and Environmental Protection for Albert County (WEPAC) group wrote in its submission, "At no time was this community asked if they wanted this industry. At no time did a representative of the government or industry come into the community to advise us of the level of risk associated with this industry or provide risk/benefit analysis. At no time were we provided with unbiased information on risks or dangers."³³
- Changes are necessary as the Government of New Brunswick develops new standards and/or policies as part of Canada's commitment to reduce greenhouse gas emissions as a signatory of the UN

universal climate change agreement. As the Woodstock Sustainable Development Group wrote in its submission, "Understanding the situation historically, our economy has been developed and is largely running on fossil fuels – coal, oil and natural gas. Plotting our energy transition into the future, we see the use of those fossil fuels as steadily diminishing and renewables gaining in capacity and system flexibility."³⁴

- The current process isn't trusted by Indigenous people, community groups and individuals who attempted to work within the system and in frustration joined together to advocate for change. As Debra Hopper of Indian Island wrote in her submission, "This has been a difficult task for me to write. I need so very much to have my concerns taken seriously. I need for this commission not to be another rubber stamp for government and industry."³⁵

An independent regulatory process could help build New Brunswick residents' trust in Government, a necessary step as we chart our new energy and environmental future.



Next Steps: The Commission's Findings and the Five Conditions Regarding Hydraulic Fracturing in New Brunswick

New Brunswick, as we have already stated, is in the midst of massive technological, economic and social change. We, its residents, have a choice to make: we can either passively wait for these waves of change to crash over us or we can grab the wheel and navigate our way across together. The Commission encourages our fellow New Brunswickers to choose the latter. However, in doing so, we acknowledge that all of us – residents, Indigenous people, businesses and governments – have to actively participate in negotiating our way forward, and that will not be easy. Addressing the issues of hydraulic fracturing will require deep systems change and Government cannot and should not do this alone. We got to this point in the conversation because of a breakdown in the relationship among communities, Indigenous people, industry and governments; mending that relationship is how we will move forward. What follows are the Commission's findings for how that might be achieved.

Condition: A social license in place.

Throughout this process, nothing has provoked greater debate than the concept of social license. What is it? How do you get it? And once obtained, how do you hold onto it?

In our conversations with both fellow New Brunswickers and outside experts on all sides of the shale gas debate, the Commission used a simple working definition for social license: informed public consent. This working definition had three parts.

- Informed, which reflects the need for an open and transparent process that provides everyone with access to timely scientific and technical information, delivered by trusted and objective sources, and that also has the ability to bring all parties together for a meaningful shared dialogue about the possible risks and benefits of a project.
- Public, which reinforces the central role of citizens in this process and the responsibility we each bear to participate – and the responsibility of Government to create an environment that enables that participation.
- Consent, which reflects the need to build community acceptance and respect for the public regulatory process. This is needed to ensure members of the public believe their views are respected and reflected in decisions, and that all stakeholders accept the role of the regulator as arbiter on issues related to hydraulic fracturing and shale gas development. While all New Brunswickers may not agree with all decisions – unanimity is unlikely on complex issues – Government can work to build public respect for the process. Without that mutual respect, the Government's process runs the risk of being rejected by the very public it seeks to serve.

While that definition was a useful starting point, it is time to move on to a new concept that better reflects the model of ongoing consultation and information exchange among residents, Indigenous people, public institutions and the private sector outlined below.

Finding #1: A different approach is needed to address complex public issues such as hydraulic fracturing.

It is unfair to ask any one industry to bear the weight of trying to solve the complex economic and social challenges New Brunswick faces. Yet that is precisely what we have done to shale gas. A number of concerns raised about shale gas development, such as the industry's impact on water, air, human health, wildlife, vegetation, roads, traffic, and Indigenous rights and cultural practices are also concerns people have with existing industries and human activities in New Brunswick.

That isn't solely the shale gas industry's problem; that's our problem – and it's why the province needs a robust and independent regulatory system. It should be born of strong public policy that will clearly define the rules and conditions for operating resource-based businesses and projects in New Brunswick and which respect our community goals and values.

New Brunswickers must rebuild trust in our public institutions, in our corporate sector and in each other. For some, this will not be easy. Those who adamantly oppose hydraulic fracturing and those who are equally adamant in their support of it do not trust each other. That is why it is vitally important for that third group of New Brunswick citizens the Commission has identified – those who acknowledge there are risks and benefits inherent in any form of development – to take a leadership role in the next phase of this conversation.

We met a number of people from this third group in the course of our work who share a common trait: they are deeply connected to the formal and informal networks that enrich life in our communities. This is important because the future of resource development in New Brunswick lies in achieving the ongoing support and consent of the

people most directly impacted. The Government has the responsibility to create the space for that community-focused conversation to occur – and it currently has a window of opportunity to do this.

There remains great uncertainty as to the size and commercial viability of New Brunswick's shale gas resources. This, coupled with current prices, means nothing is likely to happen in the immediate future. Knowing that, the Government has time to design, resource and implement a regulatory system, including a robust research and monitoring process, and industry has time to engage in a substantive way with local communities.

Finding #2: A broader community conversation about community risks and benefits is required.

Conversations regarding hydraulic fracturing and shale gas must be community-focused because it is the communities located closest to proposed and existing developments that accept the most direct risk if Government decides to proceed. Assessing community risk is multilayered and occurs across a continuum, as illustrated in this diagram.





At its core is a recognition that the Government's relationship with residents is built on trust and mutual respect. Within this relationship, the first obligation is New Brunswick's Indigenous people because they are rights holders, and the Government has a duty to consult with them ahead of any development. The next obligation should be the people and communities directly impacted by the proposed development because they are being asked to assume the greatest risks and therefore proposed benefits should reflect their role as community hosts. Finally, the Government must assess the impacts, both direct and indirect, on the wider provincial population and assign commiserate benefits.

Finding #3: An independent environment and energy research network is required.

To conduct open and transparent evidence-based consultations, the regulator will need to be supported by an independent research network. Fortunately, we already have the foundation for this network in the work already being done by New Brunswick's community of academic researchers, many of whom collaborate with researchers from across North America.

The Government should build upon the work already begun by New Brunswick's research community and support the expansion of this homegrown network's research capabilities and impact. This could include seeking funding support from the Government of Canada and/or creating an Atlantic Canada Energy and Environment

Research Network with the governments of Nova Scotia, Newfoundland and Labrador and Prince Edward Island in support of a regional approach to climate change and future energy developments.

Finding #4: An environment and energy strategy needs to be developed that helps transition to a new, value-added knowledge-based economy.

The independent regulator's mandate must be born of strong public policy, specifically a new environment and energy strategy that:

- is driven by a clear vision that New Brunswick businesses must develop wealth in this province through the adoption of new technologies and processes and an increase in our production of value-added goods and services;
- reflects New Brunswick's role in meeting Canada's commitment to limit our country's overall carbon emissions and transition to a carbon neutral society;
- accelerates New Brunswick's adoption of low and/or no-carbon energy technologies via private sector investment and community-sponsored projects;
- outlines what will be required to mitigate the impacts of climate change-related effects, such as extreme weather, on New Brunswick's watersheds, coasts and land base; and,
- clarifies the role natural gas and other fossil fuels will play in New Brunswick's energy mix over the next 10-20 years as New Brunswick transitions to a carbon-neutral society.

Condition:

Clear and credible information about the impacts of hydraulic fracturing on our health, environment and water, allowing us to develop a country-leading regulatory regime with sufficient enforcement capabilities.

Condition:

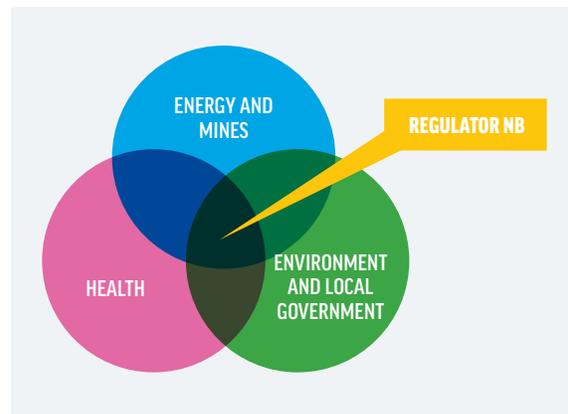
A plan in place that mitigates the impacts on public infrastructure and that addresses issues such as wastewater disposal.

The Commission provides an in-depth review of integrated risk management models and the potential human health and environmental risks associated with hydraulic fracturing in Volume II.

The following findings relate to both of these conditions.

Finding #5: An independent regulator should be created with a mandate to strengthen New Brunswick's monitoring and evaluation of shale gas development in terms of understanding cumulative effects, including impact on human health and the environment.

This new regulator should have the independence to act in the public interest and to provide open and transparent access to scientific data and information regarding the state of human health and the environment. Key to this is the legal authority to examine, approve, investigate and suspend shale gas operations, with opportunity over time to expand to other industries. If the Government chooses to proceed with hydraulic fracturing,



the Commission envisions a regulator that grows incrementally, adding services and capacity between now and the potential start of commercial development.

The transition to a single regulator, beginning with hydraulic fracturing, is informed by the following four factors the Commission heard repeatedly during the course of our work.

- **New Brunswick residents and shale gas producers require a robust regulatory regime.** The Government of New Brunswick's existing multi-department system was designed to grow alongside the shale gas industry. The logic as we understand it is to not spend money creating an oil and gas regulator before we know if New Brunswick will actually have an oil and gas sector to regulate. While this makes financial sense, it fails to meet the standard of effective regulatory policy, which is to provide robust and trusted enforcement of government regulations.
- **It is difficult for Government departments to both promote and effectively regulate an industry.** The simple answer is to separate the two functions. Because resource development projects provide revenue to the Government of New Brunswick via royalties, Crown land leases and taxes, it makes sense



to keep the promotional aspects of resource development within line departments and transfer regulatory responsibilities to an independent regulator.

- **A robust cumulative impacts assessment process could address community concerns.** As the Commission noted in Finding #2, many of the risks and benefits associated with shale gas development are present in other resource development projects. Creating a single regulator will enable better measuring and monitoring of cumulative impacts of human activities on New Brunswick communities.
- **A core cross-disciplinary team of regulatory experts could help disseminate information and build knowledge capacity.** This team would include people with expertise in: Indigenous legal precedents and cultural practices; human and environmental health; engineering technologies; community consultations; and capital markets. Together they would be able to assess and monitor projects, convene community consultations, direct independent research priorities, advise government on policy direction, and provide the public with ongoing information about the future of sustainable development in New Brunswick.

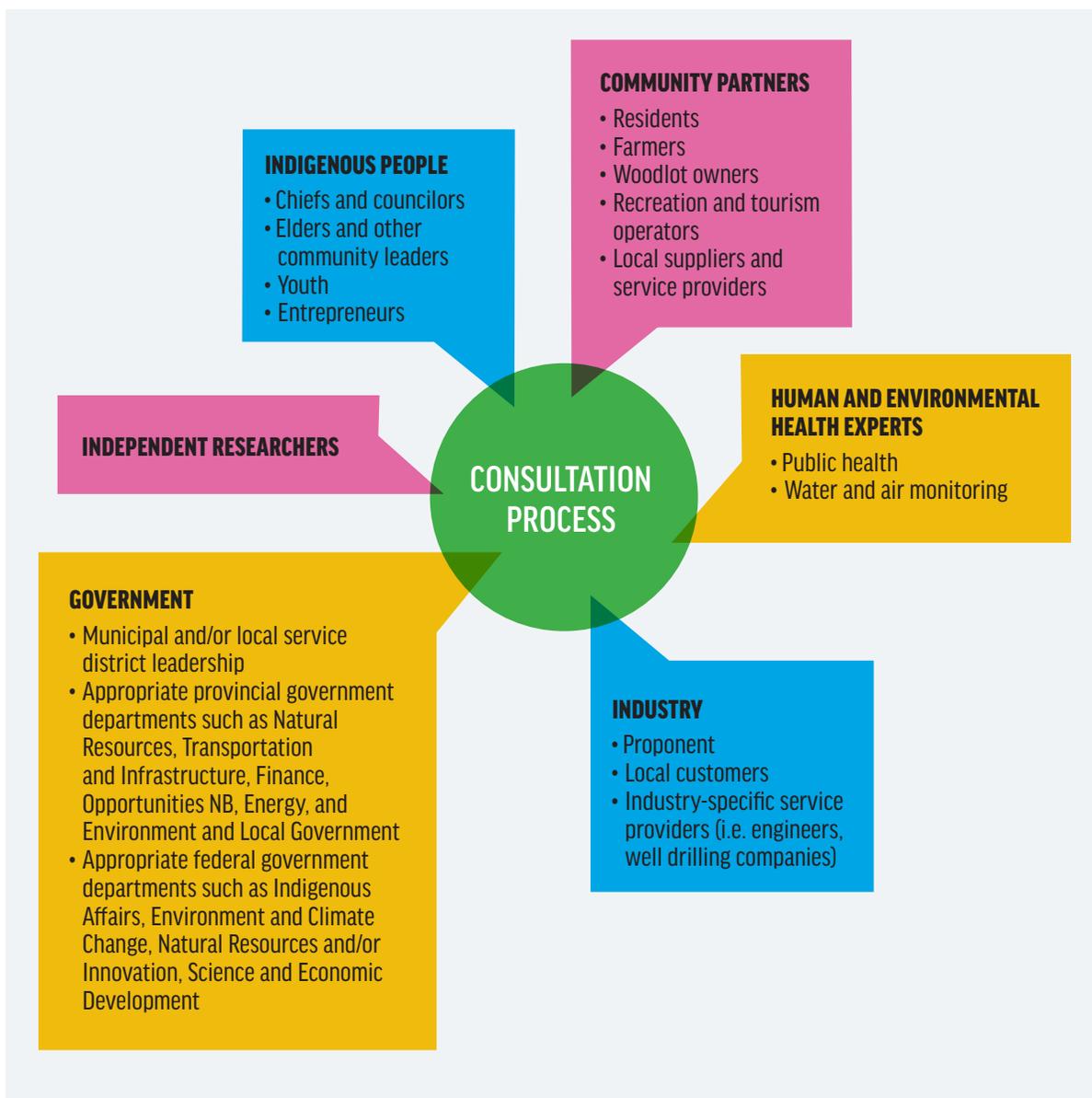
An important first step, should the Government proceed with hydraulic fracturing, will be the design of a risk management model that is able to mitigate the impact of known risks while developing a system to identify uncertainties if development proceeds. The Department of Environment and Local Government is in the midst of determining how best to integrate an assessment of cumulative impacts into its current Environmental Impact Assessment (EIA) process. At the same time, the Department of

Health continues to advocate for the adoption of the Health Impact Assessment (HIA) process, as recommended by the Chief Medical Officer of Health's 2012 recommendations for shale gas development. It strikes us that a single, integrated assessment of both human health and environmental impacts is the logical next step.

The bottom line is New Brunswickers need to understand if the risks and benefits associated with hydraulic fracturing can be managed within acceptable levels. To determine that, residents, local governments, Indigenous people and businesses need a trusted, independent voice to convene that conversation. This integrated model is further elaborated in Volume II. Below are the key values upon which the regulator should be founded.

- **Independent:** The regulator will be free of political and bureaucratic interference or influence.
- **Open and transparent:** The regulator will provide everyone with access to timely scientific technical and financial information, which will build trust and enable it to bring all parties together for community-centred consultations about the possible risks and benefits of a project.
- **User-friendly:** The regulator will enable faster approvals and enforcement of regulations.
- **Evidence-based:** The regulator will establish proper baseline monitoring of human and environmental health impacts, conducted by trusted and objective sources.
- **Citizen oversight:** A mechanism for citizen oversight must be developed.
- **Community-centred:** The regulator will convene ongoing community consultations in order to gauge and assess community acceptance of new and existing activities.

The following diagram illustrates the potential list of participants in a community-centred consultation process concerned with assessing the cumulative impacts – both positive and negative – of future projects.





Finding #6: Adequate resources must be assigned to properly plan for potential public infrastructure impacts.

The departments of Transportation and Public Safety told the Commission that both are able to mitigate impacts to public planning with existing measures, if given proper time and resources to plan. Under a new regulatory process, both departments should continue to be integrated into the impacts assessment process, as municipal governments need to understand how ongoing maintenance of roads and other infrastructure will be financed both during the project and after the industry has left.

Finding #7: Short-term and long-term solutions to hydraulically fractured wastewater should be determined before commercial production begins.

Technology to deal with wastewater exists; the next step is to determine what options to employ in New Brunswick if the Government decides to proceed with hydraulic fracturing. Communities need to understand, should the Government decide to proceed with hydraulic fracturing, how companies will treat wastewater, whether there is an opportunity for industry to reuse water from the hydraulic fracturing process, and how and where companies will eventually dispose of wastewater. The Commission provides an in-depth review of wastewater options in Volume II and has concluded it will be expensive to start, until economies of scale are established and a permanent solution is identified. These decisions will likely impact the size and speed of capital investment in hydraulic fracturing, should the Government decide to proceed.

Condition:

A process in place to respect our obligations under the duty to consult with First Nations.

Finding #8: The Government of New Brunswick needs to work with Indigenous leadership in New Brunswick to adopt a nation-to-nation consultation process for hydraulic fracturing.

The Government of New Brunswick must redefine its relationship with Indigenous people. Only then will Indigenous people in New Brunswick be willing to fully participate in a conversation about the future of shale gas development. Mi'gmaq and Maliseet (Wolastoqiyik) people told the Commission they don't want to talk about hydraulic fracturing until more work is done to improve the relationship between these two Indigenous nations and the Government of New Brunswick. Until then, a full assessment of the Government's ability to comply with duty to consult obligations, as listed in our mandate, cannot be completed. The Commission can report that neither the Mi'gmaq nor Maliseet publicly support hydraulic fracturing in New Brunswick. As Russ Letica wrote on behalf of the six Maliseet chiefs, "It is accurate to say that the Maliseet Nation stands strongly against fracking in our traditional unceded territory; as well as in New Brunswick on the grounds the water tributaries connect throughout the province."³⁶

To help strengthen its relationship with Indigenous people as it relates to hydraulic fracturing, the Government should adopt the cumulative impact assessment model because it is closely aligned with the Indigenous perspective regarding land use. In addition, the Government should help resource an Indigenous-led research and monitoring program within the larger environment and energy research network to assess the impact of hydraulic fracturing on traditional territories and Indigenous cultural practices. For instance, Indigenous people depend on locally harvested vegetation and wildlife far more than the general population. Their concern regarding toxicity levels in their local ecosystems and loss of land to development has the potential to have a very real and lasting impact on their quality of life.

Condition:
A mechanism in place to ensure that benefits are maximized for New Brunswickers, including the development of a proper royalty structure.

Finding #9: The Government should determine a royalty structure that encourages responsible development and promotes specific government priorities.

The overriding goal of the Government's royalty regime should be to encourage sustainable community development. We believe the current system can achieve that, and we encourage ongoing consultation with industry and community stakeholders to achieve it. If the Government chooses to proceed with hydraulic fracturing, the royalty system will scale up alongside development, affording the Government modest revenue in the early years and increasing revenues once commercial development is established.

The Commission's analysis of projected royalty rates is available in Volume II. It includes projections based on two currency rate possibilities and indicates a possible range of revenue between \$200 million and \$300 million by Year 11. The overall trend line indicates the Government should expect to record modest revenue growth in the first decade as the industry becomes established, with revenues increasing at a greater rate in the second decade. While these findings are highly speculative, the long-term potential return to the province is significant and warrants attention.

A note of caution: if the Government chooses to proceed with hydraulic fracturing, it should not allow the volatility of natural gas prices to impact how or when Government determines royalty rates. Shale gas producers must calculate royalty rates into business forecasts and decide whether to proceed or not. If, in this current market, royalty rates are deemed to be too high, that is not sufficient reason for the Government to lower its rates. Rather, it is an indication that the market is not prepared to proceed.

In addition to setting fair market rates, the Government should reinvest royalties in specific government priorities such as:

- Indigenous benefits to support Indigenous-led research, skills training, cultural programming, language preservation and/or any other initiatives identified through the consultation process;
- community benefits to support local initiatives to mitigate risks and impacts related to shale gas development that will vary by community because of the pace and type of development;
- independent research related to the cumulative effects of shale gas development on communities; and,
- funding to support clean energy initiatives.



Final Thoughts

New Brunswick's economic reality continues to be of great concern to each of us and to the people we spoke with during our work. Solving this problem must underpin whatever decision the Government makes regarding hydraulic fracturing. Generally speaking, New Brunswick has five options:

- Implement a legislated ban on hydraulic fracturing;
- Maintain the moratorium;
- Maintain the moratorium until there is in place an enhanced regulatory system, an independent research and monitoring program and sufficient public support to proceed with a government-sponsored exploration program similar to the federal/provincial agreements that led to oil and gas offshore developments in Nova Scotia and in Newfoundland and Labrador;
- Remove the moratorium all or in part, with an enhanced regulatory system and an independent research and monitoring program; or
- Remove the moratorium with no changes to current regulations.

Within these options the Government has great variance as to how to proceed and, thanks to low commodity prices, time to adequately plan and prepare in collaboration with Indigenous people, communities and industry. For instance, the Government could proceed with hydraulic fracturing but set restrictions related to variables such as geographic location, land ownership (Crown land v. privately-held land), population density, wastewater technology, environmental setbacks and/or geological depth.

Our province and our country are in the midst of a great transition. To not only survive, but thrive in this environment, New Brunswick residents, businesses and governments must work together to develop community-based solutions to our complex problems.

This will take patience, good humour and goodwill to reach across our self-imposed divisions to work towards a common goal: to sustainably manage our resources well into the future.

Endnotes

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