



Energy Projects and Net Zero by 2050: Can We Build Enough Fast Enough?

Final Report

Michael Cleland and Monica Gattinger,
with Rafael Aguirre, Patricia Larkin and Julien Tohme | January 2025

This report was prepared by Positive Energy Executive-in-Residence Michael Cleland and Positive Energy Chair Professor Monica Gattinger. The project profiles were prepared by Postdoctoral Fellow Dr. Rafael Aguirre; Project Coordinator Dr. Patricia Larkin and Doctoral Candidate Julien Tohme, University of Ottawa. Julien Tohme provided invaluable assistance researching and drafting the literature review for the study.

Michael Cleland and Monica Gattinger would like to thank the interviewees for their generous commitment of time, energy and insight to the study. Positive Energy would also like to thank the many policy leaders, regulatory leaders, and interviewees, along with the First Nations Major Projects Coalition, who provided invaluable comments on the White Paper leading to this final report. In addition, we thank the organizations and individuals who reviewed the project profiles for accuracy. As is customary, any errors of fact or interpretation remain the sole responsibility of the authors.

Finally, we would like to thank the following organizations for their financial support of Positive Energy: Alberta Energy, British Columbia Energy Regulator, Canadian Association of Petroleum Producers, Canadian Gas Association, Cenovus, Clean Resource Innovation Network, Electricity Canada, Ovintiv, Natural Resources Canada, and PETRONAS Canada.

Nanos Research is our official pollster.

Table of Contents

Executive Summary	4
1. Introduction	7
2. Methodology and Key Learnings from our Look Back and Look Ahead	9
2.1 Literature Review	9
2.1.1 Canada's Performance	9
2.1.2 Framing and Addressing Performance Challenges: Literature over the Past Decade in Canada and Abroad	10
2.1.3 The Canadian Context: Four Recent Studies of Note	12
2.2 A Look Back – Project Profiles	13
Top Lines Looking Back	15
2.3 A Look Forward – Confidential Interviews	16
Top Lines Looking Forward	17
3. Analysis	21
3.1 The Challenge is Daunting	21
Scale	21
The Canadian Context	22
3.2 Big Policy is Key to Addressing the Challenge	22
3.3 Governments Need to Cooperate More Than They Have Done So Far	26
3.4 Markets Still Matter	27
3.5 Regulatory Reform May Be the Easy Part	28
3.6 Relationships With Indigenous Nations and Communities Are a Very Big Part of the Solution	33
4. Conclusions and Recommendations	37
4.1 Beyond the Regulatory System	38
4.1.1 Provide More Predictability and Clarity of Policy, Strategy and Vision	38
4.1.2 Establish Planning Processes	38
4.1.3 Build Machinery and Capacity in Policy and Regulatory Systems	39
4.2 Within the Regulatory System	41
4.2.1 Clarify Who Provides Policy Direction for Projects and Who Regulates Them	41
4.2.2 Establish Collaborative Intergovernmental Relations and Decide Which Governments Are Best Placed to Get the Job Done	41
4.2.3 Distinguish Between Changing Mandates and Changing Mindsets	42
4.2.4 Build a Functioning Whole of Government Machine	42
5. Final Comments and Next Steps	43
References	44
Appendices	46
A. List of Project Profiles	46
B. List of Interviewees	47
C. Interview Guide	48
D. Project Profiles	49

Executive Summary

Can Canada build enough fast enough to meet its net zero targets? Beneath this seemingly straightforward question lie multiple sub-questions: can Canada build enough fast enough while sustaining the integrity of its energy systems? does the country have the policy and regulatory frameworks needed to attract sufficient investment and to enable the vast range and number of projects needed to transform its energy system and broader economy? will its approach ensure the country remains competitive and prosperous in the years ahead? will there be adequate public and investor confidence in decision systems to sustain the scale and pace of change? This study addresses this crucial set of questions.

Scale of the net zero transformation and the Canadian context. Transforming Canada's energy system and broader economy over the next two plus decades entails replacing or retrofitting the roughly 20 percent of the electric power system that is GHG emitting; doubling or tripling the power system as a whole; replacing, decarbonizing or retrofitting the three-quarters of energy end use that fuels transport or provides heat to industry and communities; developing new energy infrastructure and markets for new energy sources like hydrogen; and decarbonizing the country's oil and gas industries. This is a daunting task, bigger than any that has ever been undertaken through deliberate policy – with the exception of wartime – in Canadian history.

Various aspects of Canadian reality compound the task. Canada's federal system is notorious for making economic projects more challenging than might be the case in a unitary system. This is particularly the case for energy. First, most aspects of electric power are explicitly matters of provincial jurisdiction. Second, Canada's geography and resource wealth are considerable benefits, but variability in provincial economies, power generation, GHG emissions profiles and resources, generate diverse provincial and territorial interests and inequities in getting every place to net zero emissions. Third, the variety of needed projects involves numerous and different decision-making processes managed by various regulatory authorities, some federal, many provincial or territorial and, emerging, some Indigenous.

Study description and approach. Against this backdrop, Positive Energy undertook a research study on public confidence in government decision-making systems for energy projects. By 'public' we mean a broad and overlapping spectrum of citizens, consumers, communities and investors. Without their confidence, Canada will not be able to transform its energy system and broader economy in line with net zero. The research approaches the question of whether Canada can build enough fast enough from two directions – *looking back* at what has happened in the past two decades through a literature review and profiles of close to twenty projects over the last two decades, and *looking forward* over the next two decades through a series of confidential interviews on the investment environment with more than thirty leaders, principally from the energy industry broadly defined, Indigenous organizations, environmental groups and the finance and investment communities.

Key findings. The most important finding is that the challenge of rebuilding the energy system over the next two and a half decades is much bigger than a question of regulatory reform respecting federal impact assessment, an area that has received much attention in recent years. It is also about more than just timeliness of decision-making: it involves clarity and predictability of current and future policy and regulatory frameworks and processes. There was broad consensus among interviewees that Canada currently lacks the investment environment needed to build enough fast enough.



Key findings span four broad areas:

- **Activities outside of government decision-making processes for projects take time and involve uncertainties.** The time it takes to move a project from inception to in-service involves far more than just regulatory decision-making. Project design and engineering, relationship-building with communities, project financing and construction all take time. Market factors – pace of consumer uptake, uncertain future demand, labour and materials availability, and evolving financial and capital markets – also shape the pace of new projects. Reforming regulatory systems for projects can only shave off so much time.
- **The entire public policy system matters.** Many interviewees pointed to the absence of a shared national vision, lack of alignment between federal and provincial governments, lack of public understanding of the scale of the transformation before us, and lack of planning processes for key areas of the energy future, as major stumbling blocks for the country. Lack of clarity and future policy uncertainty over key instruments like carbon pricing, tax credits and sectoral regulations, challenge project economics.
- **Challenges within regulatory systems are many and complex – but tractable.** Crucially, the challenge is about more than just timeliness. Political involvement at various stages of project decision-making is a major source of uncertainty, as are multiple requests for information and lack of clear guidelines from regulators. These challenges apply in particular to federal impact assessment, but this is not only a federal problem. There are also challenges with regulatory processes carried out by provinces, territories, municipal governments and Indigenous governments. Lack of clear delineation, coordination and streamlining between federal, provincial and territorial roles, conflicting mandates among regulatory and permitting agencies, and lack of intragovernmental coordination likewise reduce the attractiveness of Canada for investors.

- **Relationships with Indigenous nations and communities are a very big part of the solution.** There has been a transformation in the relationship between project proponents and Indigenous communities in recent years. Indigenous nations are increasingly taking equity stakes in projects, leading projects of their own, undertaking Indigenous-led impact assessments and leading project monitoring. Much work remains to be done to support and scale up this progress, including building Indigenous governments' experience with balancing community buy-in, timeliness and risk. Time invested now will pay dividends in the years ahead.

Recommendations: multiple packages of reform within and beyond the regulatory system. The research identifies seven 'packages' of reform both within and beyond the regulatory system. Of note, the diverse roles of Indigenous communities and the variety of issues to be addressed are woven throughout all of the packages.

Three packages lie primarily beyond the regulatory system:

- **Provide more predictability and clarity of policy, strategy and vision:** governments at all levels need to do a better job of collaborating and aligning their efforts. Lack of clarity and uncertainty over future policy and the country's vision for its energy future shape investor confidence just as much – or more – than the regulatory system for projects.
- **Establish planning processes:** governments need to take action on a number of areas where planning is essential (energy delivery, electric power systems, supporting the roles of Indigenous communities, and determining who will bear costs, how and when), but they must do so without overturning a largely market-based system.
- **Build machinery and capacity in policy and regulatory systems:** all actors need to cooperate and resolve to invest in building policy, regulatory and decision-making systems in the public, private, Indigenous and broader civil society sectors that are up to the challenge of net zero. Labour, skills and supply chain challenges need priority attention, as does capacity building within regulatory agencies.

Four packages lie within the regulatory system:

- **Clarify who provides policy direction for projects and who regulates them:** governments should focus their attention on policy, planning and structuring regulatory systems, and refrain from intervening in individual project decisions. Regulators should focus on assessing project applications and making decisions/recommendations to government.
- **Establish collaborative intergovernmental relations and decide which governments are best placed to get the job done:** these should be treated as practical questions in the spirit of cooperative federalism and should include using substitution or other agreements that ensure government responsibilities – federal, provincial, territorial, Indigenous, municipal – are met without unnecessary overlap or duplication. All levels of government need to approach this question constructively.
- **Distinguish between changing mandates and changing mindsets:** reforming regulatory mandates will only get us so far. Mindsets will often need to change towards greater innovation and risk-taking. Creating a national forum for regulatory and permitting excellence would help accelerate innovation, learning and best practice sharing.

- **Build a functioning whole of government machine:** governments need to develop intragovernmental coordination mechanisms to help projects move through policy, regulatory and permitting processes in a timely and predictable way that minimizes regulatory burden.

Next steps: develop a process and action plan for each package of reform. We urge governments and other organizations to collaborate on a process to convene the key players needed to advance solution-seeking in each area of reform. Some of this work is already underway through various federal, provincial, territorial and intergovernmental processes, but much remains to be done. The aim should be to develop a detailed action and implementation plan so that Canada can achieve meaningful and durable progress on the goal of net zero. Positive Energy is using its convening power and research expertise to help develop paths forward for priority areas.



1. Introduction

What does transforming Canada's energy system and broader economy over the next two plus decades entail? It includes replacing or retrofitting the roughly 20 percent of the electric power system that is GHG emitting; doubling or tripling the power system; replacing, decarbonizing or retrofitting the three-quarters of energy end use that fuels transport or provides heat to industry and communities; developing new energy infrastructure and markets for hydrogen and other new energy sources; and decarbonizing the country's oil and gas industries. All this while ensuring the integrity of energy systems and building Canadian prosperity. That is a big task, bigger than any ever undertaken through deliberate policy – with the exception of wartime – in Canada's history.

There are many questions lying behind this. Consistent with Positive Energy's mandate since inception (see Box for more on Positive Energy), the focus of this research is on public confidence in government decision-making systems for energy projects. By 'public' we mean a broad and overlapping spectrum of citizens, consumers, communities and investors. Without their confidence, Canada will not be able to transform its energy system and broader economy in line with net zero.

This study, undertaken between summer 2022 and winter 2024, approaches the question of whether Canada can build enough fast enough from two directions – looking back at what has happened in the past two decades, and looking forward to what the next two or more decades might hold. In December 2023, we published a White Paper sharing key findings and recommendations to solicit comments and input on the research study to that point. This final report incorporates feedback, new learnings and insights since the White Paper was published. It also features more detailed analysis of the interviews, a more fulsome literature review, and it includes the project profiles.

In addition to new empirical work, the study draws on a decade of Positive Energy research and engagement, and brings two particular perspectives to the research.

First, although in recent times there has been much badly needed debate on what can be done to reform regulatory systems, it is imperative to note that regulatory systems or for that matter the full spectrum of 'government' decision-making systems for energy projects are by no means the whole story. As we have underscored in past research, regulatory reform is a necessary but insufficient condition for

success (Cleland and Gattinger, 2017). Many other factors, from Indigenous reconciliation to finance to working capacity (skills, material, and equipment) to technology to end use market change will bear on success or failure. As such, we have deliberately undertaken this study with the full cycle of project development in mind, from initial conception to in-service. Our focus, to emphasize again, is on government decision-making processes for projects, but without the larger context we cannot know whether what we find in project decision-making is fundamental or only marginal in its overall ability to move the needle on timeliness of project development. In other words, addressing broader questions of public policy may be equally if not more important to facilitating development.

Second, we note that much of the current discourse is preoccupied with timelines for project approvals. Capital is not patient and can go to many places so there is little doubt that timeliness matters. But there is a risk in over-focusing on timeliness. Just as important are questions of predictability and clarity of government expectations. All three issues – timeliness, predictability and clarity – matter and in some cases there may be trade-offs. If in the pursuit of speed, governments or projects stumble on unresolved questions such as community support or nascent technology, things may be set back. Worse, if policy purports to provide timeliness but includes escape hatches or multiple avenues for political involvement (as this research reveals) the result is little to no gain on timeliness and an increase in uncertainty. Importantly, resolving these challenges requires action by all governments in Canada and by no means only the federal government.

The report proceeds as follows. The next section lays out our research approach and methodology, and key learnings from our research looking back and looking ahead. The following section dives deeper into the scale of the challenge Canada faces when it comes to transforming its energy system and broader economy to lower carbon configurations, and synthesizes the findings emerging across the look back and look ahead. The final section provides recommendations divided into key 'packages' of reform both within and beyond the regulatory system. An action and implementation plan are required for each area of reform. Some of this work is already underway through a variety of federal, provincial, territorial and intergovernmental processes, but much remains to be done. Positive Energy is using its convening and research power to spearhead work in key areas and support the important work of others in the months ahead.

About Positive Energy

Positive Energy is a research and engagement program at the University of Ottawa with a mandate to strengthen public confidence in Canadian energy policy, regulation and decision-making through evidence-based research and analysis, engagement and recommendations for action. Positive Energy uses the convening power of the university to bring together academic researchers and senior decision-makers from industry, government, Indigenous organizations, local communities and environmental organizations for solution-seeking on shared public confidence challenges and opportunities.

The current phase of Positive Energy aims to help Canada strengthen public confidence in energy policy, regulation and decision-making for net zero. Research and engagement are focused on helping Canada move from the 'what' to the 'how' of emissions reductions, with a primary emphasis on developing integrated approaches to energy and climate, identifying institutional innovations that support change, and fostering cross-country collaboration.

- **Regulation:** how to develop effective and trusted regulatory frameworks to achieve energy and climate objectives.
- **Energy Security:** how to ensure domestic and global energy security (affordability, reliability, availability) alongside emissions reductions.
- **Intergovernmental Collaboration:** how to foster effective intergovernmental relations among federal, provincial, territorial, Indigenous and municipal governments to achieve energy and climate objectives.
- **Public Opinion:** how to foster ongoing public and expert support for Canada's net zero journey.

This study falls under the 'Regulation' stream of work. See Positive Energy's [website](#) for previous research studies and results of quarterly public opinion surveys on salient energy and climate issues undertaken with polling partner Nanos Research.

2. Methodology and Key Learnings from our Look Back and Look Ahead

We approached the research through three streams of work: two looking back (a literature review and a series of project profiles) and a look ahead (a series of confidential interviews with knowledgeable commentators).

2.1 Literature Review

2.1.1 Canada's Performance

The literature is somewhat ambiguous as to Canada's relative performance in attracting investment and getting things built. Some broad measures put Canada in a positive light, at least with respect to investor confidence. On the other hand, most reviews respecting timeliness and risk, specifically with respect to energy investments, are much less flattering.

On the positive side, Canada enjoys a strong reputation internationally on its competitiveness for foreign direct investment: the country ranks second after the United States in the 2024 Kearney Foreign Direct Investment Confidence Index, an annual survey of global business leaders ranking twenty-five countries most likely to attract investment over the next three years (Kearney, 2024).

But there are signs that actual performance may be weakening. Total business investment in Canada is on the decline compared to other developed economies. A 2023 study by the CD Howe Institute documents the decline in per worker business investment since 2015, with Canadian workers in 2023 likely to receive only 65 cents of new capital for every dollar received by their counterparts in the OECD, and 58 cents compared to their counterparts in the United States (Robson and Bafale, 2023).

Narrowing the lens to foreign direct investment, Canada dropped from fifth to eighth place for FDI inflows between 2021 and 2022 in the 2023 United Nations World Investment Report (UN Conference on Trade and Development, 2023). The country rebounded to sixth place in 2023 (UN Conference on Trade and Development, 2024), but performance that year in the major projects category – a measure of greatest relevance to this study – weakened over previous years.

An analysis of Natural Resources Canada's annual inventory of Major Projects Planned or Under Construction shows that although the total number and value of major projects was up in 2023 over

2022 – from 470 projects in 2022 to 493 in 2023, and from \$520B in project value in 2022 to \$572B in 2023 – the trend over time was downwards. Between 2015 and 2023, the real value of major projects (2015 dollars) declined 34% (a drop of approximately \$231 billion), the number of projects fell by 10%, the average value of projects decreased by 6% and the number of projects completed dropped by 36% (Gullo and Exner-Pirot, 2023).

Unfortunately, this trend runs in the opposite direction of what's needed for net zero.

While a variety of factors drive weakening performance, a growing number of studies document a key challenge: the time it takes to get projects built. We review a number of these reports below. As noted earlier, this research broadens the lens beyond timeliness to incorporate two other key challenges: clarity and predictability of policy and regulatory frameworks.

A 2018 study found that federal project reviews for major energy projects took anywhere from 19 to 104 months with an average of 56 months – almost five years – despite mandated timelines that are much shorter than that (Drance, Cameron and Hutton, 2018). Interestingly, timelines for a broad range of project types (pipelines, oilsands, LNG, electricity generation, electricity transmission) showed that average timelines for provincial reviews were consistently – and considerably – shorter (e.g., 21 months for provincial reviews of pipelines versus 70 for federal reviews, 33 months versus 74 for oilsands projects, 18 versus 38 for power generation, and 22 versus 49 for electricity transmission projects).

The above study predates passage of the federal Impact Assessment Act, which Wright concluded would “be more onerous on account of the expanded scope of assessment that includes several new factors to consider” (2021).

While it is too early to definitively assess the new act's impact on timelines – and federal revisions to the act in response to the Supreme Court's reference opinion will change things yet again – a 2023 Canada West Foundation study revealed that despite a 180-day performance standard for the initial planning phase of a federal impact assessment, the clock was stopped on multiple projects for lengthy periods, with the actual initial planning phase ranging from 127 to 693 days, an average of 322 days, almost twice the standard. And this is just one phase of the overall process.

Whether federally or provincially regulated (or both), taking into consideration planning, full regulatory review, and construction planning, reveals the challenge Canada is up against when it comes to building things expeditiously for net zero. Ontario's Independent Electricity System Operator, for example, notes that planning, reviewing and constructing wind and solar generation projects can take four to five years; for transmission lines the time is 10 years or more, and for hydroelectric, nuclear or large transmission facilities, the time needed can range between ten and fifteen years (IESO, 2023).

Another study in Ontario underscores the challenge when it comes to getting projects built. Infrastructure Canada completed an analysis of construction permitting and noted that “while permitting rules and requirements matter, equally important is how these rules are implemented” (Infrastructure Canada, 2019). The study found that while site plan approval in Ontario is supposed to be completed in 30 days, this process can frequently take nine months to complete (ibid).

Getting to net zero with these kinds of timelines is highly unlikely.

2.1.2 Framing and Addressing Performance Challenges: Literature over the Past Decade in Canada and Abroad

What does the literature have to say about how best to understand and address performance challenges?

Over the last decade, studies in Canada and abroad analyze the challenges of regulation writ large to the economic and investment environment, and some zero in on particular phases of planning, regulating and assessing projects. We review a number of these studies below.

Given the growing attention in Canada to the many projects needed for a net zero future, a number of detailed studies have been published over the last year on the challenges facing project decision-making in Canada. We review four of the most pertinent in section 2.1.3 below.

Public engagement. Overwhelmingly, literature on this topic highlights the need for governments to strengthen their engagement practices and streamline regulatory processes, to both facilitate stakeholder interaction with regulatory agencies

and to create a flexible regulatory environment (see, for example, USGAO, 2018; OECD, 2021). The OECD in particular recommends a more integrated approach to stakeholder engagement, especially when it comes to defining policy problems and the full range of possible solutions (2021). Here in Canada, this approach can be seen in Infrastructure Canada's call for the establishment of an independent advisory body to “provide the government with impartial, expert and evidence-based advice on challenges and opportunities for major infrastructure in Canada” to help pursue the country's energy policy goals for 2050 (Infrastructure Canada, 2021).

Interestingly, the focus on enhancing engagement extends to inclusion of the private sector. This is featured in a number of indices, such as the World Bank's (now discontinued) Doing Business annual report (2020), the World Economic Forum's annual Global Competitiveness Report (2020), and the Institute for Management Development's World Competitiveness Yearbook (2022). As noted further below, these indices focus on the economic, investment and competitiveness implications of regulatory frameworks, and rank countries according to the ease with which private investors can navigate the frameworks.

Regulatory frameworks. The OECD (2021) highlights the need for governments to develop more robust means of assessing and evaluating regulations and their impact. The organization emphasizes that “less than one-quarter of OECD members systematically assess whether regulations achieve their objectives” and warns that current incentive structures favour a pernicious rigidity in regulatory frameworks, as “less than one-third of OECD member countries have a body in charge of checking the quality of reviews of existing regulation”.

As a solution to this gap, the OECD advocates for a “regulatory policy 2.0” agenda, which pushes for a more “agile framework for better regulation”, and for governments to move away from a “regulate and forget” mindset to one of “adapt and learn”. To achieve this, the OECD recommends adapting traditional regulatory management tools, such as regulatory impact assessment, to “navigate the challenges and the opportunities brought by transformative changes and [to] choose the right approach – regulatory or otherwise – to improve societal welfare.” The OECD also recommends using Behavioral Insights to support better regulatory design.

Closer to home, in a 2019 publication, Deloitte identified five dimensions of Canada's regulatory frameworks hindering competitiveness: design, relevance, overlap, burden and enforcement. In response to these challenges, Deloitte proposed seven dimensions for regulatory reform: leveraging new technologies for regulatory design and review; increasing collection and publication of data on regulatory performance; undertaking rigorous cost-benefit analysis and evaluation of regulations; including pre-determined review mechanisms; fostering greater harmonization and co-creation of regulations; using more regulatory sandboxes; and prioritizing regulatory regimes that unlock the economic potential of new technologies.

With reference to energy projects in particular, in a 2018 study, the United States Government Accountability Office identified five factors that can influence the timeliness of energy projects: coordination and communication between agencies and applicants; the availability of human capital; the collection and analysis of accurate milestone information such as project application or approval dates; incomplete or inconsistent applications; and significant policy changes that might create confusion (USGAO 2018). Many of these issues emerge in the findings of this study.

Impact assessment. A growing issue in project development is the role and consequences of environmental impact assessments (EIA). In a comparison of impact assessment methodologies in Canada, the National Collaborating Centre for Healthy Public Policy (2010) highlighted the strengths and weaknesses of the practice, noting that despite providing a systematic framework to review environmental impacts and undertake public participation, EIAs still involve a substantial degree of uncertainty due to the complex nature of natural systems. As a result, the study noted, EIA reports tend to be excessively long and cumbersome, focusing more on procedure than content.

The literature review highlights that while Canada may rank favourably on a number of international indices of overall investor attractiveness, the project decision-making system (more accurately, systems) have become increasingly complex, time consuming and rife with uncertainty.

Economic, investment and competitiveness impacts of regulatory frameworks. Numerous international indices assess the economic, investment and competitiveness implications of regulatory frameworks, and what steps might be taken to attract investment and increase competitiveness. Examples include the World Bank's Doing Business report (replaced in 2024 with the Business-Ready, B-READY report), Kearney's FDI Confidence Index, the World Economic Forum's Global Competitiveness Report, the International Institute for Management Development's (IIMD) World Competitiveness Booklet and Ernst & Young's Renewable Energy Country Attractiveness Index (RECAI). These indices focus specifically on the ways in which regulatory frameworks impact on the willingness of the private sector to invest in an economy.

Kearney (2022), for example, highlights how "transparency of government regulations and a lack of corruption" are key factors in investors' decision-making processes, a sentiment shared by the OECD (2021), which states that "lack of trust in regulators could undermine confidence in their work, the stability they safeguard, and investment in the sectors they oversee". Fenn et al. (2019) also emphasize the ways in which "overly complex, ambiguous, and/or burdensome regulatory regimes can

result in governments failing to act in a timely and transparent manner, which may have significant financial and reputational risk for investors", adding that "when regulation creates an asymmetric risk relationship between public and private parties, it can become a substantial obstacle to the efficient flow of capital."

Ernst & Young (2022) go further in their indictment of the impacts of poor regulation on renewable energy development, stating that "business risks come from regulators who either do not understand what it takes to scale new industries by securing stable investment frameworks, or who set requirements for local production manufacturing that are too rigid and, therefore, restrict competition and economies of scale."

Many of the issues raised in the above literature surface in the empirical work completed for this study. The interviews in particular shine a bright light on specific challenges in Canada for energy infrastructure projects needed for net zero.

2.1.3 The Canadian Context: Four Recent Studies of Note

There has been much written in Canada of late on the processes by which energy projects in Canada are approved (or turned back) by various authorities. Four recent reports are of note.

The Canada West Foundation (2023) and the Business Council of Alberta (2023) issued reports that focus specifically on the federal Impact Assessment Act.

Both studies identify problems and possible solutions which – as we will see – closely mirror what we heard from the numerous experts we interviewed and that broadly align with the recommendations in this report. Importantly, both reports either implicitly or explicitly make clear that many of the problems derive from policy failures rather than regulatory failures as such.¹

The third report was published by the Public Policy Forum (2023). It takes both a narrower view (focused on power systems) and a broader one (policy and regulatory questions across the board). We flag this study because it is central to the challenge of achieving net zero given that broad-based electrification of end use is a key pathway to emissions reductions. In a nutshell, PPF notes that

There was general consensus among interviewees that Canada’s reputation as an attractive investment environment has weakened over time. Projects have been built, but in almost half of the interviews, people expressed concern about the country’s prospects of attracting investment on the scale needed in the years ahead.

the remaking and then doubling or tripling of power system capacity is a systemic issue, encompassing both policy and regulatory dimensions. This further reinforces the point that regulatory reform, while important, is far from the whole issue.

Fourth, Electricity Canada published a study on barriers to getting things built in the electricity sector to meet Canada’s net zero by 2050 objectives (2023). The analysis revealed five key barriers to timely decision-making: planning; regulatory and approvals processes; limited capacity of permitting and regulatory bodies; skilled labour shortages and capital. The report’s main recommendations focus on regulatory and permitting processes and include developing a ‘one project, one approval’ framework, coordinating federal permitting and approvals through a single federal office and building

economic regulators’ capacity to pursue net zero goals with prompt and effective decisions.

Taken as a whole, the literature review highlights that while Canada may rank favourably on a number of international indices of overall investor attractiveness, the project decision-making system (more accurately, systems) have become increasingly complex, time consuming and rife with uncertainty. Some of this is hardly surprising given Canada’s federal system, multiple regulatory reforms in recent years,

and a burgeoning and increasingly critical role for Indigenous authorities (and in some cases municipal authorities). Nonetheless, it is a challenge the country must address.

¹ The Supreme Court’s reference opinion finding that a number of elements of the Impact Assessment Act were unconstitutional – and the federal government’s legislative revisions to the act – offered an opportunity to make constructive reforms to federal impact assessment, a top-of-mind issue for many of the leaders we spoke with for this study. It is unclear at this time whether the revisions will withstand further legal challenges and, if they do, whether their implementation will lead to more timely, clear and predictable project decision-making. What is clear is that in the interim, the amendments have added further uncertainty to the project decision-making context.

Interestingly, relatively little has been undertaken by way of empirical analysis of individual projects from inception to approval, construction and commissioning (or abandonment) in recent years to ascertain the extent to which regulatory frameworks shaped timeliness and outcomes. Likewise, there are very few studies that interview leaders with extensive experience in projects and finance to hear their assessment of key challenges to getting things built in Canada now and in the future. Interviews looking forward are especially germane given that regulatory reforms of the last few years are still in the early stages of implementation: looking back at previous projects can only tell us so much about the future. This led us to the next streams of our research.

2.2 A Look Back – Project Profiles

We created ‘project profiles’ examining 18 energy projects undertaken since the beginning of this century, some of which are now in service, some under construction, and some of which were abandoned by proponents or rejected by governments (see Figure 1, and the list provided in Appendix A). Our aim was to identify: the length of time from project inception to in-service (or abandonment), the proportion of that time accounted for by the regulatory process and key areas of challenge/tension or success/innovation moving a project to completion.

The term ‘profiles’ is used advisedly; these are not detailed case studies, which would have involved much more depth of analysis and time than was feasible or necessary for our purposes. They rely wholly on written sources in the public domain. The profiles are included in Annex D.

We aimed for representativeness across project types, sizes, successes/failures and regions in selecting projects to review. Profiles range from moderate size to major projects and are located in most regions and provinces. They encompass decision processes in both federal and provincial (and in some cases Indigenous) jurisdiction and almost all entail to one degree or another overlaps among the various jurisdictions. Importantly, they cover a wide range of project types: pipelines, power lines, hydrocarbon exploration and processing, hydropower, wind, solar, electrical storage and nuclear waste management. Not all projects are created equal; different types have distinctive characteristics that profoundly affect the process of approval and development. Collectively, the projects are reasonably representative of experience in Canada over the past two decades.

Figure 2 illustrates the phases investigated in bringing a project from inception to in-service for each profile: pre-consultation and engagement; regulatory submission and review; regulatory decision; final investment decision; construction; and in-service.²

² Note: the time taken by a proponent to develop the project in advance of the general public’s knowledge of the project was not determined as this information was not generally in the public domain.



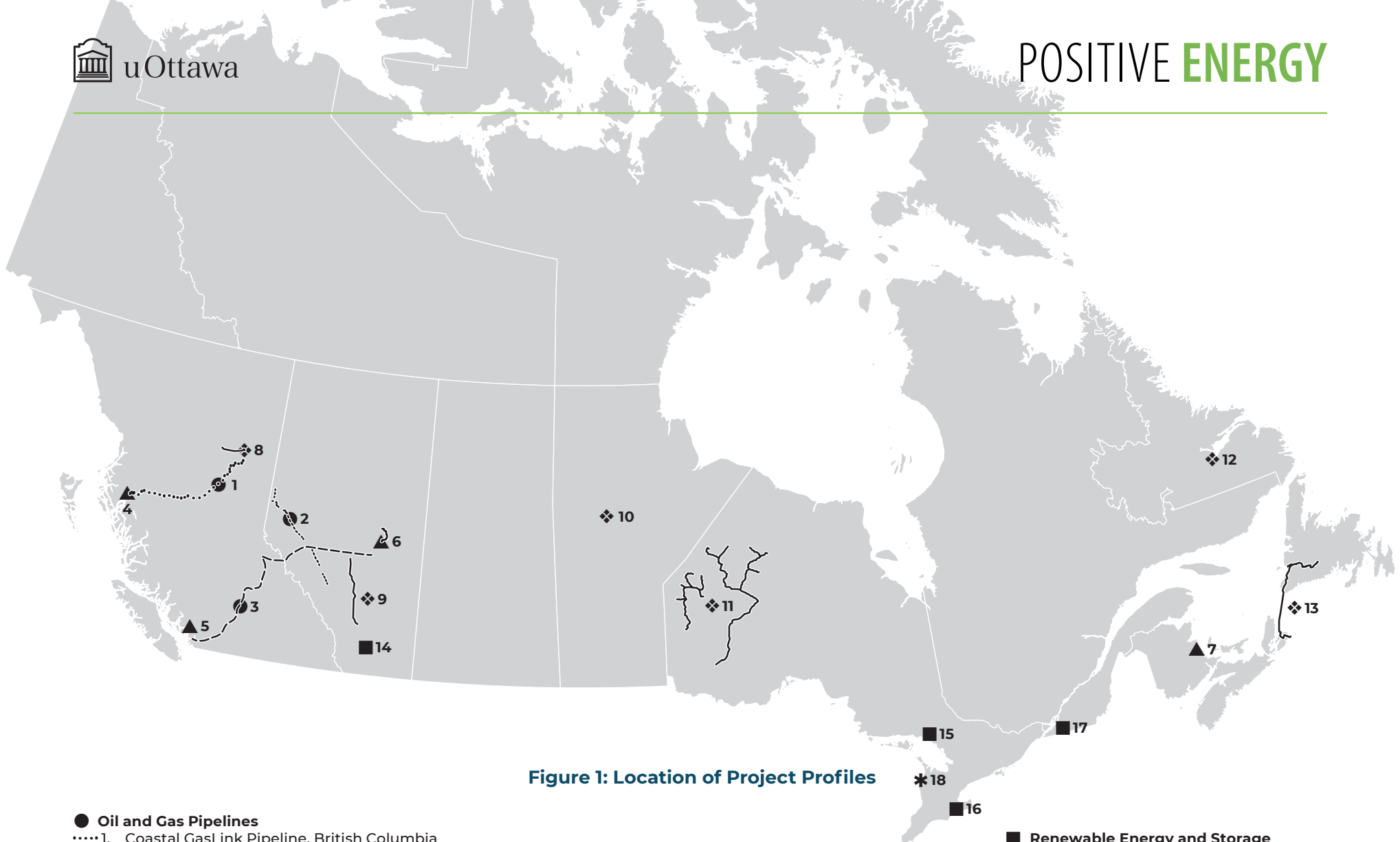


Figure 1: Location of Project Profiles

● Oil and Gas Pipelines

-1. Coastal GasLink Pipeline, British Columbia
- 2. 2021 NGTL System Expansion Project, Alberta
- 3. Trans Mountain Pipeline Expansion

▲ Oil and Gas Production/Export

- 4. LNG Canada, British Columbia
- 5. Woodfibre LNG, British Columbia
- 6. Quest Carbon Capture and Storage Project, Alberta
- 7. Shale gas exploration in Kent County, New Brunswick

❖ Hydroelectric Station or Electricity Transmission

- 8. Site C, British Columbia
- 9. Western Alberta Transmission Line, Alberta
- 10. Wuskwatim Generating Station, Manitoba
- 11. Wataynikaneyap Transmission Project, Ontario
- 12. Muskrat Falls, Newfoundland and Labrador
- 13. Maritime Link

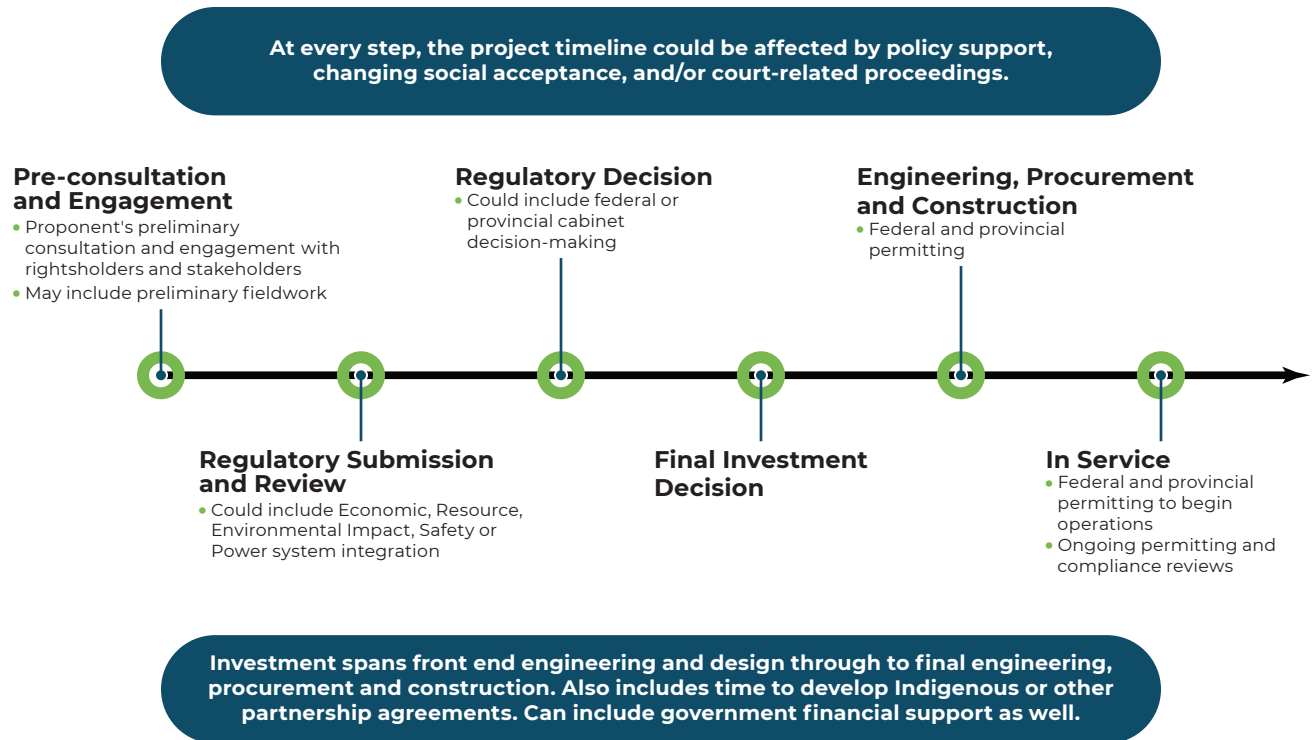
■ Renewable Energy and Storage

- 14. Travers Solar Project, Alberta
- 15. Henvey Inlet Wind, Ontario
- 16. Oneida Energy Storage, Ontario
- 17. St. Valentin wind farm, Quebec

*** Nuclear**

- 18. Ontario Power Generation's Deep Geologic Repository Project, Ontario

Figure 2: Generic Project Timeline



The number of projects reviewed (and the depth of analysis) does not allow sweeping conclusions, but we can say with some confidence that experience with these projects is indicative of the issues involved in bringing a project from inception to in-service.

The project profiles reveal several 'top line' observations. Additional analysis synthesized with findings from the interviews, is provided in Section 3.

Top Lines Looking Back

Learning About People and Communities is Essential

A striking finding that emerges from the profiles is how far corporate Canada has come in engaging local communities in support of projects.

Among the profiles are at least three where the proponent's engagement of local communities, whether Indigenous or not, was minimal or late and in some cases ham-fisted. Unsurprisingly, all three failed. At the other end of the spectrum are projects built on the basis of real partnerships, particularly with Indigenous nations and communities. Some involve shared ownership arrangements; some involve roles for Indigenous communities as, in effect, regulators. For the most part, those projects got built or are getting built.

But a cautionary note: all of that took time – time to build relationships and trust, time to structure mutually satisfactory business arrangements, time for the people of local communities to learn about and buy into the project. Better decision-making processes may involve more time – not less – for this aspect of project development. But it is time well spent if it reduces later delays from protests, fractious regulatory processes, political controversy or litigation.

Activities outside of government and regulatory decision-making processes take time and involve uncertainties.

While speeding up decision-making processes and – even more important – making them more clear and predictable, is essential, it is important to keep this in perspective. If the objective is to get things built and provide zero or near-zero emissions energy, then many other factors come to bear. One, as noted above, is the simple fact that nothing gets built without the time and effort involved in securing community support and, in particular, without the time needed to secure the informed involvement, ownership and approval of affected Indigenous nations and communities.

Apart from that, identification, site selection, determining feasibility and putting financial deals together typically take years and construction can take even longer. Of course, embedded in all the other processes are various formal decisions from impact assessment to economic regulatory approval to a myriad of permits. All of those processes add costs, uncertainty and time, but even without them, relatively straightforward projects still take years. Figure 3 in Appendix D shows the elapsed time for each project phase for the profiles. Of note, the regulatory phase is frequently a fraction of the overall time taken to bring a project from idea to operation. **As we contemplate how to reform government decision-making processes, we need to maintain a realistic perspective on how fast we can get things done, no matter how expeditious regulatory decision-making processes might be.**

Life is Full of Surprises

An issue that emerges in most of the profiles is the frequency with which unanticipated factors caused delays, some of them significant. COVID emerges several times and underscores that we can never forget about black swans. Less seismic but highly influential are shifts in market conditions that cause holdups in arriving at Final Investment Decisions (FID). Geotechnical surprises during construction can cause significant setbacks. Engineering and supply chain delays are common, and almost inevitable to one degree or another.

Many or most of these sorts of surprises may have legitimately been unanticipated, but better planning, risk identification and risk management on the part of proponents may have helped mitigate some of them. Again, as with community engagement, more time up front may pay off by reducing later delays. Importantly, policymakers and regulatory authorities may have a role in encouraging such up-front work and in working

collaboratively with proponents on broad challenges like labour shortages or tight supply chains that will delay projects – and Canada's net zero progress – across the board.

The Whole System Matters

In several of the profiles, up-front policy support for a project or type of project helped to mitigate delays in regulatory decision-making processes down the line. But that is rarely enough to ensure success. In some cases, inadequate regulatory design or the overriding of normal regulatory processes by political decision-making had the effect of moving projects forward initially only to find them held up by things going wrong later on.

In general, we can say that well-established, stable, trusted regulatory systems are vital and that the system seems to work best when policymakers express their vision and general intent and then let regulators do their jobs without interference. And last, to return to the first theme above, high level policy approval and expedited regulatory processes cannot avoid the inevitable need to engage local communities and bring them along in the process.

2.3 A Look Forward – Confidential Interviews

The last stream of research involved a series of confidential interviews with a variety of leaders with extensive experience and knowledge of energy project development and regulatory processes. In contrast to the profiles, which looked back, we asked our interlocutors to look forward at the Canadian investment environment, Canada's attractiveness as a place to invest, the challenges the country faces on government decision-making processes for projects on the road to net zero and what actions might be taken to make the system work better.

These interviews were essential to understand Canada's current and future investment context given that recent regulatory reforms (e.g., on federal impact assessment) remain in their early stages of implementation so were not covered by the project profiles. In addition, new policy commitments on climate (e.g., the Clean Electricity Regulations), investment (e.g., federal Investment Tax Credits) and reconciliation (e.g., UNDRIP legislation federally and in British Columbia), deteriorating public support for carbon pricing, court cases on Indigenous rights (e.g., Blueberry River First Nation in British Columbia) and a growing number of projects involving equity deals with Indigenous nations, have transformed the investment environment.

We conducted 28 interviews involving 33 individuals (see Appendix B for a list of interviewees and Appendix C for the interview guide). Our objective was to gain a range of perspectives, primarily from those in the private sector directly involved in project development (individual companies, industry associations, the financial and investment sector, and Indigenous leaders involved in projects), but also former regulators or policy advisors, and environmental advocates. The interviews were conducted between May and November 2023 under a Chatham House Rule format. In other words, individuals and their affiliations are named in the Appendix (a few chose to remain anonymous) and while we include citations from the interviews, no comments are directly attributed to any one individual or organization.

Top Lines Looking Forward

Overall, there was general consensus among interviewees that Canada's reputation as an attractive investment environment has weakened over time. Projects have been built, but in almost half of the interviews, people expressed concern about the country's prospects of attracting investment on the scale needed in the years ahead.

There are Many Diverse Challenges on the Road Ahead

When we compiled the key messages and concerns raised in the interviews, there were very few areas where all or almost all interviewees agreed on the salience of a particular issue or challenge. For most topics, generally one-third to one-half of interviewees agreed on the salience of the issue.

This is an important finding in and of itself: it underscores that there are many challenges that will need to be addressed on the road ahead, and that issues that are of high importance for some, may not be for others. While the number of interviews does not permit us to tease out detailed reasons why this is the case, arguably the diversity of project types, project locations and regulatory processes across the country leads to different issues emerging as the

most significant for different interviewees. Future research by Positive Energy will seek to tease this out so we can better understand key challenges across the energy system when it comes to projects needed for Canada to pursue net zero.

The Entire Public Policy System Shapes the Possibilities for the Future

The future begins with a message coming from governments: do we approve of various projects in principle, do we want to say 'yes' not 'no', and are we committed to organizing ourselves so as to facilitate development? In short, there needs to be a long-term vision at a level of detail much beyond the aspiration to net zero and it needs to be shared across Canada and among jurisdictions.

In more than half of the interviews (16 of 28), people pointed to the absence of a shared vision and lack of policy alignment between federal and provincial governments as major stumbling blocks for the country. This challenge emerged as among the most salient for those we spoke with. Similarly, in over half of the interviews (15 of 28), respondents raised the issue of current and future policy uncertainty, which challenges the calculation of project economics. They mentioned uncertainty over carbon pricing and contracts

for difference, the functioning of forthcoming investment tax credits and other major policy levers (e.g., the Clean Electricity Regulations). Interviewees stated that policy clarity and stability are needed to retain Canada's competitiveness as an attractive investment environment, notably in the wake of the United States Inflation Reduction Act.

The future needs to entail a great deal of modesty respecting which solutions will work in the long term. No one, including governments, can know with certainty which combination of existing and emerging technologies or energy sources will drive emissions down most cost effectively; emissions can be reduced but rarely as quickly or as surely as many might wish. Almost all interviewees raised the challenge of 'real world' practicalities of reducing emissions.

The future also entails planning, particularly respecting power and gas delivery systems: the infrastructure that makes them work; a realistic appreciation of how end use markets might evolve; and a commitment to resolve the many difficult technical, political and economic challenges surrounding power system integration, fuel switching and optimization of the power and gas systems, and the functioning of both markets. Seams issues abound. Power systems in particular are inherently planning intensive, but planning is inherently difficult to reconcile with a market economy. Much more attention needs to be paid to how the trade-offs will work. This issue was raised in particular by interviewees in the electricity and downstream natural gas delivery space.

The future entails, above all, a clear and firm appreciation of what some call the energy trilemma. First, energy systems must at all costs meet the requirements of what we call energy fundamentals (safety, security, reliability, resilience and affordability). Second, they must be built and operated respectful of their many local impacts, whether they be social, cultural, environmental or economic. And third, they must meet our climate goals – but that will not happen if the other two parts of the trilemma are not adequately accounted for. People often mentioned the challenge of siloed approaches, notably those that solve for emissions reductions without due consideration for the other parts of the energy trilemma.

Finally, who pays for what, when and how is a challenging problem. There is at least a partial consensus among analysts that a remade energy system may deliver lower total energy costs in the long run, but the transition process to get there entails enormous investment. Close to a third of interviewees noted that governments need to open an honest conversation with Canadians and help them to appreciate the scale of the transformation before us. Decisions will need to be made about how much can realistically be covered by public sources, a.k.a. taxpayers of today or tomorrow, versus how much should be put on the shoulders of ratepayers, a.k.a. consumers, versus how much will need to rest on ensuring Canada has an attractive investment environment for private capital. Governments will need to engage Canadians in understanding that some of the costs will land on their doorstep but policymakers will need to identify ways of mitigating inequities and maintaining economic competitiveness.

There are Many Challenges Outside of Government Decision-making Processes for Projects

This reinforces the observations from the profiles and it is something we expand upon in the next section. Capital projects involve many complexities and resolving those takes time. Engineering, construction and securing finance are obvious ones. Looking to the future, many interviewees pointed to looming challenges respecting supply chains, the need to work through the uncertainties of new technologies and, above all, the need for labour and skills. This was particularly the case for respondents from the electricity sector. All of these challenges are made daunting by the sheer number and diversity of projects that will have to be built, by the predictable competition for talent, products and resources as countries the world over try simultaneously to remake their energy systems, and by the simple fact that in project terms, from now to 2050 is a very short time.

The global context is worth stressing and it has several dimensions. Whether, how and at what speed all nations make the transformation to net zero will have an effect on Canada's relative market competitiveness, ability to compete for investment, and, ultimately, prosperity. As a small, open, trade-dependent economy that is among the world's largest oil and gas reserve holders and producers, it will be crucial for the country to position itself favourably as the global pace and scale of net zero action evolves. The global context is also pivotal when it comes to needed advancements in technology, which will depend heavily on actions well outside Canada's borders. Finally, as noted above, a world-wide scramble to remake all energy systems will inevitably run into supply and capacity constraints respecting materials, equipment, technology and skills.

Interviewees recognized that public policy and associated decision-making processes can't fix all of this but they can definitely help. They can add to timelines and unpredictability or help to reduce them. High-level messages coming from governments can either instill investor confidence or undercut it. And in some cases, such as questions of labour, skills and capacity, there is a direct public policy role in planning and investing, a role which needs to be greatly accelerated – starting now.

The Challenges Within Regulatory Systems are Many and Complex – But Tractable

All interviewees suggested, almost more than anything else, that governments can do a lot to improve regulatory systems, and in some instances, relatively quickly. The challenges are complex but with political will and management skill, they can be addressed. Of note, many of the issues raised by respondents focused on federal impact assessment, but other challenges extend well beyond impact assessment and involve provinces and Indigenous governments, as well as the federal government.

One of the key concerns, raised in almost half of the interviews, centred on political involvement in decision-making. **The role of ministers and cabinet at multiple stages throughout decision-making for an individual project was identified as a major source of uncertainty and unpredictability.** This varies by jurisdiction and project type, but it is an issue to one degree or another across the board. Many said that political direction should be provided at the level of vision, policy and planning, after which individual project decisions should be undertaken by expert regulators.

Another key theme related to mindset. Given a national goal of net zero greenhouse gas emissions by 2050, in half of the interviews, interlocutors noted that regulatory machinery needs to start from the recognition that projects are needed. Regulators need to be staffed by people whose aim is to identify the appropriate balance of risks, benefits and costs that enable a project to proceed. We heard in particular that impact assessment processes have a tendency to start from the perspective of ‘no’ and tend toward seeking ever more information on risks or on project types that are already well understood and for which there are well-established risk mitigation measures. We heard that at the federal level in particular there is uncertainty and lack of clarity over impact assessment expectations and that conditions can continue to be added to a project at multiple steps on the way to a final decision.

In half of the interviews, people stated that inter- and intra-governmental cooperation on project decision-making is crucial. Federal-provincial cooperation is technically quite simple if the political will exists to do it. There are precedents for constructive arrangements and these should be built on. Intragovernmental coordination is rarely simple, but it is possible with political will and management skill. Again, there are existing and previous models to draw on.

A particular challenge raised lies in conflicting mandates of various regulators – of which there are inevitably many from resource regulators to economic regulators to power system operators, to environmental impact regulators, to myriad granters of permits. There will be many risks and difficult trade-offs, and **policy direction is needed to guide how conflicts between regulatory mandates – especially those between granters of permits and other agencies – should be resolved.**

All of these problems are complex but step one on the road to solutions is a shift in mindset. This will involve culture change, which will take time – and time begins now.

In short, governments and regulators should assess whether their systems and actions add to or subtract from clarity, timeliness and predictability. The perfect will be the relentless enemy of the good when the ‘good’ is something most people agree on but which we have to acknowledge as the biggest national challenge Canada has faced since the Second World War.

Relationship Building with Communities is the Sine Qua Non of Success

It is no surprise that our interlocutors strongly reinforced the first observation from the profiles: that learning about people and communities is essential. It is important to note that ‘communities’ are not only Indigenous. Indigenous nations (which may encompass several communities) have unique legal and constitutional rights and the mechanisms for engaging other local communities will be different, but the need to do it early, transparently and in good faith is the same. That said, the big focus for almost all of our interlocutors was Indigenous engagement. Indeed, this was the topic where there was the greatest consensus: **almost all interviewees (25 of 28 interviews) mentioned that relationships with Indigenous communities are critical to a successful journey to net zero.**

Over the years, many projects have been built with minimal or no engagement of Indigenous communities by project proponents. That is no longer acceptable. Now, as one interviewee put it, Indigenous partnerships are ‘table stakes’ for any successful project. Indeed, over half of the interviews (16 of 28) noted the importance of Indigenous equity ownership in projects.

This may be the most optimistic finding from our work: the mutually reinforcing conjunction of two vitally important policy goals – reconciliation with Indigenous peoples and pursuing the country’s energy and climate aspirations. Industry and Indigenous nations and communities are making significant progress on this. In many (but not all) industry circles there has been a paradigm shift to approaching communities through the lens of relationship and partnership-building based on mutually beneficial commercial interests, rather than consulting communities solely with the aim of meeting legal obligations. This transformation in mindset has unlocked many project opportunities and is something we should celebrate and support.

But many challenges remain, as we expand upon in Section 3.

In over a third of the interviews (11 of 28), people spoke to the fact that Indigenous nations and communities in Canada are far from homogenous and each requires distinctive approaches, a challenge which is greatly magnified where linear infrastructure and many communities are involved. There is still a long way to go to build trust and many communities are wary. Moreover, there

remains uncertainty over governments’ objectives and approaches when it comes to Indigenous communities’ roles in energy project decision-making.

Indigenous peoples are holders of the right to self-determination and the inherent right of self-government; they are not subordinate governments and the roles they play and how they play them need to be built on this fact. Indigenous nations and communities can and do play several different roles – as knowledge holders who can strengthen projects through participation in government decision-making processes; as regulators conducting safety and impact assessments either in collaboration with or parallel to federal and provincial regulators; as shareholders in or full owners of projects; and, something more familiar, as beneficiaries of community infrastructure enhancement, employment, training and business opportunities. Interviewees spoke to the prospects and challenges related to all of these roles, as discussed in the following section. Finally, most nations and communities are capacity constrained, whether it be in capital or human resources – and both industry and governments need to invest in capacity-building.



3. Analysis

The analysis below synthesizes findings across the profiles and interviews to bring forward the key learnings across the two research streams of the study.

3.1 The Challenge is Daunting

Many commentators have observed that the ‘challenge’ of net zero emissions by 2050 centres on the immense scale of change implied by that goal. Much of this is familiar, but we will revisit it here to underscore the point. In Canada, in particular, there are also several contextual issues that compound the challenge. They are worth summarizing to further emphasize that the hill is very, very steep and that public authorities should aim to minimize the number of existing and future barriers to pursuing net zero.

The challenge of scale was raised by multiple interviewees, with one going so far as to state, ‘short of a constant war footing there is no way to get to net zero.’ Most interviewees were more optimistic than this, but the need to grapple head-on with the realities of what net zero means in economic, political, social and technological terms was frequently raised.

We heard about the importance of pace in many of the interviews, with many concerned about the disconnect between climate ambition and on the ground reality. As one stated, net zero by 2050 is ‘hard but doable,’ but the 2030 interim targets are ‘very and increasingly difficult – it will require leadership to say it’s ok to miss 2030 and that doesn’t dilute leadership towards 2050.’ In a similar vein, another person in the electricity sector referred to the 2035 clean electricity targets as ‘not even close to being achievable,’ noting that ‘strategy without execution is a dream and we’re somewhere closer to the dream right now.’ In this person’s view, all of the challenges can be solved, but it will require ‘collective execution.’ **One interviewee’s comment summed up much of the sentiment we heard: ‘Over the long term we’ll get a handle on this, but it’s going to take much longer than we expect or hope for.’**

Scale

A variety of sources have sought to establish metrics to illustrate the scale of the transformation before us. Often it is posed in financial terms. McKinsey (2022) estimates Canada needs \$1.6 trillion of capital expenditures to transform its energy system and broader economy to net zero by 2050, with half a trillion needed before 2030.

\$1.6 trillion is probably a conservative estimate. In Ontario, for example, the Independent Electricity System Operator (2022) estimates that decarbonizing the province’s bulk power system will cost \$400B or more. And that’s just the upstream part of the province’s electricity sector (generation and transmission). At the local distribution level, the Electricity Distributors Association puts the figure at \$120B for Ontario (EDA 2024). Add the capital to reduce emissions across the entire provincial economy, roll that up across the country, and the investment requirements are jaw dropping. Whatever the total number, it’s going to be huge.

But these numbers are little more than abstractions to most people.

What will net zero mean in infrastructure terms? Analyses of the scale of new or replaced power generation needed to electrify most of the economy produce estimates of at least doubling the generation capacity that now exists – and more often much more than that. No one knows with certainty, but it is likely somewhere between doubling and tripling the size of a system built over the past century. Decarbonization of hard to abate sectors and oil and gas production also requires substantial infrastructure build-outs (e.g., carbon capture, utilization and storage, hydrogen, renewable natural gas, etc.). And that is just for the energy system per se. End use systems from vehicles and charging infrastructure to building heat systems to industrial processes will all entail significant investment and complicated change. All of this is to be done in 25 years – and with very little market pull except where durable carbon pricing exists at a level sufficient to provide the economic incentive for change.

To understand what has happened to government decision-making processes for all of these projects, a more directly relevant measure is the number of such processes implied by the number and diversity of potential projects and how that compares to business as usual. There is no reliable way of forming such estimates since projects vary widely in scale – from tens of megawatts for storage facilities or distributed energy generation, to hundreds of megawatts for large scale wind and solar projects, to thousands of megawatts for hydro or nuclear projects, to the development of large CCUS and hydrogen hubs in various parts of the country. In addition, there will be the associated power transmission facilities, local power system upgrades, natural gas facilities including LNG, and ongoing maintenance of existing energy systems. And of course different projects involve widely varying degrees of complexity and controversy. To this last point, we know from experience (including in our project profiles) that even small projects can involve numerous steps and often years from conception to in-service.

Suffice to say, nothing this big has ever been done in the lifetimes of present-day Canadians. One interviewee summed it up well: **‘We need a better overarching understanding of what the country is hoping to achieve and what that looks like in terms of infrastructure.’**

The Canadian Context

Several aspects of Canadian reality compound the challenge.

Canada’s federal system is notorious for making any number of economic projects more challenging and laborious than might be the case in a unitary system. In the case of energy, three features stand out.

First, most aspects of electric power are explicitly matters of provincial jurisdiction and each province will inevitably proceed according to its own circumstances and priorities even though the challenge is national. That is unlikely to change.

Second, Canada’s geography is a benefit in several respects given the widespread availability of hydroelectric power and the landmass to accommodate wind and solar capacity. But then comes the well-familiar variability in provincial economies and resources, power generation and GHG emissions profiles, and the inevitable inequities entailed in getting every place to net zero emissions. Different regional physical realities, different interests and different political cultures will all add complexity.

Finally, the variety of needed projects involves numerous and different decision-making processes managed by various regulatory authorities, some federal, many provincial or territorial and, emerging, some Indigenous. Few things from the project profiles or the expert interviews stand out more than this fact.

Resource regulators regulate access to largely subsurface resources – something which will remain relevant as long as the country produces oil and gas, and will become increasingly relevant for the storage of captured carbon dioxide. Economic regulators oversee the permitting, construction and rate regulation of natural monopolies, notably transport and distribution infrastructure for oil, electricity and natural gas. Power system authorities (operators) oversee access to power infrastructure and markets while ensuring that those systems remain balanced and reliable. Environmental impact authorities make judgments concerning a broad range of potential project impacts on land, water, habitat and air. And numerous individual permitting authorities oversee occupational health and safety, as well as building roads, stream crossings, and effects on fish and other wildlife habitats.

In the next sections, we analyze and draw on the findings from both the profiles and interviews to identify the key areas of challenge – and opportunity – to building enough fast enough. We begin at the level of policy, proceed to planning and then move to regulatory processes for individual projects. We pay particular attention to how various government authorities act and interact, how jurisdictions relate to each other, and how citizens, customers, communities and investors understand project development and the extent to which they have confidence in project decision-making processes.

3.2 Big Policy is Key to Addressing the Challenge

Most recent debate concerning large projects in Canada has centred on regulation and regulatory reform, but the majority of people we interviewed said that is not where the story begins or ends. As one put it, ‘the key challenges are mainly outside the regulatory system.’ Addressing challenges begins with policy in the largest sense, extending from broad vision and goals to the way governments organize themselves to achieve their aims. There was general consensus among our interlocutors that Canada’s governments are coming up short so far.

On the positive side, there is a strikingly broad and genuine consensus around the goal of net zero – recognizing all the ambiguity that implies. In other words, many energy companies, investors, Indigenous leaders and civil society stakeholders fully accept that we need to move concertedly in that direction. Most see and are acting on ways to get us on that path. This should not be discounted or dismissed as merely performative; it is real.

The challenge concerns what comes next: how do we do it? The profiles and interviews suggest a variety of areas for solution seeking.

A clear message: Canada welcomes investment.

Naturally, among multiple governments there are many different possible answers to that question, but there was a general consensus among our interlocutors that it begins with a clear and consistent signal from governments to investors and communities that they welcome investment of all sorts in the journey to net zero. Unfortunately, that message has been lacking. As one interviewee put it, ‘When we travel to Asia for business development, people say, ‘Why would we come to Canada when it takes longer to do things in Canada and there is a lot of uncertainty?’’. Another noted, ‘Canada doesn’t have a reputation for being a positive business-friendly environment for foreign and domestic investors; at best it’s described as neutral.’

Against this backdrop, governments need to be clear that they see and are acting on the need to work through the complexities of transforming the country’s energy systems – and the opportunities for investors to help do that. A shared message across jurisdictions is crucial. One interviewee noted specifically the ‘opportunity for the prime minister and premiers to go into capital markets and say they’re aligned on key pieces of a long-term vision’ (more on intergovernmental collaboration below).

Governments must also grapple with the reality that our energy systems – both domestic and export – are still largely fossil based, and, as noted below, this presents opportunity for the country now and in the years ahead. They also need to be aware that those closest to the ground, notably provinces, project developers and local communities, are often best placed to understand how best to pursue net zero in their regions. In the words of one interviewee, ‘the voice of actual implementers is lost.’ That needs to change.

An inclusive approach: all solutions are needed.

Canada will struggle for many years to achieve progress on emissions reductions and to foster the elements of a national consensus. If governments believe that it can all be done in haste, based

on a limited group of technologies and without the knowledgeable buy-in of communities and energy users from industry to individual consumers, they will fail.

Much will turn on taking an approach that integrates both climate and energy objectives. Progress is being made even if it seems at times to be slow. The war in Ukraine triggered a huge realization about global energy security and a world movement toward LNG, and along with that, the recognition by many observers of the potential for Canada to be part of

that movement despite the obvious implications for Canadian GHG emissions. The growing awareness of the importance of CCUS, including as a way of mitigating oil and gas production emissions, is encouraging, as is the increasing recognition of the role of nuclear. The growing understanding that communities won’t automatically support the energy infrastructure needed for net zero – even renewable energy – is likewise encouraging as it underscores the importance of developing community confidence in energy projects of all types.

We heard frequently from interviewees that lack of policy clarity and uncertainty over future policies are a major stumbling block for investors. As one shared, ‘You don’t even know how to model what a project will cost you [because of] policy uncertainty.’ Another noted, ‘[governments] announce [new measures] and then we spend years and years working on the details.’

Many of these topics are still controversial but a clear message that Canada is open for all energy business that carries us through the low carbon transition needs to be the foundation for long term success.

A systems approach: solving for both climate and energy objectives. In a related vein is the need to explicitly recognize that successful climate policy must be grounded in energy fundamentals – safety, security, reliability, resilience and affordability. As one interviewee put it, ‘policymakers are focused on one outcome [emissions reductions] without giving enough weight to reliability, resilience and cost effectiveness.’ In other words, policy must solve for emissions reductions and energy imperatives. It must also foster social acceptance and ensure that all communities, Indigenous and non-Indigenous alike, have a voice. Built on those foundations, climate progress may be less rapid in the short term, but it will be poised to accelerate in the medium term and will ultimately be more durable in the long term.

Policy design and predictability: choosing the right tools and addressing future policy uncertainty. There has been a tsunami of new federal and provincial policies, regulations, programs and measures in recent years. We heard frequently from interviewees that lack of policy clarity and uncertainty over future policies are a major stumbling block for investors. As one shared, ‘You don’t even know how to model what a project will cost you [because of] policy uncertainty.’ Another noted, ‘[governments] announce [new measures] and then we spend years and years working on the details.’

Governments need to critically assess the instruments they have available. All are constrained. And all need to work together.

Regulation of emissions has its place but it can be clumsy and costly and most regulatory instruments for the energy sector are in – and should remain in – provincial hands. Federal regulation in areas of federal jurisdiction should be developed in the spirit of cooperative federalism, as the Supreme Court noted in its reference opinion on the federal Impact Assessment Act (see next section for more on this point).

Pricing remains the most efficient instrument. Investors today are looking out to tomorrow’s carbon prices as an underpinning of project economics. While the consumer carbon price is on increasingly weak footing in Canada, industrial carbon pricing needs to be maintained and projected into the future, it needs to become more uniform across the country, it needs to be ever-more broad-based and it needs to incorporate a comprehensible system of offsets. Abandoning carbon pricing completely will set back the movement to lower carbon technologies. Carbon contracts for difference will be crucial to mitigate this risk.

Carbon markets were raised as a major issue for investors, with one interviewee saying, ‘one of the big challenges is addressing the crazy situation of carbon markets’ where federal and provincial markets frequently lack transparency and credits aren’t fungible. ‘Investors won’t invest if they don’t know what the carbon market will be.’

The third available instrument is direct government expenditure. Several of our interlocutors urged that governments should employ more carrots and fewer sticks (as is the case with the United States Inflation Reduction Act). This is understandable and needed, even though potentially very distorting if not well-designed. But any such ideas need to be accompanied by a clear-eyed analysis of the current and future fiscal limitations faced by governments in Canada and the vast suite of alternative demands for expenditure. Carrots, yes, but be mindful of all the competing rabbits.

Multiple interviewees noted the promise – and challenge – of federal investment tax credits. While the credits are an important response to the US IRA, in the words of one interviewee, ‘the ITC details are a chaotic mess because [the government is] trying to please all stakeholders; there is no certainty.’ This puts a damper on the very investment – and projects – the tax credits are meant to incentivize.

In sum, when it comes to policy, governments need to aspire to clarity and predictability. When it comes to instruments, governments (and stakeholders) need to start being more open and transparent with Canadians about what the real possibilities are.

Costs: who pays for what, when and how? That leads to the most vexed question of all – who pays for what, when and how? This question has been almost entirely ignored. Many of our interlocutors agreed that the long-term energy future could feature more affordable, stable and predictable prices due to more efficient energy consumption and less risk of commodity volatility. But all agreed that the transition itself will entail vast capital expenditures which must be financed somehow. And they agreed that consumers (of all sorts) will not wear higher prices easily. One made the vital point that many investments will be very long term in nature and essentially intergenerational, which argues against placing all of the burden on current ratepayers. That leaves governments who might pay through various incentives – which of course will redound to the cost for citizens through higher taxes. Or it leaves the cost to future generations. That might work out in circumstances of moderate interest rates and higher per capita economic growth fueled by faster productivity growth – but those are very big assumptions. Lower emissions energy itself will not likely add much if at all to the total factor productivity of the economy, unlike past energy transitions going back 200 years or so.

In short, private capital – and lots of it – will be needed. This underscores yet again how crucial investor confidence is in energy project decision-making. Ultimately, costs will be paid by some combination of customer, taxpayer, and investor contributions, but the precise mix and who pays for what, when and how have yet to be openly and rigorously debated and decided upon. As one leader put it, ‘the conversation about affordability will come up and I would rather we were ahead of it.’

The need for planning. Governments need to project policy through to much more explicit planning. As one interviewee said, **‘We’re not anticipating what’s needed. Who is the planner? We’re not getting ahead of the investments, technologies and policies needed [for net zero].’**

The obvious place to start is with respect to the quantity and locations of new energy infrastructure, something that is emerging especially as power system operators grapple with the challenges of integrating new power sources and transmission for electrification. It is also beginning to emerge

across the gas and power systems, where moves to integrated resource planning can help optimize energy delivery systems to reduce emissions, minimize costs and maximize reliability. It is likewise emerging where industry and/or governments are working on decarbonization plans for particular sectors (e.g., carbon management in the oilsands), infrastructure for emerging sectors (e.g., hydrogen hubs) or the development of pathways to net zero.

Governments need to look to the future capacity needed to build what amounts to a complete remaking of a one-hundred-year-old energy system. What’s crucial is to take holistic coordinated approaches rather than ‘policymakers doing things in silos,’ which is often the case at present.

Perhaps more than anything else, and something emphasized multiple times by our interlocutors, as discussed further below, is the question of labour and skills as countries the world over compete for talent on the road to net zero. This is critical to the future and can be planned for proactively by governments working with industry, labour leaders and academic institutions. Finally, planning also entails a realistic assessment of risks in the marketplace. More on that below.

Communicating with the public. The last major policy question concerns communication: informing citizens, consumers and communities about what the future holds. In the words of one interviewee, ‘There is a lack of public appreciation of the size of the challenge and the need to build out clean infrastructure.’

Increasingly, net zero will have a direct effect on peoples’ lives, whether through the energy sources they use, the devices they use to consume energy, or the appearance of new energy infrastructure in their communities. As one person put it, ‘We need a better overarching understanding of what the country is hoping to achieve and what that looks like in terms of infrastructure – a strategic plan with a well understood and communicated approach [that identifies] what people can look to in their own communities to know what’s needed and what it means for infrastructure.’ They added that this includes ‘education and communications for emerging technologies, including how public input is being incorporated and considered’ in decision-making.

This is an area where political leaders can play a crucial role helping to raise awareness and pave a smoother way for change. But it is not about partisan communications. It is about data and realistic and transparent analysis and modelling converted into information that people can understand. Energy trade associations started two decades ago urging governments to invest in energy information. And today, although we have made progress, we are a long way from having the information foundation that must underlie communication aimed at policy progress more than short-term political benefit. There are challenges to this to be sure, particularly in the age of social media, but many interviewees underscored the importance of communicating to Canadians what net zero will mean for them, in order to set the stage for the changes ahead. Without public support, net zero will falter. As one leader said, 'nothing's going to happen if the voters aren't supportive.'

3.3 Governments Need to Cooperate More Than They Have Done So Far

The profiles and interviews underscored the importance of cooperation, coordination and alignment between governments – notably federal and provincial – when it comes to the investment environment for net zero. Meaningful planning, coherent communication and regulatory reform (more about that later) are all needed. Many interviewees pointed in particular to the lack of policy clarity between governments on big questions like the desirability of oil and gas projects.

As one leader put it, 'There isn't alignment in the broader dialogue and context around energy and climate.' Another pointed to how the absence of an overarching national strategy leads to controversy over individual projects in the regulatory system: 'We don't have an economic strategy that focuses on industries aligned with a 1.5 degree future, so then the regulatory process gets stuck and every project becomes a debate.' **One interviewee summed it up well: 'The challenge [of pursuing net zero] is not one of engineering and technology. It comes down to politics and federal-provincial dynamics and small-p politics.'**

Collaboration on these matters will depend on governments addressing a long-standing Canadian challenge which, unfortunately, seems to be getting worse.

Canada came close to meaningful intergovernmental cooperation with the Pan-Canadian Framework on Clean Growth and Climate Change, but the consensus underpinning it fell apart as provincial leadership changed (Bratt, 2021). The federal government's Regional Energy and Resource Tables – aimed at finding tangible ways to align policy tools, government resources, spending, and regulatory and permitting processes between levels of government – have potential, but they are province by province rather than regional, and there will be a growing need for regional approaches (although this may be easier said than done), particularly in the move to electrification.

Electric power is a matter of provincial jurisdiction and in many cases also associated with provincial identity, and in all cases may be far more politically fraught than what we find in the hydrocarbon economy. One interviewee observed, 'The feds are increasingly trying to step into the electricity space using creative means [but] there is a lack of agreement on net zero for the electricity system – is the target 2050 or 2035? [...] Ottawa is getting in through the back door rather than working with the provinces to develop a plan.' But the challenges aren't only at the federal level: another noted, 'We won't achieve net zero if the provinces don't team up – so much depends on electrification.' The Atlantic Loop, tying together Newfoundland and Labrador, Quebec and the Maritime provinces, seemed like a promising example of a positive future. But it has stumbled on questions of actual or perceived provincial self-interest.

But there are grounds for optimism. We heard in the interviews that constructive work is happening between jurisdictions. It is characteristic of communications between governments that they often lead with rhetoric designed to satisfy certain political constituencies but often involve more accommodating discussions out of the limelight. There is much potential here despite the political flashpoints that dominate the media. We heard that governments should resolve to move more of the discussion into constructive areas and into more bureaucratic and technical realms. They should look for small wins, whether bilateral or multilateral. They should also work increasingly with Indigenous governments to 'provide room for Indigenous intergovernmental conversations as well; there is an opportunity to break down barriers.' Efforts like these could help pave the way to larger collaborative efforts.

The success of regulatory reform will hinge on these broader issues. It will require a willingness to find constructive forums outside of those dominated by rhetoric and it will only work where there is at least some willingness to compromise on big questions such as the future of hydrocarbons or the speed of transition. A number of our interlocutors from eastern Canada pointed to the opportunity for a positive shift in the current intergovernmental climate if the federal government resolved to collaborate constructively with Alberta on its plans for decarbonization in the oilsands. Some also noted that provincial self-interest may in the end be better served by mutually beneficial energy trade and infrastructure development rather than autarchy.

3.4 Markets Still Matter

Government project decision-making processes are by no means the only impediment to net zero. As we have argued elsewhere, regulatory reform is a necessary but insufficient condition for success (Cleland and Gattinger 2017). Some of the other conditions, as we noted in the previous sections, include a number of policy matters. But market realities are only to a limited degree within the reach of policy.

Pace of consumer uptake.

Start with consumer uptake of new energy sources and technologies, whether electricity, hydrogen blending in the natural gas system or heat pumps. Policymakers have established mandates on things like electric vehicle sales, some municipalities are moving to prevent new development reliant on natural gas and other governments have expressed aspirations for the retrofit of existing buildings. But in the face of realities such as the maturity, cost and availability of new technologies and consumer (including commercial, institutional and industrial consumer) uptake, mandates can easily become later dates and consumer uptake can lag expectations.

Uncertain future demand. Large scale energy infrastructure is typically built with time horizons looking ten or more years into the future. Project proponents, power system operators and economic regulators all have to account for the question of how demand might evolve in those time frames and much of that is uncertain. It may or may not be prudent to build (and approve) infrastructure in the expectation or hope that demand will indeed arise. That question, along with exactly how best to allocate the costs of what may amount to speculative investments, will inevitably engender a certain degree of caution. In the words of one interviewee, 'You can't strand trillions of dollars in assets. There is a huge economic interest in seeing the life cycle of a facility reached – there must be a significant economic advantage that the private sector sees for it to be willing to abandon that asset.'

Financial and capital markets.

Financial and capital markets will be driven by their own dynamics. Policy around carbon pricing, carbon markets, subsidies and mandates can provide some measure of certainty, but we heard time and again about the challenge of unclear and unpredictable policies in these areas. Moreover, governments change, and policy along with them. Important aspects of technology

are still evolving, whether carbon capture, hydrogen, new nuclear or the economics of electric vehicles. Financial and capital markets will endeavour to price in all of the risks associated with that. Where they can't, they will take their dollars elsewhere. Lack of clarity and transparency of carbon markets across Canada was raised in particular by one interviewee: 'Investors won't invest if they don't know what the carbon market will be.' Basic economics still matters and the uncertainties around those economics will only be resolved with time, by degrees and by steadier hands on the policy machinery.

As one person stated, 'the insanity of going through an entire [regulatory] process and then going to a political decision doesn't make any sense at all.' Another said, 'A lot of the problems in the system are caused by political involvement. It's so unclear who has the final say – you can't risk manage politicization. It has created an investment chill.'

Resources and capacity matter. By this we mean not conventional energy commodities but the supply of critical materials and equipment as well as skills and organizational capabilities. As one of our interlocutors put it, 'If we were the only country that wanted lithium, cobalt, uranium or whatever we could do this, but we're not.' With most of the world energy system driving their systems to net zero emissions at the same time the uncertainties around the availability of resources of all types (materials, skills, labour, etc.) make planning much more difficult. We heard frequently about the pace of change driving materials shortages: 'cost certainty [for projects] is a huge issue.' Suppliers are committing to ever shorter cost validities for key components needed to build projects (down to four weeks in some cases).

Supply chains will inevitably be a big risk factor that government decision-making processes cannot obviate. As noted above, labour and skills may be more amenable to policy and planning (including sequencing and cooperation among project builders) but it seems almost a certainty that there will be shortages of various sorts at various times. One doesn't just become a welder overnight; it takes years of training to be certified and new technologies mean new skills and knowledge as well as organizational capabilities – and not only among energy providers but among end users who must develop their knowledge, skills and capacity to adapt to new energy sources and technologies.

None of this is to argue that market realities cannot be navigated. In many cases where new technologies are emerging or investors commit themselves to decarbonization, markets will facilitate and even accelerate change. But markets (and especially consumers) cannot be predicted with certainty and sometimes prudence and patience – building community capacity, enhancing skills, recognizing that most capital investments require careful planning and risk management – will lead to surer outcomes.

3.5 Regulatory Reform May Be the Easy Part

Much has been proposed of late respecting the possibilities for regulatory reform and there is a strong consensus among other researchers and our interlocutors concerning where the emphasis should be placed. Much of it is relatively simple – at least in principle. As we have noted, many other factors will bear on the achievement of the net zero goal beyond regulatory reform. But it is an essential condition of success. In the words of one of our interlocutors, 'Canada's approval process is challenging and there's uncertainty within it. There are so many different aspects other than just regulatory approval but all of those other aspects are contingent on being able to navigate through a credible regulatory process.'

Our research reveals reform is well within the reach of policymakers and regulators. Given the general consensus behind the goal of net zero, there is broad alignment about the general outlines of what should be done (acknowledging that the devil is always in the details). We also know that within governments, including the federal government, there is clear recognition of these challenges and multiple initiatives emerging that aim to address them.

While regulators, especially impact assessment bodies, come in for much criticism, they all argue with some justification that they are developing reforms piece by piece and largely out of the view of participants in the public debate. Given this, it should be a relatively straightforward matter and actionable to make meaningful progress in the short term.

As one person put it, 'People are afraid of making mistakes. [...] The information requirements have grown exponentially but we're not making better decisions. We need to rein that in but it's tough to do once the genie's out of the bottle.'

All of this said, there are many complex challenges to address, and the complexities have grown over time. As one interviewee noted, 'The past is not prologue with moving to net zero. [...] The environment has changed so much: [the growing role of] Indigenous communities, the rise of municipal-regional forums of regulation [and] new rules in place that are still being litigated.' In a similar vein, another noted that it has become 'much riskier to develop projects – it is more fraught with legal challenges, timelines have lengthened out, opposition has varied and court challenges add delay.' Another noted, 'We're looking for certainty on timelines – not certainty on outcomes. When you commit millions of dollars to development [of a project] and a two-year process becomes a nine-year process it's a serious issue.' This person said it's like 'the decision [on the project] gets referred into a black hole' and raised the additional challenge that emerges when 'new rules come up and all of a sudden you're back to the drawing board.'

A caution: the challenge is about more than just timelines. Our research has revealed it is not only timeliness that matters (and timeliness itself may well be dictated by factors well beyond the regulatory system). It is also, to at least as great a degree, a question of predictability and clarity of decision processes. Virtually all of our interlocutors agree with this and regulatory reformers should assiduously avoid efforts to reduce timelines in ways that exacerbate uncertainty. This is a systemic challenge and tweaks and adjustments to only one part of the system will not solve it.

Political involvement in project approvals. Start at the top. Over the past two decades there has been a tendency for more and more of the project decision-making process to be drawn into the political realm through ministerial or cabinet decisions – and by no means only at the federal level (Cleland and Gattinger, 2021). The putative argument for this rests on the idea of democratic accountability – that elected officials should have the final say. But there are considerable costs to this approach. We heard from many in the interviews that political involvement greatly decreases the predictability of decision-making. As one person stated, 'the insanity of going through an entire [regulatory] process and then going to a political decision doesn't make any sense at all.' Another said, 'A lot of the problems in the system are caused by political involvement. It's so unclear who has the final say – you can't risk manage politicization. It has created an investment chill.'

The role of the environment minister in federal impact assessment was raised by multiple interviewees, with one saying 'politicization is a big challenge for certainty. [...] with the Impact Assessment Agency of Canada it never goes away until you have a shovel in the ground. [Ministerial] discretion is broad and open-ended – designation can happen at any time. It's a project killer.' Another said, 'there are seventeen offramps [where the minister can get involved] and every one of the offramps offers an opportunity for uncertainty. Bureaucratically they're trying to provide a right for the minister to stop [a project].'

One person pointed in the direction of solutions, saying that if you're a minister or cabinet 'there's discretion you should not want to have' and the real question is, 'How do you validate [the government's project decision-making] process?' In other words, democratic accountability can be achieved in other ways that don't introduce further unpredictability into the process. This includes clearer policy direction and planning. Accountability exercised at the level of individual project approvals is a recipe for longer timelines and much increased unpredictability. Our interviewees were emphatic on this point.

It will require political will to reverse the trend. Political actors quite naturally feel that their accountability to constituents requires them to hold final approvals in their own hands. But one of the ironies of this is that governments, once granted certain powers, will not only wish to exercise them directly but will be forced to do so by pressure from various constituencies. As long as that fact persists no project proponent can be certain about the scope or nature of a regulatory process. Worse, a final decision process undertaken by a minister or cabinet occurs behind closed doors thereby violating concepts of due process, fairness and transparency.

This problem could be resolved or at least mitigated by policymakers narrowing their scope of involvement or deliberately tying their own hands. Interviewees told us that federal rules for designating projects for impact assessment should be narrowed considerably. They also noted that political leaders should only be able to second guess regulators in very limited circumstances and should not be empowered to add conditions to approvals – something that rests on largely technical matters and expertise that policymakers rarely possess.

Regulatory mandates and mindsets: the need for project development to achieve net zero. Still close to the top is the matter of mandate versus mindset. Many interviewees pointed to federal impact assessment in particular as a challenge (although many projects needed for net zero will not require a federal impact assessment), noting that impact legislation has been implemented in a risk averse fashion. Likewise, our interlocutors pointed to federal environmental permitting as a challenge. We were told, for example, about officials asking for ever more information rather than moving forward to take decisions, and that interpretation of federal requirements can vary regionally across the country. As **one interviewee observed of federal requirements, ‘the whole regulatory system is set up around “What if we want to say no?”** If you want a project to happen you have to say so at the outset.’ Another said that there is a ‘lengthening list of conditions and [ways] they [are] administered and overseen – you never really have approval.’ Some leaders viewed this as the strategic use of delay tactics for projects that the government doesn’t want approved: delay in the regulatory process ‘until the sponsoring company rolls over in exhaustion.’

Looking at the Canadian context as a whole, one interviewee remarked, ‘When it comes to firsts, we are conservative. We do way too much talking about things and not enough doing things. Part of it is attitude.’

There are multiple aspects to this. As one person put it, ‘People are afraid of making mistakes. [...] The information requirements have grown exponentially but we’re not making better decisions. We need to rein that in but it’s tough to do once the genie’s out of the bottle.’ Ultimately, as one interviewee noted, we need to ask ourselves, ‘how much [information] is enough to be sufficient so the regulator isn’t just gathering data to avoid making a decision?’ Leaders often observed that the United States is more ambitious, ‘open to risk taking and reward seeking’ and that Canada needs to ‘reframe [its regulatory processes] to reward seeking.’

‘There is a need for top-down direction and coordination within the system. There has not been coordination across departments federally. What seemed like a good system when you wanted to kill projects isn’t a good system when you want to approve projects.’

Another part of the mindset change needed for net zero relates to the need for projects: ‘We need to change the culture of how project reviews are done. We need to move away from something that’s so oppositional. [...] The major parties are aligned on net zero (industry, government, Indigenous, others) – let’s start building regulatory processes that allow us to build things.’

Of course, it is characteristic of regulators to carefully assess risks and ensure environmental and other protections are maintained. On this point interviewees were united: regulators should rigorously pursue the whole of their mandates and only allow projects to proceed that on balance are in the public interest. The regulator’s job, after all, is to balance various aspects of the public interest, whether economic, safety, just and reasonable rates or environmental protection. It would not be in the public interest for regulators to reverse this mindset. What’s needed are ‘standards that are stringent but practical.’

This is where political actors have much to contribute. If the objective is to attract a trillion dollars or more of capital for new infrastructure – and ensure projects are built at pace and scale – then the larger policy objective should be to identify how to do this, including potential shifts in regulatory mandates or mindsets. There will,

in other words, be trade-offs in pursuing the net zero path, and only political actors can make trade-offs across various parts of their policy or regulatory systems.

The question is how best to do it. Options include legislative change and directives of general application issued publicly through regulation ahead of individual project applications. Importantly, it requires the thinking to be done a priori.

Policymakers need to parse which issues require mandate shifts versus shifts in the mindset – the culture – of regulators in interpreting their mandates. There may be costs in this and there will almost certainly be resistance. Shifting culture takes time. That is why political leadership is crucial – assuming there is agreement on the overarching long-term objective and robust consideration of acceptable trade-offs.

Streamlining and better delineating federal and provincial regulatory roles. Interviewees spoke frequently of the need for better coordination and delineation of roles between federal and provincial regulators, saying that Canada currently has ‘overlapping and disparate approvals processes between the feds and the provinces.’

Many pointed to the need for more federal forbearance, particularly with respect to impact assessment. A mechanism for doing this is through substitution, delegation or other agreements, and many interviewees pointed to the agreement between the federal and British Columbia governments as an important precedent. The default should be in favour of such substitution or delegation, mindful of the growing role of Indigenous governments in the process (more on this below). Provincial governments have the capability and have as much interest as the federal government in protecting the environmental and cultural integrity of their respective landscapes, but they also have the responsibility to work cooperatively in the national interest.

But this can be easier said than done. As noted earlier, the lack of alignment between federal and provincial governments stymies progress on net zero. As one interviewee put it, ‘You could do combined approval regimes, but the key question is [whether] there is a political driver for collaboration.’ Another person spoke to electrification, noting that ‘power is a provincial jurisdiction with federal overlay on pieces – who’s doing what and how is crucial. There needs to be very strong alignment politically. [...] Substitution reform is critical and you also need to bring in municipal governments. You’ve got to align all the way down – you can’t have pancaking.’

When governments don’t work together, companies often need to jump into the breach and foster interjurisdictional coordination: ‘the proponent is coordinating across jurisdictional boundaries to reduce death by a thousand cuts.’

Some interlocutors spoke to the political challenges of responding to the Supreme Court’s reference opinion on federal impact assessment. As one put it, ‘The Supreme Court says the environment requires cooperative federalism. What we have is competitive federalism. [...] The federal and provincial governments need to come together and say they’re going to fix this together.’ In the view of this person, ‘The lead regulator should come from the jurisdiction that holds constitutional power [but] the federal government has encroached so far into provincial jurisdiction.’

Indigenous governments have, as yet, less capability to regulate projects, but they have even more interest in protecting environmental and cultural values; tools and mechanisms are emerging that enable them to be an integral part of assessment processes, and to lead their own assessments, ideally through substitution, delegation or other agreements rather than separate parallel processes, which many interviewees noted risk adding time and duplication to project decision-making. Meanwhile of course, the federal government has constitutionally mandated responsibilities such as for fish habitat or migratory species. A number of interviewees noted that those responsibilities could be exercised in the context of assessment processes undertaken by other governments.

Intragovernmental coordination. We have alluded elsewhere to the inherent complexity of regulatory systems – many systems, many regulators and sometimes many conflicting objectives. We heard frequently about the need for much more effective intra-governmental coordination to move project decision-making forward in a timely way. One interviewee speaking to the situation at the federal level didn’t mince words: ‘There is a need for top-down direction and coordination within the system. There has not been coordination across departments federally. What seemed like a good system when you wanted to kill projects isn’t a good system when you want to approve projects. [...] You need a degree of coordination at the deputy minister level to keep things moving.’

The federal government’s one-time Major Projects Management Office (MPMO) was a laudable initiative in that direction and all governments should continue to look at means to restore that idea. But the MPMO was inherently limited. For one, by no means are all projects ‘major’, but all collectively add up to success or not in the pursuit of net zero so the coordination mechanism needs to reach deep. A future mechanism needs to account for the variety and complexity of the interests at play. Most importantly, it needs to have teeth; it needs to be directed from the top and above the mandates of individual departments and regulators. In the words of one of our interlocutors, ‘What would be really helpful is an entity that can hold folks accountable and remove and reduce duplicative processes. [...] We need a central oversight department like MPMO but with real teeth, [pushing all parts of the system forward] or making it clear that if they don’t weigh in they lose their opportunity.’

This is inherently complex and it is not obvious exactly which aspects of government machinery are best placed to do the job. But it is essential and can be done given political will and management skill.

Learning both within and across regulators; focusing on new risks. Interviewees often pointed to the absence of systematic learning both within and across governments and agencies about the risks of particular kinds of projects or activities and best practices for effectively mitigating them. This was particularly in reference to federal impact assessment, where our interlocutors noted a tendency to seek out every detail of every possible impact. **Interviewees also pointed to the tendency among some regulators to conduct full assessments for brownfield sites and for well understood project types and project risks.** They said that building a project at an existing facility 'shouldn't be treated like it's a greenfield site' and that we shouldn't be '[putting a] burden on small applications like they're large applications.'

The perfect in this case is very much the enemy of the good (remember net zero). Approval authorities should build on what we already know from decades of assessing and building projects. Many regulators are already working in this way, engraining risk-based management techniques, guidelines to reduce the need to review projects where risks are well-understood and approving the use of standard mitigation measures without reinventing the wheel. Much is already known about habitat management on transmission corridors, stream crossings and monitoring systems, for example. One interviewee said, 'If you build transmission, you will cross wetlands and we will find species at risk. If the government were to say, 'If you find this kind of species at risk, here are the three things you can do.' [...] That's the sort of thing I can take to a board of directors.'

Regulatory capacity. Regardless of any reforms that are undertaken, interviewees noted that regulatory capacity will be stretched by the sheer volume of approvals implied by the goal of net zero emissions by 2050. One shared that 'quietly federal officials have told me the system [lacks senior] talent to deal with things internally' and that they have 'had requests for secondments and names of retirees they could tap into.' This idea is well worth pursuing.

Governments need to be thinking ahead about what capacity they will need, what management systems, what procedures and what skills, and they should be investing now in building that capacity. But here there is a win-win visibly on offer. Through all the other aspects of regulatory reform outlined above there are ways to reduce demands on the system, and, consequently, the requirements for regulatory capacity.

At the same time, we also heard that industry needs to do its part: '...companies do a [poor] job submitting applications. They are presumptive in Indigenous engagement and presumptive in projects needing to move quickly. They do a poor job laying out why [the project] is in the interests of the country'. Capacity building needs to happen across the system as a whole.

The risk of focusing narrowly on timelines and

fast tracking. Finally, interviewees stressed that governments should be wary of reforms that may blow back at them. Mandated timelines are good in theory but if they have many off-ramps they do little to reduce timelines while simply adding unpredictability. Fast tracking as we have seen from the profiles can turn out to be fast tracking straight into a wall if it ignores local conditions and the need for community support.

It is rare when there is a mutually supporting convergence of two big national goals, but that is occurring now. Indigenous reconciliation and the building of the new energy economy create potentially game changing synergies.

That said, some interviewees felt that government should prioritize decisions for certain kinds of projects or classes of projects. As one said, 'Somebody needs to say, "We have made [climate change] commitments and projects that will reduce emissions should move to the front of the line."' Another noted, 'We need to find a way to get to yes faster. We need criteria that identify projects of national significance. We need a short list [of projects] to crowd in capital.' Yet another person felt this should apply in particular to federal impact assessment: 'What would be very helpful is if as a nation we identified a suite of clean energy infrastructure projects that are ready to go through IAAC and prioritize them in a way that allows to learn by doing.'

Others disagreed with this approach, noting that governments should be careful about fast tracking certain projects or classes of projects. The politics surrounding which projects get fast-tracked will add time and can lead to blow back if the resulting 'list' is not seen as inclusive. In the view of these interviewees, governments should be neutral about which projects are good or not. If governments can move quickly for one kind of project, why not for them all? Or if one large project is fast tracked but ten smaller ones that add up to the same additional capacity and emissions reductions are not, what is gained? **Most interlocutors stressed that it is about putting in place the right system – not making exceptions for individual projects or types of projects.**

3.6 Relationships With Indigenous Nations and Communities Are a Very Big Part of the Solution

As noted earlier, it is rare when there is a mutually supporting convergence of two big national goals, but that is occurring now. Indigenous reconciliation and the building of the new energy economy create potentially game changing synergies. We heard about this repeatedly in the interviews. On this topic many spoke passionately and enthusiastically. As one put it, 'We can have a positive net zero future and a positive reconciliation future.' Another said, 'There has been a radical transformation on Indigenous relations – companies have smartened up.' Yet another noted that when it comes to projects, 'There's a changing approach: companies don't start with engineering – they start with [Indigenous] partnership potential.' We also heard that there will be many complexities to sort through.

Communities are diverse. Indigenous communities are far from homogenous and expectations of governments and investors need to start there. Some nations and communities are already well down the road of benefiting from the energy transition and doing so in multiple dimensions. Others, perhaps more remote or with less experience with resource or project development, may have limited capacity to take on the complex tasks involved (more on capacity below). Within any given nation there may be several different communities with widely divergent views. As one interviewee put it, 'You can have [different] chiefs expressing views both for and against projects. What does [a company] do [in that situation]? How is a decision made?' Finally, still other communities remain a long way from trusting that this time, governments and project developers will get it right.

Many models on the road ahead. In our interviews the question arose as to whether some sort of overarching government framework might facilitate the process of change. Cautionary voices suggested that much of this process is organic and requires 'unique to the circumstances' approaches. It needs to evolve in its own time and with individual communities finding their own path forward. This will take time, but it seems clear that one-size-fits-all approaches pushed by governments are as likely to jam up the process as to facilitate it. Indigenous-led processes, like the First Nations Major Projects Coalition, can facilitate learning, capacity building, tailored support for communities and sharing experiences. One interviewee summed it up saying, 'Over time we will develop what "good" looks like. Trying to propose a bright line standard doesn't work. [...] It's an organic process. Models have to be a function of the partners. Trying to put a body in there that's a facilitator won't work.'

Rights-based and business-based approaches. A number of Indigenous interlocutors raised the important point that we are at an inflection point where the attitudes of Indigenous communities are shifting. With multiple court decisions now behind us, there is, at least for some communities, the belief that starting from a focus on rights is no longer as necessary as in the past. Almost no one disputes the fact that Indigenous rights are now well established (although where overlapping land claims are involved it gets complicated). In addition, bit by bit, questions about what constitutes adequate consultation are being resolved and there is a growing recognition that seeking 'consent' need not be a source of blockage but rather a facilitator. One said that relationships between proponents and Indigenous communities and nations 'are value-based relationships. For a partnership, there needs to be value on both sides.'

For some communities at least, the focus is shifting from rights to interests, and they are pursuing an economic and business path forward, grounded in meaningful relationships and, increasingly, partnerships with proponents – or as proponents themselves. As one Indigenous leader put it, 'The fight for rights has largely been won. Now it's figuring out how to get the best business deals.' They further noted, '**Concentrate on the business model and much of the regulatory approvals and monitoring will fall into place. If communities see themselves from [project] idea to decommissioning that's what they are looking for now. It's really about shared decision-making.**'

Interests are centred primarily on two questions: control and benefits. Exactly how those are defined varies community by community but successful approaches are emerging.

Benefits have in the past centred on things like proponent contributions to community infrastructure, employment, training and business opportunities. These remain important. Crucially, through past such agreements, many communities have developed the capacity to not only participate in projects through impact and benefit agreements, but to expand the range and depth of their involvement in new projects (impact assessment, partnerships, leading their own projects, monitoring, etc.). Meanwhile, other communities are still stepping onto this path. As noted above, governments and project proponents need to recognize this diversity and learn from the community where they are and where they want to go. In the process, they can advance other benefits such as progress toward reconciliation, better projects and positive contributions to corporate reputation.

Equity ownership.

By far the dominant theme we heard about Indigenous roles concerns ownership in projects. This is rapidly becoming the norm at least in principle. As one leader put it, 'any project that's going ahead has done something big with Indigenous partnerships.' Another noted 'equity participation gives governments confidence [that the community supports the project].' Yet another said that equity 'gives Indigenous partners a true partnering voice' and that ownership 'should be the backbone of the strategy to enable Indigenous peoples to rise out of poverty.'

There are divergent views as to whether the focus of ownership should be on relatively low risk investments such as rate-regulated infrastructure or whether appropriate business models can be found to enable Indigenous ownership in higher risk activities, especially those involving new technologies, longer lead times to revenues, global commodity price swings, or even the potential for stranded assets. There is no easy answer to this question but a very big step in finding the answer entails a much bigger and better coordinated effort, primarily by federal and provincial governments, to

provide the financial backstopping needed at least until Indigenous nations develop robust balance sheets that can help them secure competitive access to capital. As one person put it, 'The financial sector penalizes Indigenous communities. They need to be able to get money at 4.5 percent rather than 9 or 10.' Another noted, 'Governments and banks need to find a way to get enough financing into the hands of communities. Industry is looking for ways to make it happen. Communities don't want to take on a lot of risk – we have to find what the right balance is.' This is the future – and one that one of our business interlocutors characterized as "table stakes" for any development.

Indigenous regulation. An emerging question concerns Indigenous control of development and, in effect, Indigenous regulation. This is already

happening in some jurisdictions and with some nations, but it will not be of interest to all nations. Enhanced capacity will be needed for many moving down this path and it raises the spectre of what some interviewees – Indigenous and non-Indigenous alike – referred to as more 'pancaking' with multiple processes that slow things down and add unpredictability.

Many of our interlocutors saw pragmatic ways around the matter, but others were skeptical of Indigenous regulation,

both of how it is working now or how it would work going forward. As one put it, 'Co-decision-making is not going to go well. The more regulators you have the more complicated it becomes. You need to think about seams issues and how that will work.' Another said, 'It takes what's already a six-sided Rubik's cube and makes it a twelve-sided Rubik's cube. Now it's not just involving long-established tribunals, but also new tribunals.' One interviewee raised the question of how Indigenous regulation would take the broader public interest into account: 'Who is responsible for the broader public interest? It's unreasonable to expect that an Indigenous government will be concerned about much beyond their own interests. Where in the [regulatory] process is the broader public interest being served?'

Capacity remains the big question and there is hardly any role for governments more important than investing in that capacity. One interviewee summed it up well: 'You don't develop capacity overnight. All [communities] want to benefit but not all have the wherewithal to navigate the systems and to be part of the solutions going forward.'

Those who were more optimistic pointed to potential solutions, saying things like ‘we need to continue to explore joint Indigenous-government assessments’ but that ‘we need to make sure it’s clear where ultimate accountabilities lie.’ On the challenge of timeliness, one interviewee noted the importance of ‘ensuring that when [a proponent is] submitting to a process that the rules and information aren’t expanding during the process.’ Another said that Indigenous regulation ‘can be an opportunity for substitution or [an opportunity] to fit within or alongside other regulatory processes’ rather than repeating them. Others pointed to the need for learning and capacity supports, saying that ‘substantive information is lacking in this space.’ One summed up the situation by saying that it ultimately comes down to what governments want: ‘Are governments prepared to defer to Indigenous communities on decision-making for projects?’

If federal, provincial and territorial governments can agree to cooperate, Indigenous governments could lead processes in their own right through substitution or delegation agreements. In other cases, separate processes but harmonized administration of processes (e.g., on timing) could be pursued. The key, as one person put it, is that where multiple governments are involved ‘We need to take inefficiencies out – we can’t just keep piling on the process.’

Some interviewees raised the potential for conflicts of interest where communities are both owners and regulators, but governments often find themselves in those dual roles and the governance mechanisms needed to address them are well understood. In the near term, more often Indigenous nations and communities will be active participants in federal or provincial government-led processes, bringing vital knowledge to the table, being an essential part of the decision process and taking on roles such as monitoring once projects are up and running.

The challenge of pace. The pace of development is a very large potential challenge. In prior Positive Energy research, we found that the benefit of having diverse participant representation in public engagement processes raises concerns about capacity and resources (Larkin, 2021). In this study, we heard several times that communities can only take on so much – ‘communities are overwhelmed with opportunities to be involved’ as one person put it. Another summed up a common theme across the interviews, ‘Reconciliation adds to the challenge and

the opportunity [of net zero]. [...] Reconciliation and consent [to projects] are fundamentally a question of time. They require more time not less [but while] they can be seen as a contradiction to near term targets, they can be an accelerant towards achieving longer term goals.’ Given these important realities, pursuing a measured pace of development increases the potential to achieve more durable, secure and mutually satisfactory outcomes.

Government roles. We heard that for federal and provincial governments there are several important roles. One is simply to recognize that there are many practical possibilities and that they should actively facilitate those possibilities.

In order to do this, we heard frequently that governments need to shift their mindset: ‘governments are not being solution-oriented or they are thinking more about process than outcome, which can inhibit change.’ An Indigenous leader said ‘Canada wants a solution without any complications. We are no different than any other communities: we won’t all agree.’ They added, ‘Governments aren’t changing quickly enough. Tweaking programs isn’t the answer. [...] I hear lip service, but you get down to the Privy Council Office, deputy minister and Prime Minister’s Office level and everybody is paranoid about the implications of moving down this path [of economic reconciliation]. [...] One of the things we don’t measure is opportunity: opportunity for economic independence and self-sufficiency.’

We also heard about government limitations in terms of the duty to consult: ‘Within federal and provincial governments we do not have sufficient knowledge or comfort around fulfilling the duty to consult.’ Another added that ‘federal fisheries officials are trying to figure out what it means for them to do engagement and they don’t have clear direction on what it means to satisfy the rules [for engagement of Indigenous peoples].’ Governments have much work to do on this front.

An important role for governments is to recognize that those on the ground – Indigenous nations and communities and project proponents – together have much of the necessary knowledge of what works and they should be given room to do the work within the larger jurisdictional responsibilities that federal and provincial governments must necessarily carry out. Many interviewees noted that industry is much further down the path than governments when it comes to Indigenous participation in projects.

Capacity remains the big question and there is hardly any role for governments more important than investing in that capacity. One interviewee summed it up well: ‘You don’t develop capacity overnight. All [communities] want to benefit but not all have the wherewithal to navigate the systems and to be part of the solutions going forward – they can’t quite grasp what they’re really being invited to the table to be a part of. Governments need to look at Indigenous programs through a different lens and ask themselves, “How do we build skills and capabilities?”’

Finally, we heard that governments need to celebrate what may prove to be the most encouraging message to communicate to investors. There remains a dearth of understanding in Canada of just how much progress is being made. Real Indigenous participation may well prove to be one of the best parts of the Canadian brand as we seek to attract investors and that, by any measure, is a win-win that is worth talking about with all Canadians and international investors.

The most important conclusion of this research is that the challenge of rebuilding the energy system over the next two and a half decades is much bigger than a question of regulatory reform, and certainly not just reform of federal impact assessment.



4. Conclusions and Recommendations

The most important conclusion of this research is that the challenge of rebuilding the energy system over the next two and a half decades is much bigger than a question of regulatory reform, and certainly not just reform of federal impact assessment. Reform of other regulatory processes is also necessary and that will soon become more apparent with the passage of time and the crystallization and inescapability of the costs associated with new investment. Moreover, clearer more consistent policy – most notably alignment between different levels of government and how to allocate costs – is essential. So is more systematic consultation, engagement and meaningful involvement of local communities, most notably Indigenous communities. As such, we have framed our recommendations as matters both within and outside the regulatory system.

We also take note of the work done by several other groups cited earlier, much but not all focused on impact assessment and all of it thoughtful and constructive as well as highly consistent with what our research has revealed. There is, in other words, much scope for constructive debate and collaboration.

Inevitably, given the scope of the challenge and its possible solutions, there is danger in trying to fix everything all at once and ending up losing coherence and focus. The problem needs to be parsed and different parts approached in different ways. With that in mind, we have organized our recommendations for reform as a series of what we call ‘packages’ (see Table 1 for a summary of the packages). Each can be approached on its own, will often require a different set of actors to come together to address, and will

involve different timelines, although the urgency of the problem argues for action starting as soon as possible across the board. This point can hardly be stressed enough and finding the balance between urgency and measured reflection will always be challenging. In some cases, there may be ‘fixes’ that are fairly readily within reach. In other cases, such as intergovernmental cooperation and the lack of shared national vision, the challenges have been with us since Confederation; they will require a type of political leadership commensurate with the scale of the problem, they will take time and will never be fully resolved, but they cannot be ignored.

Importantly, the leadership, roles and involvement of Indigenous communities, organizations and leaders is woven throughout the recommendations. The nature of roles and who should be at the table often differs given the nature of issues to be resolved within each package.

Collaboration sends a crucial message to investors and citizens: Canada is serious about net zero and governments can set aside their differences to chart a constructive path forward.

Finally, given the breadth of coverage of our recommendations they are necessarily framed in general terms – although in most cases the detailed possible directions are easily discernible and we have provided a number of potential options for action. The precise directions will emerge from the necessary debate and discussion implied by the way we

have framed the packages. Question one is who should lead the effort. The answer is everyone with a stake in moving Canada to a truly sustainable net zero future. In practical terms, while those outside government can do much to move thinking forward and collaboratively develop possible solutions, it remains inescapable that most of the changes needed and leadership on action must come from federal, provincial and territorial governments.

4.1 Beyond the Regulatory System

4.1.1 Provide More Predictability and Clarity of Policy, Strategy and Vision

Governments at all levels need to do better clarifying their policies, and collaborating and aligning their efforts.

This sounds glib but it is a fact and it is fundamental. **Lack of clarity and uncertainty of future policy can shape investor confidence just as much – or more – than the regulatory system itself.** Whether carbon pricing, investment tax credits, or emissions regulations for electricity, oil and gas, uncertainty over foundational policy measures inhibits the ability of investors to calculate project economics with confidence and to make the investments that are necessary to pursue Canada's net zero aspirations.

Much Canadian policy continues to treat the net zero challenge as a pollution control problem when it actually involves radically restructuring the energy system and broader economy. There is a widespread national consensus around the idea of net zero emissions. But if we look much deeper than that, the consensus comes apart. How can diverse regional realities be accommodated and jurisdictional responsibilities appropriately exercised? How should we approach diverse and competing 'pathways' and associated technologies? How do we resolve the competing priorities around energy fundamentals, social acceptance and climate goals? Ultimately, how do we frame an operationally relevant vision that says to citizens, consumers, communities and investors that Canada wants to get this done? This challenge has been with us since climate policy emerged over thirty years ago and it won't ever be 'solved,' but without evidence of a continuing will to try on the part of all governments, incremental system reforms will be constantly hobbled.

Halting and partial progress has been made over time such as with the Pan-Canadian Framework on Clean Growth and Climate Change, but much of that intergovernmental consensus has crumbled in recent years. Collaboration needs to be restarted with the expectation that it will be a long, often difficult and ongoing process. While it is unlikely that a detailed shared national vision can be developed and sustained in a country as diverse as Canada, federal, provincial and territorial governments need to regain the instinct to collaborate. The country needs to return to the spirit of cooperative federalism, as the Supreme Court underscored in its reference opinion on the federal

Impact Assessment Act. Collaboration sends a crucial message to investors and citizens: Canada is serious about net zero and governments can set aside their differences to chart a constructive path forward.

In the current political environment, collaboration is unlikely to take the form of another pan-Canadian agreement, but governments can show with their actions that they're committed to consulting each other in policy development, identifying shared interests and aligning on action and programs to maximize impact. Much of this is likely to happen through bilateral and-or multilateral processes, as we've seen with intergovernmental collaboration on small modular reactors or the federal government's efforts to establish provincial and territorial energy and resource tables. But collaboration needs to be scaled up significantly. Crucially, federal efforts to collaborate must speak to core regional or provincial priorities in different parts of the country and take into consideration existing provincial and territorial initiatives.

Importantly, governments need to bring citizens along on the journey, better communicating to them the scale of the challenge before us and the nature of changes to come. Helping people learn about and get comfortable with the idea that new technologies and projects will come to their communities, that the sources of energy they use and the way they access energy will change in the years to come, are important places to start. This is a fruitful area for intergovernmental collaboration.

4.1.2 Establish Planning Processes

Governments need to take action on a number of areas where planning is essential, but they must do so without overturning a largely market-based system.

There are multiple areas where planning will be essential.

First, far too little attention has been given to the future of **energy delivery** to the end user – in a system where virtually all energy delivery modes, energy sources, end use technologies and end use practices will be fundamentally transformed. This will involve not just technologies but consumer behaviour, decarbonization strategies across a wide variety of industry sectors, community, regional and provincial energy planning and infrastructure systems. This needs to be an area of focus now and ongoing for years into the future. Planning for different energy sources, end users and applications must be undertaken, and must be done in a way that is both effective and inclusive, admittedly a high bar.

Second, there is no doubt that electrification and **electric power systems** will be the centrepiece of emissions reductions efforts. They will need to be radically transformed – from energy sources to transmission infrastructure to system operations to local distribution. Provincial system operators, transmission utilities, local distribution companies and their regulators are moving in this direction, but with nothing like the concerted effort implied by the goal of net zero. Importantly, planning for electric power systems cannot be done in isolation – it must include thoughtful coordination across energy sources and uses (transportation, building heat, industrial processes, etc.) to foster an orderly transition. While the responsibility for much of the electricity sector rests primarily with provinces it will need more cross-Canada cooperation, sharing of experience and communication to Canadians who have little to no idea of what they are facing.

Third, the role of **Indigenous nations and communities** will be central to all efforts in the direction of net zero.

This is particularly the case for the multitude of infrastructure and resource projects needed to transform our energy systems and broader economy. Much progress is being made and in many cases it has been transformational. Partnerships

between Indigenous communities and project proponents are increasingly the norm, and there are a growing number of Indigenous-led projects and impact assessment processes. But many issues remain unresolved, from implementation of the United Nations Declaration on the Rights of Indigenous Peoples in Canada, to competitive access to capital, to community capacity-building to government capabilities to discharge their duty to consult and accommodate. Importantly, Indigenous communities are increasingly leading pan-Canadian efforts to identify barriers, solutions and requirements for resources from capital to capabilities. Federal, provincial and territorial governments, along with energy industry project proponents, need to support these efforts. Many of the challenges will only be resolved with time and relationship-building, but with sustained commitment and effort, the road to 2050 can be paved with ongoing progress and capacity building of Indigenous, public and private actors alike.

For all regulators, limiting the role of cabinet in final approvals to accepting, rejecting or, in rare instances, sending the project assessment back to agencies to reconsider specific issues – rather than adding conditions at the cabinet table – would greatly strengthen predictability.

Finally, the biggest question: **costs and who pays for what, when and how.** This is not per se a planning question but there are many hard issues that need to be faced and faced soon. New models for cost allocation are urgently needed. Who pays for emissions reductions, when and how? It is obviously some combination of ratepayers, taxpayers and investors in the short, medium and long terms, but there has been little debate and discussion on these crucial questions, much less concrete answers to bake into policy, regulatory and fiscal plans. Absent some realistic consensus about the larger framework over the medium to long term, these questions will arise time and again at the level of individual project investment decisions (including decisions not to invest in Canada), leading to sub-optimal outcomes and adding time, uncertainty and lost opportunity, which we cannot afford.

4.1.3 Build Machinery and Capacity in Policy and Regulatory Systems

All actors need to cooperate and resolve to invest in building policy and decision-making systems that are up to the challenge.

This reform package involves elements both within and beyond the regulatory system.

There is much that will need to be done to develop the labour and skills needed to design,

build and operate new energy infrastructure (engineering, trades, project management, etc.). **Global competition for talent will be fierce as countries the world over transform their energy systems and economies. Building capacity in the short and long term will be crucial.** As already discussed, intergovernmental cooperation is the nub of it. This will never be easy given the realities of a federal democracy. But beneath the world of partisan politics there are numerous possibilities for more effective cooperation among public officials, regulators, Indigenous communities and civil society. Governments need to actively but perhaps informally promote this sort of activity. Trusted forums and convenors will be key.

Importantly, machinery and capacity-building are needed across all actors.

Governments need to evaluate whether their policy and regulatory systems are up to the scale of the challenge respecting their institutional systems, skills and capabilities. In virtually all instances, capacity building will be needed – both restructuring basic approaches to decision-making (breaking down silos, cross-departmental coordination, public-private-civic collaboration) and investing in capabilities (more staff with a broader set of skills and competencies).

Industry needs to get better at succeeding in the contemporary and emerging world of policies, regulations and projects (e.g., investing up front in processes and skills for engaging communities, effectively navigating regulatory processes, and adapting to new policy and regulatory realities).

Broad-based dialogue with policymakers and regulators outside of individual projects and applications can readily reveal positive steps.

Finally, as noted above, the roles of Indigenous communities will become central to progress, whether as participants in projects, regulators of projects or charting their own energy futures, but simply recognizing those roles is not enough. Given the scale and pace of change to achieve net zero, Indigenous communities will themselves need to build capacity, adapt, and organize to succeed in the emerging reality. Governments and industry need to facilitate this change, recognizing that it will take time and that many of the ideas and solutions must come from the ground up.

Table 1: Summary of Recommendations

Multiple Packages of Reform Need to be Addressed
Beyond the Regulatory System
<p>Provide More Predictability and Clarity of Policy, Strategy and Vision Governments at all levels need to do better clarifying their policies, and collaborating and aligning their efforts.</p>
<p>Establish Planning Processes Governments need to take action on a number of areas where planning is essential, but they must do so without overturning a largely market-based system.</p>
<p>Build Machinery and Capacity in Policy and Regulatory Systems All actors need to cooperate and resolve to invest in building policy and decision-making systems that are up to the challenge.</p>
Within the Regulatory System
<p>Clarify Who Provides Policy Direction for Projects and Who Regulates Them Ministers and cabinets should provide broad policy direction and establish regulatory frameworks; regulators should decide on individual projects (ministerial and cabinet roles should be narrowly circumscribed, transparent and clear).</p>
<p>Establish Collaborative Intergovernmental Relations and Decide Which Governments Are Best Placed to Get the Job Done This is as much a practical as a legal question and it should be treated that way.</p>
<p>Distinguish Between Changing Mandates and Changing Mindsets Reforming mandates will only get us so far; mindsets will often need to change, and cultural change takes time.</p>
<p>Build a Functioning Whole of Government Machine The machinery of government needs to operate seamlessly for a task as large as net zero.</p>

4.2 Within the Regulatory System

4.2.1 Clarify Who Provides Policy Direction for Projects and Who Regulates Them

Ministers and cabinets should provide broad policy direction and establish regulatory frameworks; regulators should decide on individual projects (ministerial and cabinet roles should be narrowly circumscribed, transparent and clear).

The most basic question of all concerns the degree to which government decisions for individual projects are treated as political or technical matters. Governments at all levels have, over the years, reformed many of the country's regulatory systems in ways that see a much larger role for politicians (ministers, cabinets) in individual applications, including final approval and conditions on projects. If this continues, the systems will grind to a halt. Not only is cabinet ministers' time limited – there are always other pressures on their time – but regulatory frameworks that involve political decision-making at various stages will undoubtedly see ministers pressured to use it. Investors, if always faced with the uncertainty and unpredictability of late-stage political interventions – or worse, political interventions at multiple stages – will tend to shy away.

Historically in Canada, political processes have been devoted to policy, planning and the structuring of regulatory systems. For individual projects, regulators were mandated to assess applications and make decisions or recommendations to the government based on their expert technical independent analysis. Governments deferred to regulatory expertise with only limited exceptions. Looking forward, the default should be to let the regulators regulate again. The regulators' job should be to colour within the lines drawn by governments. If the lines are specified through their enabling legislation, regulation and appropriately framed government directives of general application, regulators have scope to be innovative without violating principles of democratic accountability.

Governments, for their part, should tie their own hands. In so doing, they convey a message of predictability to investors and communities. They should deliberately insulate themselves from the pressures to intervene in individual project decisions. Their expertise and their internal processes are not

up to the task of modifying regulatory decisions arrived at through expert, open and accountable formal processes. Doing so undercuts the very credibility of the regulatory system. They can reduce their role or tie their hands through legislation or alternatively through regulation, leaving the door open for political intervention in rare cases but in a way that ensures decisions cannot be overturned without transparent, fair and properly accountable processes. On federal impact assessment, for example, guidelines for ministerial designation of projects could be tightened up (or removed entirely) and the role of the minister throughout the process reduced. And for all regulators, limiting the role of cabinet in final approvals to accepting, rejecting or, in rare instances, sending the project assessment back to agencies to reconsider specific issues – rather than adding conditions at the cabinet table – would greatly strengthen predictability.

4.2.2 Establish Collaborative Intergovernmental Relations and Decide Which Governments Are Best Placed to Get the Job Done

This is as much a practical as a legal question and it needs to be treated that way.

The ongoing debate over the future of the federal Impact Assessment Act brings into sharp focus not just the scope of that Act or the way it is administered, but which governments should be primarily responsible for steering the net zero transition. There are arguments for various approaches.

National interest and national objectives argue for a large federal role, as does the fact that several explicit areas of federal jurisdiction must be accounted for. The federal government, by its nature, will have a larger world vision than provinces or local authorities.

On the other hand, the great majority of the actions that need to be undertaken, most importantly involving electric power systems and energy delivery systems, are in provincial jurisdiction and are areas where provincial governments have the most knowledge and expertise. Deeper still, local impacts may be best understood and dealt with when local communities have significant roles, something we are seeing much more of as Indigenous communities take a stronger hand.

All of these issues can be treated as legal and constitutional questions. Or they can be treated as practical questions, always with the objective of net zero and the question of how best to reduce emissions while maintaining energy fundamentals and social acceptance. Treated as practical questions they are susceptible to debate and accommodation among reasonable people in the spirit of cooperative federalism. This could include the broader use of substitution, delegation or cooperative agreements that ensure all governments' responsibilities are met without overlap and duplication. Practical debate should not be buried under constitutional battles.

Importantly, intergovernmental relations will increasingly mean relations with Indigenous governments, which will increasingly take on lead roles in regulation, whether as knowledge holders, partners in impact assessment, contributors to ultimate decisions, ongoing monitors or regulators who lead their own impact assessment and regulatory processes. Each project and each community will require their own approach. Governments and proponents need to be open to this and develop their capacity to work constructively with Indigenous governments in a variety of ways.

4.2.3 Distinguish Between Changing Mandates and Changing Mindsets

Reforming mandates will only get us so far; mindsets will often need to change, and cultural change takes time.

The regulator's job is to question, to be skeptical, to demand evidence, to carry out due process and to be prepared to say no when warranted. Different regulators will inevitably approach this with different mandates and different mindsets. There is danger in assuming all regulators are the same. Context, history, culture, prevailing practices and experience matter.

That said, given the unique challenge and urgency of net zero, there will be a growing need for regulators to say yes to the adverse impacts created by new projects and to streamline processes to arrive more rapidly at decisions. This will likely be more difficult for some than others and will definitely be more difficult for some risks than others. It will require a mindset open to change and for many this will take time. What's required is a risk-based approach to regulation. Most regulators have already moved in this direction. They are building on years of experience and knowledge of their organizations and others across Canada without constantly reinventing the wheel. They are avoiding full reviews for routine projects, brownfield sites or for risks that are well understood and for which well-established risk mitigation

measures exist. They are scoping their reviews accordingly, avoiding the temptation to request ever more information from proponents, accepting that some questions can be best answered in the course of time. In so doing, they can work within mandated timelines, breaching them only in exceptional circumstances.

But more can definitely be done to reduce timelines and maximize learning both within and across organizations. Creating a national forum or centre of excellence would help to accelerate the process of innovation, learning and best practice sharing. So would the establishment of an independent advisory body to provide government with advice from outside parties (industry, Indigenous organizations, academia, etc.) about what is working, and, importantly, what is not working on the path of regulatory reform. As we saw in the literature review earlier in this study, governments need to move away from a 'regulate and forget' mindset to one of 'adapt and learn'.

4.2.4 Build a Functioning Whole of Government Machine

The machine needs to operate seamlessly for a task this big.

Inevitably at federal, provincial and territorial levels, governments have numerous objectives that will bear on decision-making processes – from various environmental objectives, to economic development objectives, to economic regulatory processes that meet standards of the public interest, to ensuring that power systems operate reliably and meet standards of resilience. In addition to these regulatory processes, there are also permitting processes, which usually take place after regulatory approvals and with policy objectives that may differ from those of regulators (this can result in projects being held up at a late stage, something that calls for greater policy clarity and vision, as noted earlier). All of these processes take time and increase the complexity of the approvals process for proponents.

Various approaches have emerged to attempt to address these challenges. Generally, they involve creating a single window for projects to navigate the web of policy, program, regulatory and permitting frameworks (e.g., BC's Clean Energy and Major Projects Office, the former federal Major Projects Management Office, the new federal Regulatory Efficiency Action Council and Clean Growth Office). The aim is to provide focus, leadership and the necessary degrees of coordination consistent with timeliness, minimizing regulatory burden and predictability. In effect, they aim to ensure the system keeps driving towards a decision on a project, whatever that might be.

In the context of net zero, where we need to move forward on many projects expeditiously, governments need to evaluate, learn from and build on past and current experiences to establish the internal machinery to ensure coordination and maintain momentum. This is often easier said than done: modern governments are big complex machines and coordination is always fraught with difficulties. But with political will and management

skill it can be done. Crucial to supporting these efforts would be ongoing assessment and evaluation of regulatory reforms and their impact: are they achieving their intended aims? Establishing a body to evaluate the effectiveness (or not) of reforms and seeking input from participants with experience in regulatory processes to inform evaluation (see our call for an external advisory body in 4.2.3 above) would be a good place to start.

5. Final Comments and Next Steps

So where to next?

Given the urgency around climate change and the pressures of political commitments to meet targets, there will be a strong temptation to find quick fixes to the problems outlined in this report. There are – as we note in the recommendations – areas where progress can be made quickly and those should be acted upon with due dispatch. Policymakers across Canada will need to continue devising and implementing policy actions that lead to concrete near term progress in numerous areas.

But continuing with what essentially amounts to the status quo would miss the point we are trying to make. By far the most important thing is to recognize that we are dealing with a problem that is truly systemic and that the aim of remaking the whole energy system in twenty-five years is a massive and complex task that will not be solved with quick fixes alone or with an accumulation of isolated policy actions. Again, to restate, much will turn on broad public and investor confidence.

It is for this reason that we recommend breaking down the problem into manageable ‘packages’ – areas of focus that parse the problem without losing sight of the larger whole. In feedback received throughout this research study, we heard that many of the identified issues need much deeper reflection. We could not agree more. In covering this very big topic in only a few pages we could not uncover all of the constructive actions being undertaken in various jurisdictions, get at all the internal contradictions, bring in all the perspectives that bear on the problem or get at the devilish details that mark the difference between concept and effective implementation.

Accordingly, and as indicated in the recommendations, each package of reform will require a process to support further dialogue and debate, always keeping focused and solution-oriented and involving numerous and diverse perspectives. The aim should be to develop an action plan and implementation process for each area. Importantly, the key players who need to convene will differ across the packages, as will the timelines for concrete reforms. Some actions may produce quick results; others will be unavoidably slower moving and ongoing since the matters under consideration are in some cases as deep as the workings of Canadian Confederation itself.

All will require the encouragement, leadership and support of governments as well as active solution-seeking, buy-in and support from industry, Indigenous organizations, civil society and the broader Canadian public. The first step is to affirm the scope and focus of each package and, in effect, lay out an action and implementation plan. Some processes are already moving in this direction, notably the federal-provincial-territorial discussion on regulatory reform at the 2024 Energy and Mines Ministers Conference³, and various commitments emerging from the federal Ministerial Working Group on Regulatory Efficiency for Clean Growth Projects. We urge governments and other organizations to expand collaboration as a matter of urgency. Positive Energy is using its convening and research power to help stimulate this process in the months ahead.

Only when the way forward for each problem area is organized for analysis, debate and action can Canada move forward in a way that fosters meaningful and durable progress on the goal of net zero.

³ Positive Energy presented at this session and moderated the ministers' discussion.

References

- Bratt, D. (2021). Energy-Environment Federalism in Canada. Finding a path for the future. Ottawa: Positive Energy, University of Ottawa. https://www.uottawa.ca/research-innovation/sites/g/files/bhrskd326/files/2022-08/energy_federalism_web.pdf (accessed 21 Nov 2023)
- Business Council of Alberta (2023). Future Unbuilt: Transforming Canada's Regulatory Systems to Achieve Environmental, Economic, and Indigenous Partnership Goals. Business Council of Alberta. By Dylan Kelso and Mike Holden. June 2023. <https://businesscouncilab.com/wp-content/uploads/2023/06/Future-Unbuilt-Task-Force-Paper-FINAL.pdf> (accessed 21 Nov 2023)
- Canada West Foundation (2023). Competitive Canada: Recommendations to improve federal assessment for major projects. By Marla Orenstein. September 2023. <https://cwf.ca/wp-content/uploads/2023/08/2023-08-31-CWF-Competitive-Canada-IAA-Report-WEB.pdf> (accessed 21 Nov 2023)
- Cleland, M. and Gattinger, M. (2017) System under Stress: Energy decision-making in Canada and the need for informed reform. Ottawa: Positive Energy, University of Ottawa. <https://www.uottawa.ca/research-innovation/sites/g/files/bhrskd326/files/2023-11/System-Under-Stress-Cleland-and-Gattinger-Positive-Energy-FINAL-March-2017.pdf> (accessed 30 Nov 2023)
- Cleland, M. and Gattinger, M. (2021). Energy Project Decision Systems for Net Zero: Designing for functionality, adaptability and legitimacy. Ottawa: Positive Energy, University of Ottawa. <https://www.uottawa.ca/research-innovation/sites/g/files/bhrskd326/files/2023-01/Designing%20Energy%20Project%20Decision%20Systems%20WEB%20%281%29.pdf> (accessed 21 Nov 2023)
- Deloitte Touche Tohmatsu Limited. (2019, September). Making regulation a competitive advantage. <https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/finance/ca-en-making-regulation-comp-advantage-pov-aoda-v2.pdf?location=top>
- Drance, Jonathan, Cameron, Glenn and Rachel Hutton. (2018). 'Federal Energy Project Reviews: Timelines in Practice'. *Energy Regulation Quarterly*. 6:3.
- Electricity Canada. (2023). *Build Things Faster* (developed by Dunsky Energy + Climate and Electricity Canada). Ottawa: Electricity Canada.
- Electricity Distributors Association. (2024). Solving Grid-Lock: Our Vision for a Customer-Centric Energy Transition. Toronto: EDA. <https://www.eda-on.ca/Portals/81/Vision%20Paper%202024/Solving%20Grid-Lock%20-%20EDA%20Vision%20Paper%20-%20April%202024.pdf?ver=MioKklpVctjxzdBZ8Q--GQ%3d%3d> (accessed 25 May 2024)
- Ernst & Young Global Limited. (2020, November). Renewable Energy Country Attractiveness Index. https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/power-and-utilities/ey-recai-56-edition-final.pdf
- Gullo, Michael and Heather Exner-Pirot. (2024). 'Improving Canada's Competitiveness,' *CD Howe Intelligence Memo*. January 25. Toronto: CD Howe Institute.
- Independent Electricity System Operator. (2022). Pathways to Decarbonization Report. <https://www.ieso.ca/en/Learn/The-Evolving-Grid/Pathways-to-Decarbonization>. (accessed 21 November 2023)
- Infrastructure Canada. (2021, July 29). Building Pathways to 2050: Moving Forward on the National Infrastructure Assessment. <https://www.infrastructure.gc.ca/alt-format/pdf/nia-eni/nia-eni-2-en1.pdf>
- International Institute for Management Development. (2022, June). World Competitiveness Yearbook 2022. <https://www.imd.org/annual-reports/annual-report/research-and-thought-leadership/global-research-centers/world-competitiveness-center/>
- Kearney Global Business Policy Council. (2024). *Continued Optimism in the Face of Instability: the 2024 FDI Confidence Index*. Kearney: Washington DC.
- . (2022). *Optimism Dashed: the 2022 FDI Confidence Index*. <https://mb.cision.com/Public/19560/3544443/aca24466fblc08d9.pdf>

- Larkin, Patricia (2021). What works? Identifying and scaling up successful innovations in Canadian energy regulatory decision-making. Ottawa: Positive Energy, University of Ottawa. https://www.uottawa.ca/research-innovation/sites/g/files/bhrsksd326/files/2024-03/What%20works%20Identifying%20and%20scaling%20up%20PRINT-3_0.pdf (accessed 30 November 2023).
- McKinsey and Company. (2022). Presentation by Robert Samek, Senior Partner, at “A More Complete Roadmap: Overcoming Obstacles on Canada’s Net Zero Journey”. June 15, 2022. ISSP and Positive Energy, University of Ottawa. <https://www.uottawa.ca/research-innovation/more-complete-roadmap-overcoming-obstacles-canadas-net-zero-journey-0>
- National Collaborating Centre for Healthy Public Policy. (2010, September). Four types of impact assessment used in Canada. <https://www.ncchpp.ca/docs/EvaluationImpactComparisonEN.pdf>
- Natural Resources Canada. (2023). *Natural Resources: Major Projects Planned or Under Construction 2023 to 2033*. Ottawa: Natural Resources Canada.
- Organization for Economic Co-operation and Development. (2021, October). OECD Regulatory Policy Outlook 2021. https://www.oecd.org/en/publications/2021/10/oecd-regulatory-policy-outlook-2021_c5274577.html
- Public Policy Forum. (2023). Project of the Century: A Blueprint for Growing Canada’s Clean Electricity Supply – and Fast. By Janet Annesley, David Campbell, Arash Golshan and Edward Greenspon. July 2023. <https://ppforum.ca/wp-content/uploads/2023/07/Canada%E2%80%99sCleanElectricitySupply-PPF-July2023-EN-1.pdf>. (accessed 21 Nov 2023)
- Robson, William B.P. and Mawakina Bafale. (2023). *Working Harder for Less: More People but Less Capital No Recipe for Prosperity*, Commentary No. 647 November 2023. Toronto: CD Howe Institute. <https://www.cdhowe.org/public-policy-research/working-harder-less-more-people-less-capital-no-recipe-prosperity>
- United Nations Conference on Trade and Development. (2023). *World Investment Report*. New York: United Nations.
- . (2024). *World Investment Report*. New York: United Nations.
- United States Government Accountability Office. (2018, September 6). Energy Infrastructure Permitting: Factors Affecting Timeliness and Efficiency. <https://www.hsdl.org/?abstract&did=815211>
- World Bank. (2020). *Doing Business 2020: Comparing Business Regulation in 190 Economies*. Washington, DC: World Bank. <https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf>
- World Economic Forum. (2020). *The Global Competitiveness Report Special Edition 2020: How Countries are Performing on the Road to Recovery*. <https://www.weforum.org/publications/the-global-competitiveness-report-2020/>
- Wright, D. V. (2021). The New Federal Impact Assessment Act: Implications for Canadian Energy Projects. *Alberta Law Review*, 59(1), 67-97. <https://albertalawreview.com/index.php/ALR/article/view/2665/2617>

Appendices

A. List of Project Profiles

Oil and Gas Pipelines

- Coastal GasLink Pipeline, British Columbia
- 2021 NGTL System Expansion Project, Alberta
- Trans Mountain Pipeline Expansion (interprovincial)

Oil and Gas Production/Export

- LNG Canada, British Columbia
- Woodfibre LNG, British Columbia
- Quest Carbon Capture and Storage Project, Alberta
- Shale gas exploration in Kent County, New Brunswick

Hydroelectric Station or Electricity Transmission

- Site C, British Columbia
- Western Alberta Transmission Line, Alberta
- Wuskwatim Generating Station, Manitoba
- Wataynikaneyap Transmission Project, Ontario
- Muskrat Falls, Newfoundland and Labrador
- Maritime Link (interprovincial)

Renewable Energy and Storage

- Travers Solar Project, Alberta
- Henvey Inlet Wind, Ontario
- Oneida Energy Storage, Ontario
- St. Valentin wind farm, Quebec

Nuclear

- Ontario Power Generation's Deep Geologic Repository Project, Ontario

B. List of Interviewees

- Vittoria Bellissimo, President and CEO, Canadian Renewable Energy Association
- Robert Bourne, Managing Legal Council, Enbridge Inc.
- Justin Bourque, President, Athabasca Indigenous Investments
- Francis Bradley, President and CEO, Electricity Canada
- Cherie Brant, Partner and National Leader, Indigenous Law, BLG
- Harold Calla, Executive Chair, First Nations Financial Management Board
- David Collyer, Retired, Former President, Canadian Association of Petroleum Producers
- Andrew Dahlin, Executive Vice-President, Natural Gas & Technical Services, Cenovus Energy
- Roger Dall'Antonia, President and CEO, FortisBC Inc.
- Rhona DelFrari, Chief Sustainability Officer and Senior Vice-President, Stakeholder Engagement, Cenovus Energy
- Shawn Denstedt, Chair Emeritus, Osler, Hoskin & Harcourt
- Serge Dupont, Senior Advisor, Bennett Jones LLP
- Tim Egan, President and CEO, Canadian Gas Association
- Michael Gladstone, Director, External Affairs (Canada), Enbridge Inc.
- JP Gladu, Principal, Mokwateh
- John Gorman, President and CEO, Canadian Nuclear Association
- Michael Gullo, Vice-President, Policy, Business Council of Canada
- Ken Hartwick, CEO, Ontario Power Generation
- Goldy Hyder, President and CEO, Business Council of Canada
- Greg Krauss, Regulatory Affairs Lead, Corporate Relations, Shell Canada
- David Lebeter, CEO, Hydro One
- Jesse McCormick, Senior Vice-President, Research, Innovation and Legal Affairs, First Nations Major Projects Coalition
- Susannah Pierce, Country Chair and GM, Renewables and Energy Solutions, Shell Canada
- John Stackhouse, Senior Vice-President, Office of the CEO, Royal Bank of Canada
- Peter Tertzakian, Deputy Director, ARC Energy Research Institute
- Mac Van Wielingen, Founder and Partner, ARC Financial Corporation
- Annette Verschuren, Chair and CEO, NRStor Inc.
- Peter Watson, Retired, Chair and CEO, Canada Energy Regulator
- Ed Whittingham, Principal, Whit & Ham

Four interviewees chose to remain anonymous

C. Interview Guide

Aims and Scope of the Study

- Our focus is on government decision-making processes for energy projects, particularly, any changes that need to be made to Canada's policy and regulatory frameworks to secure investor confidence and attract the capital necessary to achieve the country's goal for net zero by 2050.
- We are concerned with both timeliness and risk (clarity, certainty, predictability of policy and regulatory frameworks) as well as how risk can be dealt with as early in the process as possible.
- We recognize that the larger context involves many other private and non-government decision-making processes, including the challenges of implementing new or nascent technologies as well as project conceptualization and design, mobilizing capital, organizing engineering, procurement construction and recruitment of skilled management and labour.
- We have undertaken a literature review and an analysis of approximately twenty projects over the last two decades which has given us some idea of what has happened in the past.
- Today, our interest in this interview is predominantly forward-looking, drawing on your expertise and experience.

Part A: Challenges

1. With respect to Canada achieving net zero emissions by 2050, please characterize the major challenges to Canada's public (mainly federal and provincial) approval environment for new energy projects.
2. Considering these challenges, please discuss the role and approach for intergovernmental cooperation.
3. There is a growing movement for Indigenous governments to assume various roles including equity stakes, regulatory approvals, and monitoring. Please share your thoughts for their role(s) in decision-making, as well as challenges to achieving them.

Part B: Seeking Solutions

4. What innovative approaches have you seen in recent years in Canadian jurisdictions that have helped to address the challenges we have been discussing?

Supplemental: Are there things we can learn from other countries grappling with these issues?

5. What are your ideas for reform – both 'in and out' of the box – with a focus on what the architecture of the decision-making system needs to look like for net zero to be a realistic possibility?

D. Project Profiles

D.1 Introduction	50
D.2 Figure 3: Profiles Elapsed Time	53
D.3 Project Profiles	54
Oil and Gas Pipelines	54
Coastal GasLink Pipeline, British Columbia	54
2021 Nova Gas Transmission Ltd. (NGTL) System Expansion Project, Alberta	60
Trans Mountain Expansion Project (TMX), Interprovincial	64
Oil and Gas Production/Export	72
LNG Canada, British Columbia	72
Woodfibre LNG, British Columbia	77
Quest Carbon Capture and Storage Project, Alberta	82
Shale Gas Exploration in Kent County, New Brunswick	90
Hydroelectric Station or Electricity Transmission	95
Site C Clean Energy Project, British Columbia	95
Western Alberta Transmission Line, Alberta	101
Wuskwatim Generating Station, Manitoba	108
Wataynikaneyap Power Transmission Project, Ontario	113
Muskrat Falls Hydroelectric Generating Station, Newfoundland and Labrador	119
Maritime Link Project (Interprovincial)	125
Renewable Energy and Storage	129
Travers Solar Project, Alberta	129
Henvey Inlet Wind Energy Centre, Ontario	134
Oneida Energy Storage, Ontario	140
Saint-Valentin Wind Farm, Quebec	146
Nuclear	151
Ontario Power Generation Deep Geological Repository for Low and Intermediate Level Radioactive Waste, Ontario	151

D.1 Introduction

This Appendix includes 18 energy project profiles that examine infrastructure development in a cross section of provinces and sectors: oil and gas pipelines; oil and gas processing/production/export facilities; hydroelectric stations or electricity transmission; renewable energy and storage projects; and nuclear-related facilities.

As noted in the body of this report, the profiles are not detailed case studies. They rely wholly on written sources in the public domain. The aim was to identify: the length of time from project inception to in service (or abandonment), the proportion of that time accounted for by the regulatory process and key areas of challenge/tension or success/innovation moving a project to completion. As illustrated in the elapsed timeline (see Figure 3 in this appendix), some projects were completed and are in service, some were cancelled by the proponent or rejected by government, and some are under construction.

The order of the profiles follows the grouping listed above. Each profile includes:

- Section 1: Project description, including a regulatory summary
- Section 2: Timeline summary – table indicating the length of each step, also highlighting the main issues within a step and key effects of these issues
- Section 3: Timeline detail for six steps to bring a project from inception to in service (see Figure 1 in the body of this report): Public identification and pre-consultation (can include early field work); Regulatory submission and review; Regulatory decision; Investment related; Engineering, Procurement and Construction; and In service and monitoring (note: the time taken by a proponent to conceive of the project in advance of the general public's knowledge of the facility was not included in the research)
- Section 4: Key issues raised by the profile, the key areas of challenge/tension or success/innovation moving a project along the timeline (see more on this below)
- Section 5: Discussion, considering the impacts of the key issues raised in the preceding section and additional questions arising from the project's timeline.

Key Issues

The key issues examined in Section 4 of each profile are summarized in Table 2 below. They span regulatory and non-regulatory questions within five broad domains:

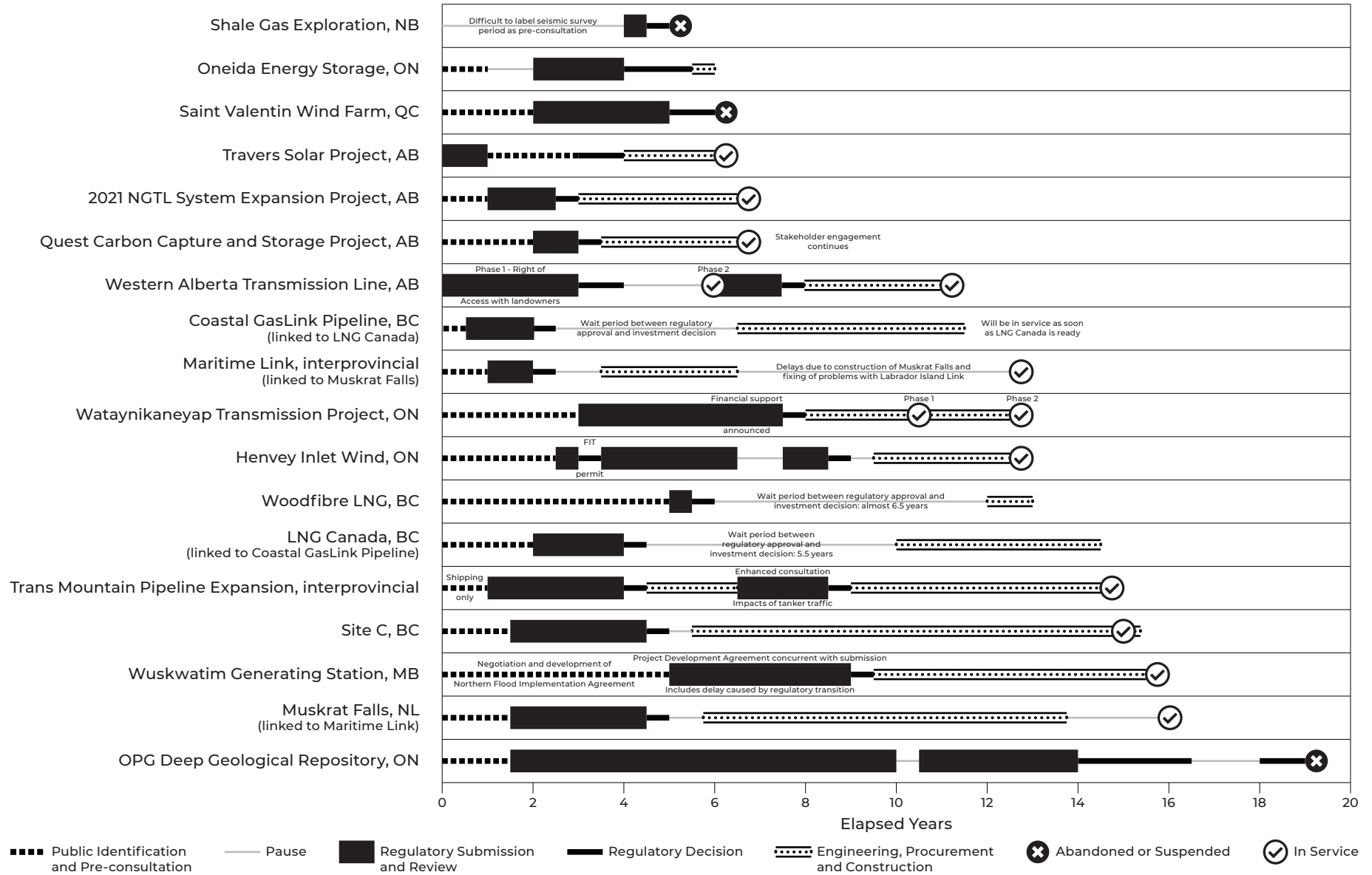
- Policy and political domain: Was a supportive policy readily identifiable and stable? was there a 'political' flip flop in support for the project, especially for a project with a government-owned proponent?
- Regulatory domain:
 - Framework: Was a framework in place and stable, or was it amended during the project review period?
 - Federal/Provincial/Territorial relations: Were relationships collaborative, including the use of regulatory tools? Or was there discernable friction/discord between jurisdictions, with limited coordination?
 - Engagement, including the Duty to Consult: Were activities completed appropriately, poorly, or deemed to be insufficient such that court cases led to delays?
 - Cabinet decision: Was cabinet involved or not; and did this involvement cause delays?
 - Permitting: Was effort made for jurisdictional coordination? Was the timeline known to the proponent? Were there stop work orders or court cases associated with permitting?
- Economic domain:
 - Front-end engineering and design (FEED): Were there technical or other issues identified at this stage that led to project delays?
 - Final investment decision (FID): Were there surprises or a material change in the primary proponent? Were public incentives critical to the FID? Was the project cancelled at this stage or did governments have to intervene financially to ensure the project moved ahead?
 - Engineering, procurement and construction (EPC): Did the budget and actual costs align? Were there cost increases, but the overall project timeline was not affected? Was there a lack of human resources / materials that put a project's development into question?
 - Partnership agreements: Was there a process underway during project identification and completed simultaneously with other decision-making? Was there ongoing discord between stakeholders, including Indigenous communities and nations?
- Socio-political domain: Was the project socially acceptable/supported in its local or regional context, or did one or more groups oppose the project at any point to the extent that activities caused noticeable delays, even following regulatory approval?
- The Courts: Was there a court case (or cases) associated with the project that caused a delay? Did court decisions have the effect of returning the project to an earlier regulatory step with new or enhanced review requirements?

Table 2: Overview of Project Status and Key Issues (Both Positive and Negative)¹

Project Profile		Location	Status	Political	Regulatory					Economic			Socio-political	Court	
Years	Name	Province or Interprovincial	Completed or Cancelled	Ongoing Support	Framework or Amendments	Federal, Provincial, and Territorial (FPT) Interactions	Engagement Including Direct-to-consumer (D&C), Consent	Cabinet Decision	Permitting	Front End Engineering Design (FEED)	Final Investment Decision (FID)	Engineering, Procurement, Construction (EPC)	Partnership Agreements	Social Acceptance	Enhanced Regulatory Review or Noteworthy Outcomes
1996-2012	Wuskwatim Hydro Electric Project	MB	⊙												
2005-2015	Western Alberta Transmission Line	AB	⊙												
2005-2020	Ontario Power Generation Deep Geologic Repository	ON	⊗												
2006-2011	St. Valentin Wind Farm	QC	⊗												
2006-2023	Muskrat Falls/Generation (linked to Maritime Link)	NL	⊙												
2007-2019	Henvey Inlet Wind Energy	ON	⊙												
2009-ongoing	Site C Hydro Dam	BC													
2010-2015	Quest Carbon Capture Storage Project	AB	⊙												
2010-2016	Shale Gas Exploration	NB	⊗												
2010-2023	Coastal GasLink Pipeline	BC	⊙												
2010-2024	LNG Canada	BC	⊙												
2012-2024	Wataynikaneyap Power	ON	⊙												
2012-2024	TMX Expansion	Inter.	⊙												
2013-ongoing	Woodfibre LNG	BC													
2013-2023	Maritime Link (linked to Muskrat Falls)	Inter.	⊙												
2017-2022	Travers Solar Project	AB	⊙												
2017-2024	Nova Gas Transmission Ltd	Inter.	⊙												
2021-ongoing	Oneida Energy Storage	ON													

¹ Note: Issues were not categorized as supportive, cautionary, or negative as this assessment is dependent on the proponent's, rights holders or stakeholder's point of view.

D.2 Figure 3: Profiles Elapsed Time



D.3 Project Profiles

Oil and Gas Pipelines

Coastal GasLink Pipeline, British Columbia

1. Project Description

Coastal GasLink (CGL) is a pipeline serving the LNG Canada export facility. The pipeline originates from Groundbirch, British Columbia, and runs 670 km westwards to Kitimat. It can carry 2.1 bcf/d, and traverses the territory of several First Nations. The project can expand to supply up to 5 bcf/d to the Phase 2 of LNG Canada, which has not been sanctioned.

Budgeted initially at CAD 6 bn, the costs increased to more than CAD 14 bn.

Consultation (Indigenous and community) was led by the British Columbia Environmental Assessment Office (BCEAO). The proponent stated that changes in the scope of the project affected the budget and schedule. Blockades and demonstrations near the construction site and across Canada brought CGL to the centre of national attention between 2019 and 2021. Despite its visibility, contention with local groups sympathizing with a dissenting faction of the Wet'su'weten Nation, has not meaningfully delayed the project.

Importantly for this project, the timeliness of the project depends on the progress of LNG Canada, and thus far – despite changes to its schedule – the pipeline is ready to supply the LNG Canada facility when it starts operation. Budget overruns, however, are notable.

Regulatory Summary

Environmental assessment and engagement: the provincial Environmental Assessment Office led the processes of assessment and consultation (2014).

Economic regulation: the pipeline is not subject to regulation by the British Columbia Utilities Commission (BCUC) for a utility or common carrier pipeline.

Permitting: The BC Oil and Gas Commission (BCOGC, now the BC Energy Regulator, BCER) issued permits between May 2015 and April 2016. As of December 2022, the province reported a small number of outstanding permits.¹ However, the proponent has pointed to permitting as one of the factors driving delays.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2012-2023	100%		
1. Public Identification and Pre-consultation	2012-2014	7%	CGL is a dedicated project, with demand guaranteed by LNG Canada.	
2. Regulatory Submission and Review	2014	17%	The BCEAO led the assessment. Engagement has not been found inadequate by the courts.	
3. Regulatory Decision	2014-2018	33%	The economic rationale of the project is linked to that of LNG Canada. Economic convenience is not part of the assessment.	
4. Investment	2018 ⁱⁱ	2%	FID twinned with LNG Canada	
5. Construction	2019-2023	41%		Delays during construction are attributed to a host of causes, with blockades and vandalism not a major source of delay.
6. In Service	NA – Awaiting LNG Canada completion			

3. Timeline Details

Public Identification and Pre-consultation

2012. Commercial agreement between LNG Canada and TransCanada (TC) to develop the CGL pipeline. The agreement establishes that TC is to obtain the approvals.

Consultation with Indigenous Peoples begins in adherence with EA legislation.

June. Announcement of CGL project.ⁱⁱⁱ

Regulatory Submission and Review

2012 October. TC submits the CGL project description. The submission starts the process of environmental assessment.

TC begins a period of Indigenous consultation that lasts until the spring of 2013.^{iv}

2014. January. Application submitted to BC's Environmental Assessment Office.^v

March. The 180-day review starts. The public comment period runs from March 21st to May 5th, 2014.

Regulatory Decision

2014. October. Environmental assessment certificate (EAC) issued with 32 conditions.^{vi,vii} A federal environmental assessment was not necessary (federal decision made in 2013).^{viii}

2014. The Nadl'en Whut'en and Nak'azdil First Nations challenged the environmental assessment process before the BC Supreme Court alleging that the the BCEAO rushed the study of CGL.^{ix}

2016 July. A citizen files a challenge before the NEB, arguing that CGL and the Nova Gas Transmission Line (NGTL) are a single federal undertaking and therefore are subject to federal regulation. The challenge seeks (but fails) to halt components of the project by nullifying previous decisions of the BCOGC (now BCER).^x

Investment Related

2018 October. Final Investment Decision announced by Shell for LNG Canada. As TC announces its own FID in the same month, it notes the risks and costs represented by blockades in the project's path.

2021. July. TC lists additional regulation, increases in scope, permitting delays, and impacts on construction from the coronavirus pandemic as causes for the pipeline's cost overruns.^{xi}

2022. February, TC Energy announced that the Coastal GasLink pipeline would go significantly over budget and would not meet the expected completion date.^{xii}

2023. February. In its financial statements, TC notes commitments of CAD 3.3 billion to cover cost overruns, which elevate the final estimate of costs to over CAD 14.5 bn (130 percent more than initially planned). Some of these costs are attributed to COVID-19-related interruptions and additional costs.^{xiii}



Construction

2016. May. All construction permits obtained from the BC Oil and Gas Commission.^{xiv}

2018. June: TC Energy conditionally selects Coastal GasLink's prime construction contractors.

July: Preliminary construction: clearing, access roads, site preparation for laydown areas, and establishment of workforce accommodation sites.^{xv}

December. TC reports that CGL has all regulatory permits to proceed to construction, and the approval of all elected (not hereditary) Indigenous communities along the pipeline route. The budget is still estimated at 6.2 bn. (LNG Canada had made its FID in October 2018).^{xvi}

2019. January. Construction begins.^{xvii}

RCMP enforces a BC court injunction to dismantle a blockade in the road leading to the Unist'ot'en camp traversed by CGL construction activities.^{xviii}

October. The NEB rules that CGL is not subject to federal regulatory jurisdiction. This decision clarifies a challenge that sought to undermine or halt the pipeline's construction.

December. The BC Supreme Court grants another injunction against blockades.^{xix}

2020. January. The RCMP enforces a court injunction to clear a blockage organized by supporters of the We'tsuwet'en First Nation hereditary chiefs opposed to the project.^{xx} Supporters also organized blockades at various points across Canada, including along CN railways. These allied blockades subsided after a few days, and following the approval of one of the hereditary chiefs of the We'tsuwet'en First Nation.^{xxi}

December. TC reports that revisions to the budget and schedule will be necessary due to COVID-19 disruptions. In addition to those anticipated costs, TC reports an ongoing dispute with LNG Canada over the recognition of a number of costs.^{xxii}

Other court challenges during 2020 alleged that TC did not address risks to Indigenous women, and underperformed on the conditions of the EA certificate. These challenges did not succeed and did not suspend or delay the project.^{xxiii}

2021 November. A dissenting group within the Wet'suwet'en Nation recommences blockades, partially halting the pipeline's construction.^{xxiv}

2022 July. TC reports a new estimate of costs reaching 11.2 billion. This increased figure is attributable to the recognition of new costs following an agreement with LNG Canada.^{xxv}

Small disruptions organized by sympathizers of Wet'suwet'en hereditary chiefs opposed to the project continue through the summer.

December. The province reported that there were a small number of outstanding permits needed for the project to proceed.^{xxvi}

TC reports costs additional to those agreed to with LNG Canada: "The project has faced material cost pressures that reflect challenging conditions in the Western Canadian labour market, shortages of skilled labour, impacts of contractor underperformance and disputes, as well as other unexpected events, including drought conditions and erosion and sediment control challenges." A new cost estimate is set at 14.5 billion dollars.^{xxvii}

2023

November. TC reported mechanical completion of the pipeline.^{xxviii} LNG Canada is still under construction, looking at mid-2025 to start operations.

Court Related

The BC Supreme Court granted injunctions preventing pipeline blockades in 2018 and 2019.^{xxix}

4. Key Issues Raised by This Profile

Regulatory – Federal/Provincial/Territorial Interactions

CGL is within the jurisdiction of the provincial energy regulator (BCER, formerly the BCOGC), as it does not traverse provincial boundaries, and it is not a utility pipeline or a common carrier (which would be regulated by the BCUC).^{xxx xxxi}

The BCER oversees the safety of oil and gas production and transportation activities, and coordinates with other agencies for environmental protection and to discharge the Crown's duty to consult. The BCOGC granted all permits beginning in 2016.

The NEB's 2019 decision affirming the jurisdiction of the BCOGC over CGL did not halt the project.

According to the BC government, as of 2022, outstanding permits for CGL represented only 1 percent of the seven thousand environmental permits required for the project, and three out of more than five hundred land government permits.^{xxxii}

The EA Certificate has been amended three times to allow modifications to the project.

Regulatory – Duty to Consult

The duty to consult was led by the BCEAO during the EA process.^{xxxiii} TC has engaged with Indigenous communities throughout the life of the project.

2018: TC Energy awarded \$620 million in contract work to BC First Nations in July 2018.^{xxxiv}

There are at least 16 benefit agreements signed between First Nations and CGL and registered with the province of BC.^{xxxv}

Economic – Engineering, Procurement and Construction

Cost overruns have been explained by the proponent as deriving from geotechnical reasons, rising labour costs, and performance of contractors. The budget increased significantly after TC recognized costs that had not been foreseen originally and were the object of a dispute with LNG Canada.

Court Challenges

A series of injunctions filed for by the proponent between 2019 and 2020 supported the continuation of construction.

In addition, there were multiple court challenges opposing the project (as detailed above).

5. Discussion

The project rose to national attention with blockades organized in 2020 around the construction site and other points in Canada. As mentioned in Section 3, these blockades were organized by a small group of opponents within the We'tsuwet'en Nation and their sympathizers across Canada. While the interruptions were highly publicized, they do not seem to have appreciably delayed the project.

The budget overrun is significant (from 6B to 14.5B as of 2023). Can this be attributed to a single factor? The documentary research for this profile suggests that cost overruns cannot be attributed to delays in obtaining permits or Indigenous consent – even considering the the opposition of a number of Wet'suwet'en hereditary chiefs.

Notes

- i Less than one percent of environmental and land government permits ([Transition Binder Energy Mines and Low Carbon Innovation December 2022.pdf \(gov.bc.ca\)](https://www.gov.bc.ca/transition-binder-energy-mines-and-low-carbon-innovation-december-2022.pdf))
- ii Between FID and start of construction.
- iii TC, 2012, Coastal GasLink, Project Description. <https://projects.eao.gov.bc.ca/api/document/58868fb1e036fb0105768600/fetch/Project%20Description%20for%20the%20Coastal%20GasLink%20%28TransCanada%29%20Pipeline%20October%202012.pdf>
- iv <https://projects.eao.gov.bc.ca/api/public/document/58868fc2e036fb01057686dc/download/Coastal%20GasLink%20Pipeline%20Ltd%20Aboriginal%20Consultation%20Report%20%232.pdf>; <https://www.projects.eao.gov.bc.ca/api/public/document/58868fd3e036fb010576876e/download/Environmental%20Assessment%20Certificate%20%23E14-03%20for%20the%20CGL%20Project%20dated%20October%2023%2C%202014..pdf>
- v <https://projects.eao.gov.bc.ca/api/public/document/5e45cdb648f767001af8e925/download/CGL%20-%20Application%20for%20an%20EAC%20-%20Addendum%2001%20-%2020140326.pdf> Page 11.
- vi [ReleaseReport \(gov.bc.ca\)](https://www.gov.bc.ca/release-report)
- vii <https://projects.eao.gov.bc.ca/api/public/document/58868fd4e036fb0105768774/download/Reasons%20for%20Ministers%20Decision%20for%20the%20CGL%20Project%20dated%20October%2023%2C%202014..pdf> <https://projects.eao.gov.bc.ca/api/public/document/58868fd8e036fb0105768796/download/Table%20of%20Conditions.pdf>
- viii On October 24th, 2013, The CEAA declared that CGLP was no longer a designated project, in accordance with the *Regulations Amending the Regulations Designating Physical Activities* that came into force on that day.
- ix The Globe and Mail, 2014, December 19th. “First Nations file for judicial review of pipeline approval”, Author: B. Jang. <https://www.theglobeandmail.com/news/british-columbia/first-nations-file-for-judicial-review-of-pipeline-approval/article2215484/>
- x BCER (BC Energy Regulator, replacing the BCOGC in 2022).
- xi “So I'll start by saying that a lot has changed over the past 10-year life of the CGL project. We've seen additional regulatory and stakeholder requirements, scope increases, impacts from COVID, inflation, weather and other extraordinary events. So what hasn't changed is our commitment to delivering a competitive LNG solution for the Western Canadian Sedimentary Basin”. Q2 2021 TC Energy Corp Earnings Call. VIQ FD Disclosure.
- xii Canadian Energy Regulation. The Annual Review. Gordon Kaiser and Aweis Osman, 1 July 2022, Energy Law Journal.
- xiii The Globe and Mail, February 15th, 2023, Wednesday's analyst upgrades and downgrades; Inside the Market's roundup of some of today's key analyst actions, Dave Leeder.
- xiv Permits ([Coastal GasLink | BC Energy Regulator \(BCER\) \(bc-er.ca\)](https://www.coastalgaslink.com/about/regulatory/); <https://www.coastalgaslink.com/about/regulatory/>
- xv <https://www.tcenergy.com/operations/natural-gas/coastal-gaslink/>

- xvi <https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2018/transcanada-2018-q4-quarterly-report.pdf>
- xvii On October 2, 2018, CGL stated that construction was to start in January 2019. <https://www.projects.eao.gov.bc.ca/api/public/document/5bb7dc2bf79c6c002391e620/download/CoastalGasLink%20-%20Compliance%20Reporting-Notification.pdf>
- xviii <https://www.theglobeandmail.com/business/article-protesters-against-coastal-gaslink-should-be-mindful-of-rule-of-law/>
- xix The Canadian Press, 31st December 2019, “B.C. Supreme Court grants natural gas pipeline company interlocutory injunction”.
- xx The Globe and Mail, March 9th, 2020, “Wet’suwet’en chiefs, blockades and Coastal GasLink: A guide to the dispute over a B.C. pipeline; A standoff in B.C. escalated to railway blockades, protests and debate across the country about First Nations land rights. While that dispute has subsided, the questions it raised are far from settled. Here’s what you need to know”.
- xxi The Globe and Mail, March 9th, 2020, cited above.
- xxii <https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2021/tc-2021-q1-quarterly-report.pdf>
- xxiii Calgary Herald, October 5, 2020, “Hearing over controversial Coastal GasLink pipeline resumes in B.C.; Wet’suwet’en say not enough being done to protect Indigenous women and girls”, author. B. Owen.
- xxiv Wet’suwet’en First Nation Blocking TC Energy’s Coastal GasLink Work Site, 17 November 2021, NGI’s All News Access.
- xxv <https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q2-quarterly-report.pdf>
- xxvi Less than one percent of environmental and land government permits ([Transition Binder Energy Mines and Low Carbon Innovation December 2022.pdf \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/transition/binder-energy-mines-and-low-carbon-innovation-december-2022.pdf))
- xxvii <https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q4-quarterly-report.pdf>
- xxviii TC, CGLP, Construction Update, [cgl-construction-update-november-28-2023.pdf \(coastalgaslink.com\)](https://www.coastalgaslink.com/whats-new/news-stories/2024/2024-06-18-Post-construction-updates/); <https://www.coastalgaslink.com/whats-new/news-stories/2024/2024-06-18-Post-construction-updates/>
- xxix *Coastal GasLink Pipeline Ltd. v. Huson*, 2018 BCSC 2343 (Can.). Cited by G. Kaiser, July 2021, “2020: The Canadian Energy Regulation Year in Review”. Energy Law Journal.
- xxx Since the pipeline will not provide utility service and it will not require toll or tariff approvals from the BCUC (project description, invoking the BC Oil and Gas Activities Act). <https://www.bc-er.ca/what-we-regulate/oil-gas/pipelines/>
- xxxi [Major Projects | BC Energy Regulator \(BCER\) \(bc-er.ca\)](https://www.bc-er.ca/major-projects/) For its part, the BC Utilities Commission oversees the fairness of access and terms and conditions of service, and the tariffs paid by intra-provincial common carrier pipelines, [Common Carrier Pipelines – BCUC](https://www.bc-er.ca/common-carrier-pipelines/).
- xxxii Transition Note. Advice to the Minister. (December 2022) [Transition Binder Energy Mines and Low Carbon Innovation December 2022.pdf \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/transition/binder-energy-mines-and-low-carbon-innovation-december-2022.pdf)
- xxxiii [Reasons for Ministers’ Decision for the CGL Project dated October 23, 2014..pdf \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/transition/binder-energy-mines-and-low-carbon-innovation-december-2022.pdf)
- xxxiv <https://www.tcenergy.com/operations/natural-gas/coastal-gaslink/>
- xxxv [Natural Gas Benefits Agreements – Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/transition/binder-energy-mines-and-low-carbon-innovation-december-2022.pdf)

2021 Nova Gas Transmission Ltd. (NGTL) System Expansion Project, Alberta¹

1. Project Description

The 2021 Nova Gas Transmission Ltd. (NGTL) System Expansion Project, wholly owned by TC Energy, is part of North America’s extensive natural gas pipeline system that in total carries a tenth of US and Canadian gas.ⁱ The expansion will take increasing production from the PRPA (Peace River Project Area) in Northeast BC and Northwest Alberta, growing to a capacity of 1.4 bcf/d (billion cubic feet per day). Most of the 344 km and 48-inch diameter pipeline is in existing rights of way and crosses provincial Crown land.

The proponent set the project’s original budget at CAD 2.3 bn, but it grew to CAD 3.3 bn by 2022. The expected in-service date was April 2021, as defined in the application for a certificate of public convenience and necessity. Many components are already in service. By the end of 2022, the project had already added 1.3 bcf/d of the planned 1.4 bcf/d capacity.ⁱⁱ As of May 2024 all components are in service.ⁱⁱⁱ

Regulatory Summary

Economic convenience and environmental assessment were both led by the National Energy Board (NEB)-Canada Energy Regulator (CER), from June 2018 to February 2020 because the pipeline crosses the Alberta/BC border.

Consultations with Indigenous Peoples were conducted by the CER. However, after the CER issued the recommendation for approval, the federal cabinet decision sided with the dissenting opinion of the CER board, which necessitated further consultations with Indigenous People prior to approval.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2017-2024	100%		
1. Public Identification and Pre-consultation	2017-2018	14%		
2. Regulatory Submission and Review	2018-2020	25%	Environmental and engineering fieldwork. ^{iv}	
3. Regulatory Decision	2020	>8%		Cabinet decision-making caused confusion and sent a worrying signal to other proponents.
4. Investment Related			Almost simultaneous to regulatory approval. ^v	The business case for the pipeline was solid, given forecasts for continuous demand absorbing supply from Northeast BC and Northwest AB.
5. Construction	2021-2024	52%	COVID-19 added some months to the schedule.	
6. In Service	2022-2024		All components in service in Q2 2024. ^{vi}	

¹ The narrative and timeline below substantially follow the account that R. Harrison (2021) prepared for Positive Energy.

3. Timeline Detail

Public Identification and Pre-consultation

2017. Early engagement started.^{vii}

Regulatory Submission and Review

2018. June. TC Energy filed the applications for the project with the NEB.

The Canada Energy Regulator (CER) reviewed the application following processes of the NEB Act.^{viii}

Notable court decision: August – *Tsleil-Waututh Nation et al. v. Attorney General of Canada et al.*, 2018 Federal Court of Appeal (FCA) 153. The decision underscored the responsibility of the federal cabinet to ensure that regulators discharge the duty to consult with Indigenous groups (TransMountain case).

2019. August. The CER came into existence.

2020. February. The CER Commission recommended that Cabinet approve the project. The CER's decision included thirty-four recommendations. A dissenting opinion in the report pointed to the need for closer engagement with Indigenous Peoples.

May. Cabinet extends the time limit to make the decision on the project.^{ix}

Between February and October, the federal government conducted a new review process, including consultations with potentially affected Indigenous Peoples.

Regulatory Decision

2020. October. Cabinet directed the CER to issue a certificate of public convenience and necessity for the project.

The Cabinet decision confused industry representatives because it added more conditions on environmental protection and Indigenous engagement than recommended by the CER through an opaque process that lacked openness, transparency and an opportunity for multiple parties to be heard.

Investment and Construction

2021. Construction started.^x (Approximately six months after planned in the application filed in 2018).^{xi}

2022. TC reported a heightened price tag on the project (\$3.5 billion, up from \$2.3 bn) due to weather, regulatory delays, and inflationary pressures.^{xii}

2024. All components in service (second quarter of 2024).^{xiii}

4. Key Issues Raised by This Profile

Regulatory Framework

The regulatory framework was a key issue in this profile because the role of the federal cabinet in decision-making reduced the predictability of the process.

In the *Project description*, the proponent estimated 24 months for the regulatory process to be completed (NGTL 2018: 18).^{xiv} It took 28 months, with a third of the timeline within the COVID-19 emergency. This is not a significant delay under the circumstances.

The timeline for the decision on the economic convenience of the expansion was also within reason, with an almost concurrent investment decision.

However, the Federal Court of Appeal decision regarding the duty to consult in the environmental assessment did affect the project. The Governor in Council (cabinet) decision to require a new review focused on the CER's condition on the protection of the Caribou environment and Indigenous engagement. This precipitated questions about the predictability, openness and transparency of regulatory processes involving cabinet.

5. Discussion

This case highlights issues of legitimacy, transparency and uncertainty/unpredictability in the decision-making process for projects with effects for economic parties, those affected by projects (notably Indigenous Peoples in this case) and public authorities.

Natural gas producers were impatient with the regulatory process since before 2020, given the expanded production in the source regions and the relative reduction of demand in the US. At the same time, the federal cabinet followed judiciary developments (*Tsleil-Waututh Nation v. Government of Canada*) that encouraged cabinet to revisit the efforts of regulators to discharge the duty to consult.

In 2020, the federal government received submissions concerning the protection of caribou habitat and conducted supplementary consultations with Indigenous Peoples. Given the impacts of COVID-19 on the additional consultation processes, the period between the CER report in February 2020 and the federal cabinet approval for the CER to issue the certificate of public convenience extended to October 2020, far longer than the legislated time limit.^{xv}

Moreover, Cabinet did not conduct its review process in a way that was consistent with principles and procedures of transparency. The absence of formal methods for cabinet's revision of the CER's recommendations highlights how political discretion compromised the legitimacy of the regulatory process in this case. Arguably, the most critical aspect of this case is that cabinet did not use the option to send the matter back to the CER for reconsideration, as the legal framework allowed it to do. Instead, the GIC carried out a new round of reviews following *ad hoc* processes – including consultations with some Indigenous Peoples but without opportunity for the proponent at that phase.^{xvi}

As Harrison conjectures (2021: 20), speeding the approval of the project could have been one of the motivations of the GIC, such that the GIC judged that the interests of the proponent justified breaching principles of procedural fairness...against the proponent. Nonetheless, as he states:

[I]t might be considered that the legitimacy of Cabinet's changes to the recommendations of the CER Commission was questionable – on substantive, procedural, and policy grounds relating to maintaining the integrity and transparency of the regulatory process.

(Harrison, 2021: 15).

Sources

Canada Energy Regulator, 2021, CER recommends approval for NGTL 2021 System Expansion Project, accessible at: [CER – CER recommends approval for NGTL 2021 System Expansion Project \(cer-rec.gc.ca\)](https://www.cer-rec.gc.ca)

Harrison, R., 2021, The Expanded Role of the Federal Cabinet in Pipeline Projects. A case study of TC's 2021 NGTL System Expansion Project. Report prepared for Positive Energy. Available at https://www.uottawa.ca/research-innovation/sites/g/files/bhrsksd326/files/2022-08/the_expanded_role_final_web.pdf

TC, 2021, 2023 NGTL Expansion Project. <https://www.tcenergy.com/operations/natural-gas/2021-ngtl-system-expansion/>



Notes

- i TC Energy. 2021 NGTL System Expansion Project. Project Description. 2018. [A90239-2_2021_NGTL_System_Expansion-Project_Description_-_A6A6K6.pdf \(cer-rec.gc.ca\)](#) and VQ FD Disclosure. Nov 2022. TC Energy Corp Investor Day. Accessed via Factiva.
- ii TC Energy Management's discussion and analysis 2022. https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/regulatory-filings/2022/tce-2022-management-discussion-analysis.pdf?t_id=9y46gsVB3iCUY1dC9wbB_A%3D%3D&t_uid=mmG3KOyuQdWpqp2eBMYjw&t_q=hse+field+orientation:external+contractors%27%7C%7C%27&t_tags=language:en%2Csiteid:c22cfa00-3058-40d3-bbc9-f3a303e00a5c%2Candquerymatch&t_hit.id=TCEnergy_Core_Models_Media_PdfFile/82826ef9-3d36-48e0-9a16-4ac35302b96a&t_hit.pos=287
- iii TC Energy. 2021 NGTL System Expansion Project. <https://www.tcenergy.com/operations/natural-gas/2021-ngtl-system-expansion/>
- iv As per the project description (TC Energy. 2021. Page 18).
- v A substantial share of the throughput of this new pipeline system had already been committed by the time of the application. For this case, the FID and start of construction could be expected to follow rapidly after receiving the certificate of economic convenience from the NEB/CER.
- vi All components are operational in Q2 2024. [NGTL System Expansion Project \(2021\) \(tcenergy.com\)](#).
- vii TC, 2021 NGTL System Expansion Project. Project Status and Timelines, <https://www.tcenergy.com/operations/natural-gas/2021-ngtl-system-expansion/#timeline>
- viii Canada Energy Regulator, 2021, Certificate GC –129 https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90550/554112/3422050/3575553/3950124/4003838/C09098-3_Certificate_of_Public_Convenience_and_Necessity_GC-129_-_A7J7T3.pdf?nodeid=4003840&vernum=-2
- ix Government of Canada, May 18th 2020, Orders in Council 2020-0341, <https://orders-in-council.canada.ca/attachment.php?attach=39232&lang=en>
- x TC Energy. NGTL System Expansion Project (2020). <https://www.tcenergy.com/operations/natural-gas/2021-ngtl-system-expansion/>
- xi TC. 2021 NGTL System Expansion Project. Project Description. February 2018 (cited above).
- xii TC Energy Management's discussion and analysis 2022. https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/regulatory-filings/2022/tce-2022-management-discussion-analysis.pdf?t_id=9y46gsVB3iCUY1dC9wbB_A%3D%3D&t_uid=mmG3KOyuQdWpqp2eBMYjw&t_q=hse+field+orientation:external+contractors%27%7C%7C%27&t_tags=language:en%2Csiteid:c22cfa00-3058-40d3-bbc9-f3a303e00a5c%2Candquerymatch&t_hit.id=TCEnergy_Core_Models_Media_PdfFile/82826ef9-3d36-48e0-9a16-4ac35302b96a&t_hit.pos=287
- xiii [NGTL System Expansion Project \(2021\) \(tcenergy.com\)](#)
- xiv TC. 2021 NGTL System Expansion Project. Project Description. February 2018 (cited above).
- xv The Order in Council was published within the time limit of 150 days following the 90 days after the CER submitted the recommendation to the Ministry of Natural Resources. Government of Canada, October 19 2020, Orders in Council. <https://orders-in-council.canada.ca/attachment.php?attach=39811&lang=en> (accessed September 24 2024).
- xvi The cabinet ended up adding a recommendation that had been originally proposed by a dissenting view of the CER Commission in the first report recommending the project. The terms of the additional condition subsequently imposed by cabinet are substantively the same as those proposed in the dissenting view, with the result that cabinet rejected the CER Commission majority decision on this issue and implemented the proposal recommended by NRCan, which essentially adopted the condition that the dissenting commissioner had proposed (Harrison 2021: 14).

Trans Mountain Expansion Project (TMX), Interprovincial

1. Project Description

The Trans Mountain Expansion project (TMX) was officially proposed by Trans Mountain Pipeline ULC, a subsidiary of Kinder Morgan (KM), in 2012. In 2018, prior to final approval by the federal cabinet, the project was sold to Trans Mountain Corporation, a newly created federal crown corporation.

The two main project components include, first, an interprovincial pipeline to twin a bitumen pipeline from Edmonton, Alberta to Burnaby, B.C. This is projected to increase the pipeline capacity by 590,000 bpd. 89 % of the 1,147 km route parallels existing rights-of-way. Second, the project includes expansion of the Westridge Marine Terminal in Burnaby by adding two berths, with the number of tanker shipments intended for Asia and the US projected to increase from 5 to 34 per month.¹

As an interprovincial pipeline with associated facilities, the project assessment fell under the jurisdiction of the National Energy Board (NEB, now Canada Energy Regulator). At the outset, KM anticipated the project review, approval, and construction would take about 7 years, with in service in 2019. The pipeline was in-service in 2024.

Regulatory Summary

KM initiated a pre-consultation program with the general public and Indigenous groups in 2012. In 2013, KM made a regulatory submission to the NEB (see Canada Energy Regulator, 2013) under the *Canadian Environmental Assessment Act (2012)* (CEAA2012). In 2016, during the regulatory review, the federal government added two issues to the assessment process – an assessment of related GHG emissions and enhanced Indigenous consultation.

In 2016, the NEB panel recommended the project to the government and the federal cabinet approved the proposal. Construction began.

In 2018, this decision was overturned by a Federal Court of Appeal decision over the adequacy of the regulatory assessment and Crown consultation with Indigenous groups. In 2018, Natural Resources Canada completed additional Indigenous consultations and the NEB held a reconsideration hearing.

In 2019, the NEB panel recommended the project for approval a second time, and the federal cabinet again approved the project.

A variety of construction permits were required to complete the project and involved federal / provincial cooperation where applicable.

¹ Project description available at <https://apps.cer-rec.gc.ca/REGDOCS/Search?sr=1&loc=956916&srt=0&isc=False&iscd=True&filter=OTFileType&ft=75>

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2012-2024 13 years	100%	Federal government added requirements to NEB's EA process; court ruling found crown consultation inadequate; multiple regulatory and cabinet approval processes; project sold to crown corporation	
1. Public Identification and Pre-consultation	2012 1 year	~7%	Consultation with shipping industry began prior to 2012. Consultation with public and Indigenous communities began April 2012, 1 year prior to regulatory submission	Could enhanced public identification and pre-consultation by the proponent have avoided later delays?
2. Regulatory Submission and Review	2013-2016 2.5 years 2017-2019 3 years	~38%	Initial environmental assessment (29 months) plus two rounds of additional assessment and consultation requirements resulting from Court cases	Court case rulings extended scope of EA and initiated further consultation in order to meet requirements for the Duty to Consult with Indigenous groups
3. Regulatory Decision	2016 and 2019 <6 mths each	~7%	Two federal cabinet approvals required	The Federal Court of Appeal decided that the first government decision was based on inadequate information
4. Investment Related	2012-2019 2019-2024+		Inception by private sector proponent; sold to federal crown corporation just prior to second cabinet decision	Federal government intervention to purchase the project. At time of writing, the federal government continues to intend to sell the project, potentially to a partnership that includes Indigenous organization(s)
5. Construction	2016-2018 2 years 2019-2024 ~5.5 years	~58%	Interrupted with court decisions related to regulatory and cabinet approval; route realignments; other construction delays caused by permitting processes ²	
6. In Service	2024			

² Research into permitting requirements was not undertaken for this Profile.

3. Timeline Detail

Public Identification and Pre-consultation

Prior to 2012

KM initiated preliminary consultations with the shipping industry.

2012

Pre-consultation program with the general public and Indigenous groups.

Regulatory Submission and Review Part 1

2013

The official application to the NEB was submitted December 2013 under the provisions of the *Canadian Environmental Assessment Act* (2012) (CEAA2012). The NEB review took approximately 29 months, including public and Indigenous consultation.

In 2014, following opposition by the municipality of Burnaby to KM's initial intention to use the existing Burnaby right of way for the project, the NEB directed KM to complete engineering studies by December 1, 2014, regarding a new route that would require tunneling through Burnaby Mountain. Burnaby also started to enforce municipal bylaws that impeded KM's ability to conduct the required studies. Burnaby asserted that it was constitutionally permitted to control the routing and the engineering work needed to determine that routing, through the enforcement of municipal bylaws. As noted below, KM brought a constitutional challenge regarding the applicability of Burnaby's bylaws to TMX and was successful before the NEB and the courts.

In 2016, the federal government introduced interim measures for pipeline reviews such that Environment and Climate Change Canada would complete an assessment of anticipated GHG emissions projections related to the extraction and processing of the oil to be transported by the pipeline expansion (see Government of Canada 2016; Environment and Climate Change Canada 2016).

Regulatory Recommendation and Federal Cabinet Decision Part 1

A three-member NEB panel recommended that the project be approved in May 2016 with 157 conditions, finding that the project was in the public interest (NEB, 2016).

The federal GHG assessment was issued by Environment and Climate Change Canada in November 2016.

The federal cabinet reviewed the ECCC assessment and the NEB recommendation and approved the project. The B.C. Liberal government also announced its support for the project, with KM meeting 5 provincial conditions, including revenue-sharing worth up to \$1 billion.

Shortly thereafter, Indigenous and environmental groups filed a number of applications for judicial review of the cabinet decision.

Regulatory Submission and Review Part 2

In 2018, the Federal Court of Appeal (FCA) ruled on the applications and overturned the federal cabinet decision, finding that the NEB's review of the project was flawed and could not be relied on by the federal government as a basis for its decision to approve the expansion. The FCA found that certain aspects of Crown-Indigenous consultation were inadequate and that the NEB had failed to adequately assess the impacts of increased tanker traffic on killer whales and failed to adequately consider the effects of the Project on marine mammals (Fasken, 2018).

The Minister of Natural Resources then retained a former Supreme Court of Canada (SCC) justice to oversee a new round of Indigenous consultations, without a firm deadline. The NEB completed a new hearing regarding the impacts and mitigation for marine wildlife.

Regulatory Recommendation and Federal Cabinet Decision Part 2

In 2019, following a reconsideration hearing, the NEB panel recommended approving the project a second time with 16 new recommendations solely within the purview of the federal cabinet and with 156 conditions. The panel found that while an oil spill could be significant, the project would provide considerable benefits and the proposed risk management measures would mitigate the impact.

The cabinet had 90 days to respond but took an additional month citing the need for time to complete additional Indigenous consultations.

Environmental and Indigenous groups continued pursuing cases in the courts. Also in 2019, in a separate case, the FCA ruled that 6 of 12 legal challenges regarding Crown consultation during the period August 2018 - June 2019 could proceed.

In 2020, the FCA upheld cabinet's determination that Indigenous consultations were adequate and dismissed further applications for judicial review. The SCC declined to hear an appeal over cabinet approval from environment groups and dismissed a First Nations appeal of the FCA decision regarding adequacy of Indigenous consultation.

Investment Related

KM made a final investment decision in 2017 based on a \$7.4b cost estimate subject to a successful public offering. KM also warned that the project could be one year behind schedule. In 2018, KM declared a May 31 deadline to reach agreement with stakeholders (particularly the Province of British Columbia) and suspended all non-essential spending.

In the absence of a satisfactory agreement with governments, KM decided to abandon the project and in 2018, KM shareholders approved the potential sale of TMX to the Government of Canada who continued to support the project. Cabinet approved the purchase of TMX from the proponent for \$4.5b in June 2019.

Cabinet's decision to approve TMX the second time included the provision that all federal tax revenue from the project would be reinvested in clean energy and green technologies, including corporate tax and the proceeds of the future sale of the project to the private sector.

Cost estimates: 2018 – \$7.4 billion; 2020 – \$12.6 billion; 2022 – \$21.4 billion with latter cost increases attributed to COVID-19, scheduling pressures related to permitting processes, and route changes to avoid culturally and environmentally sensitive areas, among other issues. In March 2023, the cost estimate was increased to \$30.9 billion due to inflation, labour and supply chain challenges, flooding in B.C., and unexpected major archeological discoveries.

By in-service in 2024, the total project cost was reported to be \$34 billion.

Construction

Construction began in 2016 but was halted in 2018 with the FCA ruling. Construction resumed in 2019 following the second project approval.

Construction and in-service permitting and licensing was primarily under federal jurisdiction with provincial officials working with or parallel to federal counterparts where applicable. For example, a B.C. Environmental Assessment Certificate under the B.C. Environmental Assessment Act was needed for construction. The project was also subject to various provincial laws such as the Heritage Resources Act. Permitting and licensing under responsible federal authorities included the Canada Energy Regulator (formally NEB) for the construction and continued operations of the pipeline, NRCan's Explosives Act, the Department of Fisheries and Ocean's Fisheries Act, ECCC's Species at Risk Act, Crown-Indigenous Relations' Indian Act and Transport Canada's Canadian Transportation Act.

In late 2023, Trans Mountain applied for a variance for a 2.3-kilometer segment of the pipeline, but the application was not approved by the CER. Construction continued with the original plan.

In Service and Monitoring

The initial in-service date was estimated for 2019 but was extended several times. The pipeline entered service mid-2024.

4. Key Issues Raised by This Profile

Policy and Political Support

The BC government went from supporting the project (with conditions) under Cristy Clark, to saying it would use 'every tool in the toolbox' to oppose it under NDP Premier John Horgan. This was one of the main factors that instigated KM's ultimatum to the federal government.

At the federal level, the change of government from Conservative to Liberal in 2015 also brought a different approach to the project, with greater support to expand the consultation and regulatory scoping.

Regulatory – Framework

The scope of the NEB environmental impact review was expanded during the review process. The federal government (NRCan) added two issue areas: to include mitigation options for tanker traffic on marine mammals and an assessment of GHG emissions resulting from the project.

The decision-making process and related Court cases found that the NEB had constitutional authority to issue an order that directs or limits a municipality (Burnaby) in the enforcement of its bylaws.

Regulatory – Engagement

The FCA ruling of inadequate Crown consultation during the first application resulted in the first cabinet decision being overturned. Additional government effort was satisfactory in the second round.

Regulatory – Cabinet Decision

The federal cabinet gave final project approval – twice.

Economic – Final Investment Decision (FID)

The project began with FID by the private sector proponent. The decision to complete the project was made by the federal government after buying the project following the second cabinet approval.

Economic – Engineering, Procurement, Construction

At the time the government purchased the project, the projected cost was \$7.4 billion. This number rose continually, ending at a total cost estimate of \$34 billion when put in service.

Cost estimates/actuals have increased substantially during the construction period for a variety of reasons: permitting processes, route changes, inflation, labour and supply chain challenges, flooding, and unexpected major archeological discoveries.

Socio-political – Social Acceptance

Pre-2012 consultation with the shipping industry was enhanced with the 2012-2013 engagement program with the public and Indigenous groups. This was one year prior to the formal regulatory application. KM then initiated the formal regulatory application with only shipping industry support for the project.

The Courts

Having considered what comprises the 'duty to consult', the FCA court ruling overturned the first federal cabinet decision and returned TMX to the regulator and government for additional review and Indigenous consultation.

With respect to municipal jurisdiction, the ruling about NEB powers confirmed KM ability to carry out route location studies, with Burnaby unsuccessful in seeking an injunction regarding by-law violations by the workers.

5. Discussion

A multiplicity of interconnected actors and factors affected the project timeline: the proponent, the regulator, federal and provincial politics, Indigenous engagement, construction, and the courts.

Starting with the *public identification and pre-consultation step*, a key issue is whether the proponent KM undertook an appropriate preliminary (non-regulatory) consultation process given the potential interest in and scope of the project across two provinces. Also with respect to the proponent, a key learning from this profile is that lack of clarity and predictability can lead to proponents walking away. KM's ultimatum to Canadian governments and its interest in selling the project to the federal government attest to the challenges the project faced: extended timelines, the prospect of additional court cases, a new provincial government opposed to the project, etc.

Once the *regulatory process* began, did the NEB scope the initial environmental assessment too narrowly and did NRCan inadequately discharge its responsibility for crown consultations? CEAA2012 had just come into effect under a Conservative government. What was the effect of this new framework on how the project was scoped (i.e., to exclude tanker traffic)? Is there a mechanism for policymakers or regulators to ensure greater alignment between the policy agenda of the government of the day and how projects are scoped? On the other hand, is it appropriate for the scope of a regulatory review to be revised mid-stream, as was done when the Liberal government was elected?

Political questions are also important to this case, especially where the timeline of an approval process straddles governments of different political stripes. What part did the 2015 election of the Liberal government play in the approval process? How/did the newly minted 2016 Pan Canadian Framework for Clean Growth and Climate Change affect the timeline or the addition of GHG emissions calculations to federal regulatory assessments? What about the role of the federal government (cabinet) in final decision-making? Do governments want to 'own' major projects by being the final decision-maker – in this case both figuratively and literally?

Provincial politics were also a major factor, both in terms of support/opposition for the project and with respect to interprovincial relations. The B.C. Liberal government under Christy Clark supported the project; this turned to opposition under John Horgan's NDP government, including seeking standing in court cases and requiring further investigations; the NDP then returned to support of the project at the end of the submission/review and decision steps. FPT relations for projects crossing provincial boundaries are crucial: the tensions between Alberta and BC undoubtedly reduced clarity and predictability of the regulatory process.

Regarding *Indigenous crown consultation/public engagement*, at the outset of the first project submission, review and decision, reconciliation was not at the stage we know it today. As well, the 2014 SCC Tsilhqot'in ruling was made during TMX submission and review, changing the legal context for the project. When the FCA overturned the cabinet approval in 2016, the government was directed to address the deficiency in crown consultations. Is the Crown better equipped to complete its responsibilities post-TMX?

The *role of the Courts* in TMX was also crucial. The timeline for the regulatory approval process was extended and shaped by direction from the courts. The FCA decision provides some guidance for what comprises adequate crown consultation; then a later ruling upheld the government's determination that additional consultations were adequate.

In addition, the FCA dismissed the Burnaby application that the NEB lacked constitutional authority to issue an order that directs or limits Burnaby in the enforcement of its bylaws. According to Ross et al (2015), the Burnaby FCA decision addressed a fundamental constitutional issue which has been arising with increasing frequency – the ability of a municipality to thwart the development of a federally governed energy project. The Burnaby case can be considered the companion case to the Togstad decision (Western Alberta Transmission Line). In not hearing Burnaby's case, the FCA affirmed that the proper venue for a constitutional challenge to an energy development project is with the regulatory tribunal charged with assessing the project. If a party is unhappy with a tribunal's decision, the only recourse is by way of appeal or judicial review of that decision to the tribunal, and not to resort to another court, which could constitute an abuse of process. The SCC declined to hear or dismissed appeals of government or other courts' decisions.

Finally, we note the extended and costly construction period. The TMX Expansion project took approximately 7.5 years to build (58% of the project timeline), with the cost ballooning from a first estimate of \$7.4 billion through to \$34 billion to bring the pipeline into service. In addition to the purchase price of \$4.5 billion, whether the government can recoup the total cost when the pipeline is sold, remains an open question.

Sources

Canada Energy Regulator (2013). 13-05-23 Trans Mountain Pipeline ULC – Project Description for the Trans Mountain Expansion Project (A51996). <https://apps.cer-rec.gc.ca/REGDOCS/Item/View/956916> (accessed 14 March 2024)

Canada Energy Regulator (2024). Trans Mountain Pipeline ULC – Trans Mountain Expansion Project website. <https://www.cer-rec.gc.ca/en/applications-hearings/view-applications-projects/trans-mountain-expansion/index.html> (accessed 14 March 2024)

CTV News (2019). Trans Mountain timeline: A look at key dates in the project's history. <https://www.ctvnews.ca/canada/trans-mountain-timeline-a-look-at-key-dates-in-the-project-s-history-1.4471117> (accessed 14 March 2024)

Environment and Climate Change Canada (2016). Trans Mountain Pipeline ULC – Trans Mountain Expansion Project: Review of Related Upstream Greenhouse Gas Emissions Estimates. <https://iaac-aeic.gc.ca/050/documents/p80061/116524E.pdf> (accessed 14 March 2024)

Fasken (2018). Court rules on Trans Mountain Pipeline. <https://www.fasken.com/en/knowledge/2018/08/van-2018-08-31-energy-and-indigenous-bulletin> (accessed 28 Nov 2024)

Federal Court of Appeal (2018). Tsleil-Waututh nation v. Canada (Attorney General). Decision. <https://decisia.lexum.com/fca-caf/decisions/en/item/343511/index.do?r=AAAAAQAMMjAxOCBmY2EgMTUzAQ> (accessed 14 March 2024)

Government of British Columbia (2024). EPIC. Trans Mountain Expansion webpage. <https://projects.eao.gov.bc.ca/p/5885121eaecd9001b82b274/project-details> (accessed 14 March 2024)

Government of Canada (2016). Interim Measures for Pipeline Reviews. <https://www.canada.ca/en/natural-resources-canada/news/2016/01/interim-measures-for-pipeline-reviews.html> (accessed 26 November 2024)

Government of Canada (2017). Trans Mountain Expansion Project Interim Measures for Major Project Reviews. <https://major-projects.canada.ca/measures/256> (accessed 14 March 2024)

Government of Canada (2019). The Government's decision. <https://www.canada.ca/en/campaign/trans-mountain/what-is-tmx/the-decision.html> (accessed 14 March 2024)

Government of Canada (2021). Follow the latest on TMX – 2019-2021. <https://www.canada.ca/en/campaign/trans-mountain/follow-tmx.html> (accessed 14 March 2024)

Government of Canada (2023). Trans Mountain Expansion Project webpage. <https://www.canada.ca/en/campaign/trans-mountain.html> (accessed 14 March 2024)

Hoberg, G. (2021). "The Trans Mountain Expansion Project: The Politics of Structure", Chapter 6 in The Resistance Dilemma. Place-based Movements and the Climate Crisis. MASS: MIT Press Direct. <https://direct.mit.edu/books/oa-monograph/5157/chapter/3403680/The-Trans-Mountain-Expansion-Project-The-Politics> (accessed 14 March 2024)

National Energy Board (2016). National Energy Board Report. Trans Mountain Expansion Project. May 2016. OH-001-2014. <https://apps.cer-rec.gc.ca/REGDOCS/File/Download/2969681> (accessed 14 March 2024)

National Energy Board (2019). Reconsideration Report – Trans Mountain Pipeline ULC. <https://www.cer-rec.gc.ca/en/applications-hearings/view-applications-projects/trans-mountain-expansion/reconsideration-report-trans-mountain-expansion-project.html> (accessed 14 March 2024)

Natural Resources Canada (2016). Report from the Ministerial Panel for the Trans Mountain Expansion Project. https://natural-resources.canada.ca/sites/www.nrcan.gc.ca/files/files/pdf/16-011_TMX%20Full%20Report-en_nov2-11-30am.pdf (accessed 14 March 2024)

Ross, A. Marion, M. Salmon, K.A., Williams, R. and Poppel L. (2016). Canada: 2015 Year in Review: Top 10 Regulatory Decisions of Import to the Canadian Energy Industry. 15 January 2016. Borden Ladner Gervais. <https://www.mondaq.com/canada/utilities/458690/2015-year-in-review-top-10-regulatory-decisions-of-import-to-the-canadian-energy-industry> (accessed 14 March 2024)

Oil and Gas Production/Export

LNG Canada, British Columbia

1. Project Description

LNG Canada is a project comprising a Liquefied Natural Gas export facility (24 m tons or around 170 tanks a year) in Kitimat, Northern BC. Tankers will traverse a stretch of about 90 km before entering the Pacific Ocean. The project, one of the world's largest, comprises liquefaction and storage activities and a new pipeline running from the Montney basin in Northeast BC.ⁱ Estimates of cost situate it at around 48 bn – up from an initial estimate of 36 billion at the time of the environmental assessment.ⁱⁱ

Proponent (through wholly-owned subsidiaries): Shell (40%), leading a partnership with Petronas (25%), Mitsubishi (15%), PetroChina (15%) and Korea Gas (5%).ⁱⁱⁱ

For the second phase of the project, which would add an additional 14 m tons per year, the proponent plans to power liquefaction with renewable electricity instead of natural gas (as is the case for the first phase). However, the provision of that power is not yet assured. A Final Investment Decision has not been reached for the second phase, but regulatory approval to power the project with natural gas turbines can cover both phases.^{iv}

The first phase, for 14 m tons, is 95 percent complete and is expected to go on stream in 2025.

Regulatory Summary

Economic assessment unnecessary (export license granted by the NEB in 2016, with risk faced by proponent).

Environmental assessment through substitution process between the federal and provincial governments, and led by the provincial environmental assessment (EA) Office (2013 and 2014).

Consultation with the Haisla Nation has been thorough and includes substantial benefit agreements.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2010-2024	100%		
1. Public Identification and Pre-consultation	2010-2013	20%		
2. Regulatory Submission and Review	2013-2014	15%	Substitution, with provincial government leading EA process. The EA process did not emerge as a factor leading to delay.	
3. Decision	2014-2015	1%		
4. Investment	2015-2018	23%	The 3-year delay on the FID can be attributable to a host of factors. LNG prices slumped in 2016. There were almost a dozen proposed projects in BC in the first half of the 2010s.	Investment decisions on LNG exports are strongly driven by exogenous and long-term prospects of demand.
5. Construction	2018-2020 (start of construction)	41%	The research did not identify meaningful construction setbacks.	
6. In Service			Reported 95 percent progress in the Fall of 2024.	

3. Timeline Detail

Public Identification and Pre-consultation

2010. Identification. Early work included screening 500 potential sites from the lower mainland to the Northwest corner of the province.^v

2011. LNG Canada initiates feasibility studies after selecting Kitimat. Start of consultation with potentially affected Indigenous communities and other stakeholders.^{vi}

2012. November. Start of the public comment period on the Draft of the Application Information Requirements. The comment period takes 45 days in open houses in the Kitimat and Terrace areas.^{vii}

Regulatory Submission and Review

2013. March. LNG Canada announces the project as it files its description and formalizes the application for an EA.^{viii}

April. The Gitxaala Nation filed legal challenges against the NEB for issuing an export permit to Shell before the EA was conducted.^{ix} However, the challenge did not succeed.

June. BC's Environmental Assessment Office (BCEAO) establishes the scope, procedures, and methods to assess the project. Instead of a Joint Review Panel, the EAO of BC will conduct the assessment, substituting for the federal assessment agency. The process of substitution consists of adding the requirements of the federal Canadian Environmental Assessment Act to the provincial assessment. LNG Canada was the first assessment using this form of federal-provincial coordination.^x

2014. In February 2014, the Environmental Office issued the Assessment Information Requirements for the Project. These Requirements identify the information required in the application under provincial and federal legislation (BCEAA and CEAA 2012).^{xi}

April. LNG Canada files an Application for Environmental Assessment Certificate, in compliance with requirements issued by the BCEAO in February.

Decision

2015. May. The BCEAO issues  Environmental Assessment Report, with a favourable view of the project.^{xii}



June. The Federal Environment Department approves the LNG Canada export terminal project, subject to 50 legally binding conditions. Approval from provincial and federal authorities follow (Department of Fisheries and Oceans, Transport Canada).^{xiii}

2016. January. The National Energy Board (NEB) grants a 40-year export license to LNG Canada.^{xiv}

July. LNG Canada postpones its Final Investment Decision (FID).^{xv} The official announcement points to capital constraints and challenges in the global market.^{xvi}

Throughout 2017 and 2018, LNG Canada started preliminary works pending a positive FID.^{xvii}

Investment and Construction

2018. March. The NDP government announces a rollback of the LNG taxes raised in 2014 by the then-Liberal government, and offers  breaks for new projects.^{xviii} In 2019, a package of tax incentives benefitting LNG Canada passed with an  with the Liberal Party, bypassing the Green Party members of the governing coalition.^{xix} The federal government complemented this package with a quarter billion dollar contribution to the project.^{xx}

October. Final Investment Decision announced by Shell and TC for the export and pipeline projects.^{xxi}

2020. June. Start of construction.^{xxii}

2024. November LNG Canada is on track to complete Phase 1 by mid-2025.^{xxiii}

4. Key Issues Raised by This Profile

Economic – Final Investment Decision

The rollback of LNG taxes (2019) and a series of tax breaks and cash infusions may have fostered favourable investment decisions,^{xxiv} although it is only one factor in a host of contributing factors.

Proposals for LNG export projects sprawled during the first half of the 2010s, spurred by prospects of growing demand in Asia. As gas prices followed oil prices downwards across most of the globe and global LNG supply grew, interest waned in the second half of the 2010s (Flower 2021).^{xxv} LNG Canada's advantage is its relative proximity to Asia, which insulates it from disruptions affecting navigation through the Panama Canal.^{xxvi} As pointed out, policies recognized the importance of LNG in the development of natural gas resources in the BC's Montney formation.

Court Challenges

The National Energy Board (NEB) clarified that the project is not in its jurisdiction except for granting the export license (2019).

Challenges did not succeed and do not appear to have had an effect on the overall timeline of the project.

5. Discussion

EA has not been a factor in the timeline for this project. However, including GHG considerations in environmental and regulatory assessments is one of the most important developments affecting oil and gas projects in Canada (see TMX profile in this appendix).

Liquefaction of natural gas is a very energy-intensive activity. By one count, producing the 14 million tonnes of LNG for phase 2 of LNG Canada could use up to 90 percent of the capacity of a 1 GW hydropower station like Site C.^{xxvii}

BC has been ramping up its policy commitments and administrative involvement in establishing regulations for oil, gas and LNG production for exports. The *Energy Action Framework*, announced in 2023, provides that in environmental assessments for new LNG exports, proponents need to include a credible plan to be net zero by 2030.^{xxviii} As noted, Phase 2 of LNG Canada has an EA Certificate. Yet, sourcing the energy for the liquefaction trains (electricity or natural gas) is becoming an increasingly salient policy issue, and underscores the extent to which broader policy and political factors beyond the regulatory system can affect timelines and investor confidence.

Notes

- i Coastal Gas Link, the pipeline serving the export facility is a 670 km, 2.1 bcfd, system originating in Groundbirch, BC. (See profile in this appendix).
- ii North American Oil and Gas Monitor. August 18 2023. And: BC EAO. 2014. LNG Canada. Assessment Report. <https://iaac-aeic.gc.ca/050/documents/p80038/101852E.pdf> (page 29).
- iii LNG Canada. Media Kit. Accessed on November 16, 2024 from <https://www.lngcanada.ca/news/media-kit/>
- iv CBC, 2023, Natural gas, not electricity, to power Canada's first LNG plant, increasing carbon footprint. January 13, 2013. <https://www.cbc.ca/news/canada/british-columbia/canada-lng-power-constraints-electricity-1.6717358>
- v LNG Canada, October 2014, Environmental Assessment Certificate Application. Section 2. Project Overview. <https://www.policynote.ca/wp-content/uploads/2018/10/LNG-Canada-Export-Terminal-Section-2-Project-Overview.pdf>
- vi LNG Canada, October 2014, Referenced above, Page 8.
- vii BC Environmental Assessment Office (Electronic Project Information Centre (EPIC). <https://projects.eao.gov.bc.ca/>
- viii LNG Canada, 2014, (referenced above).
- ix LNG Intelligence. 9 April 2013. Gitxaala Go to Court.
- x BCEAO, EPIC (Electronic Project Information Centre). [EPIC \(gov.bc.ca\)](https://epic.gov.bc.ca)
- xi LNG Canada, 2014. (See Above).
- xii BCEAO. LNG Canada Export Terminal Project. Assessment Report. May 6 2015. <https://iaac-aeic.gc.ca/050/documents/p80038/101852E.pdf>
- xiii More information on this project is available on the Canadian Environmental Assessment Registry website, reference number 80038. <https://iaac-aeic.gc.ca/050/evaluations/proj/80038>
- xiv NGI's Daily Gas Price Index. BC LNG Project Seeks License Extension as GHG Concerns Raised. 19 February 2016.
- xv Event Brief of Q2 2016 Royal DutchShellPLCEarningsCall – Final <https://www.slideshare.net/slideshow/royal-dutch-shell-plc-second-quarter-2016-results-webcast-presentation/64473098>
- xvi LNG Canada, July 11th 2016, LNG Canada's Joint Venture Participants Delay Timing of Final Investment Decision. https://www.shell.ca/en_ca/media/news-and-media-releases/news-releases-2016/lng-canadas-joint-venture-participants-delay-timing-of-final-investment-decision.html Shell's reports for the second and third quarter of 2016 highlight a reprioritization of investments towards profits (high cash flow) and a global context with additions of capacity in Australia and the United States tapping to the growth of demand in Asia. Two years afterwards, Shell was prognosticating a shortage of supply by the mid 2020s, hence opening a window for LNG Canada. Shell's reports are available at: <https://www.shell.com/investors/results-and-reporting/quarterly-results.html#tab-2018>
- xvii <https://www.lngcanada.ca/wp-content/uploads/LNG-Canada-2018-2019-CEAA-Annual-Report-19-06-26-FINAL-Rev-0-IFI.pdf>; <https://ceaa.gc.ca/050/evaluations/exploration?projDocs=80038&culture=en-CA>

-
- xviii Postmedia Breaking News, March 2018, Premier Horgan offers up tax breaks for LNG industry.
- xix Vancouver Sun. Liberals co-operate with NDP to pass LNG bill. April 5th 2019.
- xx LNG Intelligence, July 3rd 2019. LNG Canada Gets Big Federal Subsidy. The subsidy was applied to install high efficiency turbines for the liquefaction of natural gas (220m) and for rebuilding a bridge (55 m). <https://www.canada.ca/en/innovation-science-economic-development/news/2019/06/government-of-canada-confirms-support-for-largest-private-investment-in-canadian-history.html>
- xxi LNG Canada. October 1st 2018. LNG Canada announces a positive investment decision. <https://www.lngcanada.ca/news/lng-canada-announces-a-positive-final-investment-decision/> (For CGLP, TCs pipeline project, see the corresponding profile in this appendix).
- xxii BC Environmental Assessment Office, June 17 2020, LNG Canada Export Terminal, Substantial Start Decision. [358292 Letter-LNGC-SubStartDet-Decision-2020.pdf \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/industry/energy/358292-Letter-LNGC-SubStartDet-Decision-2020.pdf)
- xxiii LNG Canada 2024 Fall Update (September 12th 2024). <https://www.lngcanada.ca/news/lng-canada-2024-fall-update/>
- xxiv The federal government justified the 2019 cash infusion by touting the GHG abatement of better liquefaction turbines, and the spillover effects of the project on gas production.
- xxv Flower, A., 2021, LNG in the Global Context. In Michot Foss, M., et al. 2021. Monetizing Natural Gas in the New “New Deal” Economy. Springer International Publishing. Chapter 4.
- xxvi LNG Platts. November 27 2023. Interview: LNG cargo swapping rises on Panama Canal hurdle, volatility to linger: Petronas LNG CEO.
- xxvii The Globe and Mail, B.C. LNG project approvals prompt a reckoning of clean energy supply, April 3rd 2024, <https://www.theglobeandmail.com/canada/british-columbia/article-bc-lng-project-approvals-prompt-a-reckoning-of-clean-energy-supply/>
- xxviii <https://news.gov.bc.ca/releases/2023PREM0018-000326>

Woodfibre LNG, British Columbia

1. Project Description

Woodfibre LNG Limited (WLNG)ⁱ is owned by Pacific Energy, an independent subsidiary of Singapore-based Royal Golden Eagle (RGE). It is an LNG export facility located 7km west of Squamish, British Columbia. In 2022, Enbridge acquired a 30 percent stake in the project.

The Project will liquefy, store and ship 2.1 m tonnes of liquefied natural gas annually. The natural gas will be sourced through a 52-km expansion of an existing pipeline operated by Fortis BC, in the Coquitlam area. The project will run on electricity sourced from BC Hydro.

The facility's site and the regional navigable waters sit within the traditional territory of the Squamish Nation (SN).

The project was subject to federal and provincial environmental assessment, but through a substitution agreement between the provincial and federal governments, the province carried out the assessment.

The SN also conducted its own environmental assessment of the project, one of the first Indigenous-led impact assessments in Canada. The proponent acknowledged the assessment by the Squamish Nation and complied with conditions under both the Squamish assessment and the provincial process.

The project budget was estimated at a CAD 1.6 bn.ⁱⁱ The project was sanctioned in 2022 with a Notice to Proceed, and construction began that year. Construction is still underway.

Fortis BC commenced construction of the pipeline to carry gas to the facility in August 2023.ⁱⁱⁱ

Regulatory Summary

Environmental Assessment: coordination with the federal EA was led by the provincial EA agency (substitution process, between 2013 and 2014). The Squamish Nation also led its own EA process.

Economic regulation: the NEB granted the export license in 2017.

Permitting: The BC Oil and Gas Commission granted the facility permit (in 2019, 3 years after the EA certificate was granted). The proponent has pointed at delays in permitting as one reason underlying the delays in pre-construction and construction.

Consultations with the Squamish Nation had started prior to 2013, as far back as 2005. The proponent and the federal and provincial governments recognize control of the Squamish Nation over important decision aspects of the project.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2013-2023	100%		
1. Public Identification and Pre-consultation	2013	7%		
2. Regulatory Submission and Review	2014-2015	14%	Concurrent processes: both provincial and SN, as an ad hoc regulatory agent.	The review and decision were not delayed even with the dual processes.
3. Regulatory Decision	2015	2%		One set of conditions was defined by the Squamish Nation.
4. Investment Related	2015-2022	63%	Notice to Proceed was given to the contractor in mid-2022.	It is important to consider the context of LNG FIDs, globally.
5. Construction	2022-ongoing	15%		The proponent has pointed at permits as one reason underlying the delays in pre-construction and construction.
6. In Service and Monitoring	2027 expected			

3. Timeline Details

WLNG started consultations with the Squamish Nation in 2005 for the LNG project and the pipeline.^{iv} Yet, the intention to build an LNG export facility was on hold until 2013.

Public Identification and Pre-consultation

2013. Between May 2013 and February 2014, WLNG conducts a pre-application consultation process, meeting with stakeholders and rightsholders to introduce the project and to obtain feedback.

Regulatory Submission and Review

2014. February. Substitution for the province to lead the environmental assessment process approved by the federal Minister of the Environment.

November. The proponent applies for an EA Certificate (EAC).

2015. March. The environmental review conducted by the Squamish Nation (SN) endorsed the Project with 13 conditions. Of note, the SN requires the utilization of an air cooling and not a seawater cooling system.^v

Regulatory Decision

2015. August. Favourable EA report issued by the BCEA Office.

October. EA Certificate (EAC) issued by Provincial Environment and Natural Gas Development Ministers, with 25 conditions. The SN issues its own certificate with conditions.^{vi}

WLNG moves to FEED, which needs to accommodate the requirements of the EACs.^{vii}

2016. March. Federal government announces its approval of WLNG.^{viii}

2017. April. The NEB grants a 40-year export license.^{ix}

2019. The BC Oil and Gas Commission grants the facility permit.

2020. March. The proponent requests an EAC extension, given that substantial construction did not start within the five years following the approval of the project – as specified in the EAC.

April. MOU for EA in a collaborative process (IEA, BCEAO, and the Squamish Nation) amending the EAC to accommodate a new, temporary component (a workers' floating hotel).^{x, xi, xii}

October. The BCEAO grants the EAC extension, given that the proponent had not initiated substantial construction.^{xiii}

Investment and Construction

The SN signed an Impact and Benefit Agreement (IBA) with the proponents of the LNG facility and the NG pipeline for CAD 1.1 bn. The agreement includes cash payments (\$225 m), contracts (\$872m), land, employment for SN members, and an option to acquire 5 percent equity in the projects.^{xiv}

2022. July. The proponent gives Notice to Proceed to the construction contractor, thereby sanctioning the project (in its communications, the proponent clarifies that the project has been sanctioned and that the term Notice to Proceed is more adequate for a privately-held firm than the phrase Final Investment Decision.

October. Enbridge purchases 30% of the project (Pacific Energy retains 70% ownership). The new relationship triggers a process to transfer the EA certificate.

November. Construction commences.^{xv}

2023. WLNG pauses construction following notification of non-compliance with the requirements of the EA Certificate. (Upon inspection, the provincial EAO found that WLNG did not comply with preconstruction notification and submission requirements specified in the EA Certificate).^{xvi}

The project is expected to be on stream in 2027.^{xvii}

4. Key Issues Raised in This Profile

Regulatory – Framework

The most interesting feature of the project is the decision-making role of the Squamish Nation. Before the issuance of the provincial/federal EAC, the SN conducted its own environmental assessment of the project. The understanding on the part of all parties that the SN has authority and rights has shaped the relationship between the SN, the proponent, and provincial and federal authorities. It has also shaped the project itself, through conditions on the export facility as well as approaches to housing workers.

In the words of the proponent,

'Since the project was launched, Woodfibre LNG has received three environmental approvals: from the B.C. and Canadian governments, and from the Squamish Nation. Woodfibre's groundbreaking process of consent with the Squamish Nation was first of its kind and resulted in the first-ever environmental approval by an Indigenous people in the absence of a treaty. Today, Woodfibre is proud to acknowledge the Squamish Nation as a full regulator on the project.'

Sociopolitical/ Indigenous Peoples

The meaningful engagement and participation of the Squamish Nation are fundamental to this profile. In addition to the IBA, SN's role as an assessment agency, acknowledged by the proponent, and not disputed by provincial and federal authorities, is groundbreaking.

5. Discussion

The collaboration between the SN and the proponent does not appear to have impacted the timeline of the project. It may well have made the difference between the project being on its way to in service rather than facing a legal challenge from the SN about inadequate consultation.

But this collaboration raises many questions about the relationship between federal and provincial regulatory processes, on the one hand, and nascent/emerging Indigenous regulatory processes, on the other. How do these processes relate to each other both in time and in the respective roles, responsibilities and authorities of federal/provincial and Indigenous regulators? Without shared understandings, is this approach sustainable or will it reduce clarity, predictability and timeliness of energy project decision-making processes?

WLNG did experience delays. Among the reasons the proponent cites to explain the delays are: 1) unforeseen scale and project complexity; 2) request of an EAC amendment between 2018 and 2019 for purposes of clarifying that site clean-up and remediation do not constitute the construction of the project; 3) prolonged commercial negotiations regarding Engineering, Procurement, and Construction (EPC) with one of the prime contractors that experienced financial complications; 4) compliance with amendments to the EAC related to fulfilling commitments to Indigenous Nations, and 5) COVID-19.^{xviii} Of note, many of these factors are unrelated to the regulatory process.

In addition, as has been pointed out for LNG Canada (included in this Appendix), global economic considerations also weigh heavily on financial decisions and these are also unrelated to the regulatory process per se. FIDs occur in cycles, and only a fraction of announced projects reach final sanction.^{xix}

Notes

- i In 2022, Enbridge acquired 30 percent of WLNG.
- ii The Globe and Mail. Squamish Nation plans joint regulatory review for Woodfibre LNG work camp. April 14th, 2020.
- iii Fortis BC. Eagle Mountain-Woodfibre Gas Pipeline Project. <https://talkingenergy.ca/project/eagle-mountain-woodfibre-gas-pipeline-project>
- iv According to D. Millington, cited in “BC study finds consultation key to project success”. *Platts* November 30, 2016.
- v Update from Squamish Nation Environmental Implementation Team. 18th December 2019. https://www.squamish.net/wp-content/uploads/2023/12/December-2019_WLNGNewsletter.pdfweb.pdf and Squamish Nation Process, WLNG Update, accessed from <https://iaac-aeic.gc.ca/050/documents/p80060/117196E.pdf>
- vi MOU between the SN, EAO of BC and IAAC, 2020, accessed from the Impact Assessment Agency of Canada <https://iaac-aeic.gc.ca/050/documents/p80060/138201E.pdf>
- vii ‘Under the terms of the contract, KBR’s Houston office will provide FEED services for the proposed 2.1 million mt/year liquefaction plant and export facility, including FEED optimization, pre-FEED, FEED, and development of a fixed-price offer for engineering, procurement and construction services.’ *Platts International Gas Report*. Canadian LNG faces mixed fortunes. 4 April 2016.
- viii <https://iaac-aeic.gc.ca/050/documents/p80060/138201E.pdf>
- ix Canada Energy Regulator, Export and Import Licence Applications, [CER – Export and Import Licence Applications \(cer-rec.gc.ca\)](https://cer-rec.gc.ca)
- x The Globe and Mail. Squamish Nation plans joint regulatory review for Woodfibre LNG work camp. April 14th, 2020
- xi WLNG, 2020. March 24. Letter to Michael Shepard, Executive Project Director, Oil & Gas Sector RE: Extension to Woodfibre LNG Limited’s Environmental Assessment Certificate (#E15-02) [Woodfibre LNG EAC E15-02 Extension Request 20200324.pdf \(gov.bc.ca\)](https://www.gov.bc.ca/woodfibre-lng-eac-e15-02-extension-request-20200324.pdf); The Globe and Mail. April 14th 2020 (see above).
- xii Memorandum of Understanding Between Squamish Nation And Environmental Assessment Office And Impact Assessment Agency of Canada. 2020. <https://iaac-aeic.gc.ca/050/documents/p80060/138201E.pdf>
- xiii [Woodfibre LNG Certificate Extension Order \(gov.bc.ca\)](https://www.gov.bc.ca/woodfibre-lng-certificate-extension-order)
- xiv [Daily Oil Bulletin](https://www.gov.bc.ca/daily-oil-bulletin), Indigenous Peoples Supportive of LNG Raising Their Voices. The website of the government of BC only features one BA, between BC Hydro and the Squamish Nation. March 20th 2020. The inventory of benefits agreements of the province of BC can be consulted here: [Natural Gas Benefits Agreements – Province of British Columbia \(gov.bc.ca\)](https://www.gov.bc.ca/natural-gas-benefits-agreements-province-of-british-columbia)

-
- xv Communication from BC EAO to WLNG. Inspection record and Warning Letter Posted. 2023, February 10th. [Woodfibre LNG Warning Letter EN2022-039 \(gov.bc.ca\)](#)
 - xvi Communication from BC EAO to WLNG. Inspection record and Warning Letter Posted. 2023, February 10th. [Woodfibre LNG Warning Letter EN2022-039 \(gov.bc.ca\)](#)
 - xvii Woodfibre LNG, Woodfibre LNG accelerates Canada's Pathway to Net Zero, March 23, 2023, <https://woodfibrelng.ca/woodfibre-lng-accelerates-canadas-pathway-to-net-zero/>
 - xviii WLNG, 2020, March 24. Letter to Michael Shepard, Executive Project Director, Oil & Gas Sector RE: Extension to Woodfibre LNG Limited's Environmental Assessment Certificate (#E15-02) [Woodfibre LNG EAC E15-02 Extension Request 20200324.pdf \(gov.bc.ca\)](#); Also: Squamish Nation plans joint regulatory review for Woodfibre LNG work camp. The Globe and Mail. April 14th 2020. B. Jang.
 - xix Canada's WCSB gas output steady; FIDs due for two LNG projects. Platts Oilgram Price Report, 13 January 2023. [FID status for LNG projects | Global LNG Hub](#)

Quest Carbon Capture and Storage Project, Alberta

1. Project Description

The Quest Carbon Capture and Storage Project (Quest) was the first large scale integrated CO₂ sequestration project in Canada. A showcase CCS project for emissions sourced at an oil sands upgrader, Quest began operations in 2015.

Quest was conceived as a joint venture between Shell Canada Energy (60%), Chevron Canada (20%) and Marathon Oil Canada Corporation (20%), the three companies who together formed the Athabasca Oil Sands Project.¹ Quest value chain components include up to 1.2 Mt/yr CO₂ capture at Shell's Scotford bitumen upgrader using an activated amine process; approximately 80 km transport pipeline and connectors; injection infrastructure at 3 well pads; deep saline sequestration in the Basal Cambrian Sands (BCS) geological formation, approximately 2 km below surface; and a measurement, monitoring and verification (MMV) program.

Based on stream day capacity, cumulative stored volumes could exceed 27 Mt of CO₂ over the expected life of the Project through 2040. The estimated 35% capture rate results in an overall reduction in CO₂ annual emissions of approximately 15% relative to the existing upgrader. The project's construction costs were under the \$1.35B estimate, with partial financing from the Alberta government (\$745 million over 15 years) and the federal Clean Energy Fund (\$120 million).

Regulatory Summary

Multiple pieces of legislation, regulations and directives applied to the review and approval of Quest under several provincial and federal applications (Table 1). Capture, transport, injection and storage were reviewed and approved through a federal/provincial agreement for environmental assessment cooperation. The provincial resource regulator, the Energy Resources Conservation Board (ERCB, now the Alberta Energy Regulator, AER) was the only decision-maker.

The 2012 ERCB decision² provides a detailed account of the project, review process, and considerations for approval.

¹ https://www.shell.ca/en_ca/about-us/projects-and-sites/athabasca-oil-sands-project.html

² <https://static.aer.ca/prd/documents/decisions/2012/2012-ABERCB-008.pdf>

Table 1 – Shell Quest Regulatory Framework³

Regulator	Regulatory Application – Chain Component			
	Capture	Transport	Injection	Storage
Agreement for environmental assessment cooperation Alberta Environment – <i>Environmental Protection and Enhancement Act</i>	Three amine absorber towers, amine regeneration unit, multistage CO ₂ compressor with coolers and separators and a triethylene glycol dehydration unit	80 km steel pipeline from upgrader to proposed injection wells, including conservation and reclamation plan	Environmental impact assessment report for injection wells and storage	
Natural Resources Canada/Canadian Transportation Agency – <i>Canadian Environmental Assessment Act</i>	To increase nitrogen oxide limits from HMUs			
Alberta Energy Resources Conservation Board (Now Alberta Energy Regulator)	To amend approval Section 13, <i>Oil Sands Conservation Act</i>	Part 4, <i>Pipeline Act</i> Directive 056: Energy Application for construction and operation of the pipeline	Directive 056 for well development Directive 051 for injection	Section 39, <i>Oil and Gas Conservation Act</i> Directive 065: Resource Application for Oil and Gas Reservoirs

³ See Larkin et al., 2019a for details about legislation, regulations and directives in force at the time.

2. Project Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2010-2015 6 years	100%		
1. Public Identification and Pre-consultation	2008-2010 2 years	33%		Good outreach, by oil and gas industry standards, continued throughout project
2. Regulatory Submission and Review	2010-2011 1+years	23%	Federal/provincial agreement for environmental assessment cooperation as input to ERCB decision-making	Submissions under several provincial and federal requirements unfolded concurrently, which was somewhat difficult for stakeholders to keep up with
3. Regulatory Decision	2012 3 day hearing ~3 months until decision	8%	3 day hearing after all documentation received; limited intervenor standing under ERCB rules for 'having an interest' in the project; decision rendered 3 months after the hearing	With overarching policy support and significant federal and provincial funding support, potential for regulator to reject the project was slim to none
4. Investment Related	Government contributions confirmed at pre-consultation step		Significant public financing – provincial and federal capital funding; additional provincial tax credits during operations	Limited direct cost to the proponent
5. Construction	2012-2015 3 years	50%	Public documentation and outreach continues through construction and in-service; project operating at lower cost and better efficiency than projected	Good outreach continued; funding agreements require transparent, ongoing annual reporting through Alberta government website ⁴
6. In Service and Monitoring	2015-present			

3. Timeline Detail

Public Identification and Pre-consultation

2008

Shell initiated outreach and consultation activities.

Regulatory Submission and Review

Fall 2010 – Summer 2012

Formal environmental assessment application under joint federal/provincial agreement for environmental assessment cooperation. ERCB designated the decision-maker.

⁴ All Shell project related references are available at the Alberta Government Open Government Program – <https://open.alberta.ca/dataset?tags=Quest+CCS+project&page=1>

Under the Canadian Environmental Assessment Act (CEAA), NRCan required that public and Aboriginal consultation activities be conducted, in part because the magnitude of the facility was considered a new technology (NRCan and CTA, 2012). 30-day comment period. No submissions were received. Federal authorities determined that the project was not likely to cause significant adverse environmental effects and that a ten-year follow up was required in order to verify predictions included in the proponent's proposed Monitoring, Measurement and Verification Plan.

Under the ERCB regulatory process, consultation and notification continued throughout the regulatory submission, review and approval process for property owners within varying distances of the proposed activities (Shell Canada Limited, 2011a). Shell conducted the public engagement and consultation program for Quest. This included open houses, Quest Café events (designed to bring in local municipal representatives and key community leaders for smaller, in-depth two-way dialogues), and County and Town Council updates.

Pembina Institute's consulting arm (Pembina Corporate Consulting) was retained to evaluate the consultation program. Recommended enhancements were implemented.

As all community concerns were not settled through the ERCB's Appropriate Dispute Resolution (ADR) process, public hearings were required. Direct public participation at ERCB hearings was limited to accredited interveners based on the location of land holdings and having identified a direct and adverse potential effect. Five interveners representing three properties were permitted to participate. Concerns included pipeline routing, safety and containment, injection, well water contamination, the effect of the project on future plans, and property value and compensation (ERCB, 2012).

Throughout the 20-month review and approval process, document submissions included the application, updates to the application, amendments, errata, supplementary information requests (SIRs) to the proponent by the regulators, intervener submissions and responses – for a total of approximately 4,000 pages / 400 documents. Documents remain posted on the Government of Alberta's Open government website because of a federal/provincial CCS knowledge sharing program.

Regulatory Decision

2012

In assessing the project, the ERCB (now Alberta Energy Regulator) considered whether the applications were in the public interest generally and assessed the social, economic, and environment impacts of the project. The Board also had the power to apply conditions to mitigate site-specific or local impacts.

The ERCB approved Quest in July with 23 conditions. 21 conditions concerned monitoring activities.

The ERCB found that the communication and public consultation program initiated by Shell exceeded the minimum Participant Involvement Program requirements of ERCB Directive 056.

Investment Related

2009

Front End Engineering and Design completed. Full project proposal to Alberta Department of Energy with simultaneous funding application to Alberta CCS Fund.

2011

Quest CCS Funding Agreement signed in June. As noted above, regulatory review was underway.

Shell had determined, prior to being provided with the CEAA assessment or ERCB Report (that was anticipated mid-2012), that regulatory approvals had been given, in principle. Upon release of the two reports, a Final Investment Decision (FID) was taken by the joint venture owners to proceed with the Project.

2012

September announcement that project had been given final approval to proceed. Representatives of the joint venture owners and the Governments of Canada and Alberta were in attendance.

2012-2015

Capital cost estimate of ~\$910 million would be spent from 2012 to 2015.

Investment Estimates

2011

Operating costs at \$41 million per year. Project revenues estimated at \$30 million per year during operations from the sale of carbon credits at carbon prices prevailing at that time.

2013

Capital costs and schedule were in line with FID. Project met Government of Alberta funding milestones.

2014

Capital cost estimate reduced to \$811M; less than original estimate. Operating cost estimate \$41M/yr; revenues of \$27M/yr from sale of carbon credits at 2014 carbon prices, in addition to revenues from Alberta DOE Funding Agreement (to develop and deploy MMV technologies for use on Quest).

Of note in the 2014 report issued by Shell: “The Integration into Scotford in a progressively challenging economic environment due to decreasing oil price.”

2015

Revenue streams generated by Quest will remain twofold: (i) the generation of offset credits for the net CO₂ sequestered and an additional offset credit generated for the CO₂ captured, both under the Specified Gas Emitters Regulation; and (ii) \$298 million in aggregate funding from the Government of Alberta during the first 10 years of operation for capturing up to 10.8 million tonnes. In 2016, the value of the offset credit was to increase to \$20/tonne and in 2017, the value was to increase to \$30/tonne. A US Department of Energy funding agreement was also initiated.

2017

Shell reduced its share of the Athabasca Oil Sands Project from 60% to 10%. Shell remained operator of the Scotford upgrader and Quest project.

2020

Reporting includes Capex, Opex; as well as operating cost per tonne captured and tonne avoided, and total cost per tonne captured and avoided.

2021

Value of Technology Innovation and Emissions Reduction (TIER) regulatory offset credit rose to \$40/tonne.

Construction

Open houses for local communities continued.

Initiated Community Advisory Panel (CAP) for Thorhild County Stakeholders.

International engagements to support public engagement knowledge sharing.

2013-2015 reporting required through the funding agreements noted a few project challenges:

- Maintaining good stakeholder relationships with the neighbours, with the significant construction in the area posed by Shell and other operating companies for their pipeline construction. Issues included closing out right of way agreements; clean up issues; and groundwater monitoring issues.
- Managing the Project overall schedule within the bounds of the delay in receiving regulatory approvals
- Cost pressures from pipeline construction due to welding productivity.

In Service and Monitoring

2015

Quest start-up. Designed to capture and store over 1 million tonnes CO₂ each year.

Some operating activities found to be more efficient than thought at design stage, resulting in expected operating cost savings.

Ongoing open houses; engagement with municipal, industry and non-government associations

Quest expected to provide employment for eight permanent full time equivalent positions (FTEs) and an additional approximately 13 FTEs incorporated into existing positions. Quest is expected to generate expenditures of up to \$44 million per year in staffing, MMV, maintenance, and variable costs to the economy.

2016

Strong reliability in first year. Ongoing stakeholder engagement through CAP. Operating efficiencies. Shell suggested that if Quest was built again in 2016, construction and operational costs would be 20-30% less than for this first project.

2018

Ongoing CAP; Ongoing sustained, safe, and reliable operations.

Quest employment reported at 15 permanent FTEs and an additional approximately 10 FTEs allocated into existing positions. Quest generated expenditures of ~\$26 million in 2018 in staffing, MMV, maintenance, and variable costs to the economy.

2019

Ongoing open houses; Knowledge from Shell's experience with Quest was shared with numerous industry, business, academic and nongovernment associations in 2019.

Operating costs continue to be lower than forecasted. Continued significant international interest from various technical organizations.

2023

Quest has captured and stored over 6 million tonnes CO₂.

Future

Monitoring will continue for 10 years after the close of operations.

Projection for CCS – as capital and operational costs decrease and as the carbon price goes up, Shell suggested they will get to the point where CCS with permanent storage will be a break-even project.

4. Key Issues Raised by This Profile

Public Policy and Political Support

Federal and provincial policymakers had an interest in the project being approved (based on financial contributions and supportive public policy for CCS innovation).

Regulatory – Framework

The lead for the decision was taken by the ERCB; with the federal CEAA having a minor role.

The value chain components (capture, transport, injection, storage) were subject to CEAA screening (because of federal funding) and Alberta's Environmental Protection and Enhancement Act (EPEA). The submission and review process was applied jointly under a federal/provincial agreement for environmental assessment cooperation. As the resource regulator, there were additional ERCB requirements under several Acts and Directives.

Participation at ERCB hearings was limited to accredited interveners based on the location of land holdings and having identified a direct and adverse potential effect. A seemingly limited number of landowner interveners, representing just three properties, participated.

The regulatory submission, review and decision-making process appears to have unfolded without delay – review 13 months; 3-day hearing scheduled for 3 months following completed ERCB review of documentation; favourable decision followed 3 months later. This may have exacerbated timeline pressures for all stakeholders.

Regulatory – FPT Interactions

The submission and review step included assessment by federal departmental authorities (NRCan, Environment Canada, Health Canada). Departmental reporting suggests there was some friction as information provided was deemed insufficient for proper assessment.

Regulatory – Engagement

Little official (regulatory-based) public engagement. Limited standing as per above. On a positive note, the ERCB found the proponent's consultation and communication to be exemplary in terms of both regulatory requirements and non-regulatory pre-consultation. The proponent has continued with yearly updates in the communities, including with a role for a Community Advisory Panel.

Economic

Significant public funding virtually assured the positive final investment decision. Construction and in-service has come in under budget.

5. Discussion

Key questions that might affect later large CCS (or other new technology) project timelines

Overall, Quest appears to be a good news story. The project was deemed by the regulator to be in the public interest; to not only benefit the applicant and those directly connected to it, but also to benefit Albertans in general. The project was built on time and slightly under budget. Quest operations are going as planned and the operational costs are lower than forecasted. The project is being followed with interest by representatives of organizations worldwide.

The unofficial outreach during the pre-consultation step was likely important groundwork for the entire endeavour and for the relatively short regulatory review and decision timeline. Public policy (demonstrated by public funding) and regulatory framework were the other two important factors.

With respect to government policy, CCS continues to be a priority technology for both the Alberta and federal governments. While Quest demonstrated how much money a first CCS project costs, capital and operating costs are decreasing. A question concerns whether there will be ongoing support in terms of direct financial contributions or tax incentive/tax credit schemes. At the moment, the answer is yes.⁵

⁵ <https://www.canada.ca/en/department-finance/programs/consultations/2021/investment-tax-credit-carbon-capture-utilization-storage.html>

The regulatory framework 'did the job' but may need to be enhanced. Might the proponent and regulatory engagement keep up to date or might landowners / Indigenous communities begin to require additional opportunities to be involved in decision-making and monitoring? There is also an ongoing consideration for transparency in decision-making, described as both ease of access to information and the fullest possible disclosure of information at all decision inputs. As the first large scale integrated saline sequestration CCS project in Canada, Larkin et al. (2019) demonstrated that the process, the application, the review and approval were complicated to follow. While the ERCB was the sole decision-maker, the number of applications under two regulatory regimes (CEAA feeding into the ERCB application), plus applications under a number of ERCB Directives, was likely demanding, confusing and frustrating for the proponent, regulators and the public as well.

In terms of the emissions mitigation technology itself, unresolved issues in risk assessment and risk management may have a future negative impact on public acceptance and therefore on project viability in the long run. This issue is discussed in detail by Leiss and Larkin (2019).

Quest did not encounter any court-based challenges. However, the study area was based on the proponent's and regulator's defined 'area of interest' (AOI). Bankes, in a blog post (2012, no page) suggested that neither the AOI nor its subset 'zone of interest' (ZOI) are "legal terms of art and they are not used in any of the relevant legislation or the key [ERCB] Directives". Bankes (2012, no page) also suggested that the term is evidently important because it "controls the geographical scale of such things as lease configuration, the provision of notice, identification of legacy wells, geological characterisation, etc., and the scale (as one might expect) is much larger than that provided for cognate operations such as acid gas disposal projects" (upon which the regulatory framework was based at the time of Quest).

Sources

All Shell project references are available at the Government of Alberta Open Government Program website – <https://open.alberta.ca/dataset?tags=Quest+CCS+project&page=1> (accessed 14 March 2024)

Bankes, N. (2012). Quest. The Energy Resources Conservation Board Approves the First Commercial Scale Carbon Capture and Storage Project in Alberta, ABlawg.ca August 3. <http://ablawg.ca/2012/08/03/quest-the-energy-resources-conservation-board-approves-the-first-commercial-scale-carbon-capture-and-storage-project-in-alberta/> (accessed 14 March 2024)

Energy Resources Conservation Board (2012). Application for the Quest Carbon Capture and Storage Project, Shell Canada Limited, Radway Field, ABERCB 008. <http://www.aer.ca/documents/decisions/2012/2012-ABERCB-008.pdf> (accessed 14 March 2024)

Larkin, P., Leiss, W. and Krewski, D. (2019). 'The evolution of regulatory practice for CCS projects in Canada', Int. J. Risk Assessment and Management, Vol. 22, Nos. 3/4, pp.286–310. <https://www.inderscienceonline.com/doi/10.1504/IJRAM.2019.103333>

Leiss, W. and Larkin, P. (2019). 'Risk communication and public engagement in CCS projects: the foundations of public acceptability', International Journal for Risk Assessment and Management, Vol. 22, Nos. 3–4, pp.384–403. <https://www.inderscienceonline.com/doi/10.1504/IJRAM.2019.103339>

Natural Resources Canada (NRCan) and Canadian Transportation Agency (CTA) (2012). Environmental Screening Report for the Shell Canada Ltd. Quest Carbon Capture and Storage Project, CEAR Reference No. 10-01-55916 Archive. <http://www.ceaa-acee.gc.ca/050/documents/54632/54632E.pdf> (accessed 28 August 2018; no longer posted)

Shale Gas Exploration in Kent County, New Brunswick¹

1. Project Description

This profile considers steps to develop hydraulic fracturing (HF) in Kent County, New Brunswick, also home to the Elsipogtog First Nation. Activities included initial seismic testing and the beginning of the process to permit drilling exploratory wells.

No HF was developed in the County and an indefinite moratorium on HF has been in place in the province, with a small exemption in 2019 for an area near Sussex where gas was already being extracted.

Regulatory Summary

Seismic surveys had little regulatory oversight at the start of the project. An application was made under a new regulatory framework, but the project activities were suspended indefinitely by the proponent when a newly elected government enacted the moratorium. The new regulatory framework was not fully tested.

2. Project Timeline Summary

See Table 1.

3. Timeline Detail

Public Identification and Pre-consultation

2010

The Government of New Brunswick awarded Texas-based SWN Energy Co. licences to search one-fifth of NB's landmass for shale gas potential. Such exploration activities have minimal regulatory oversight, with the expectation that potential production is regulated more extensively.

2011

New provincial interim requirements for seismic testing were put in place, based on public concerns over potential damage to water quality from the HF industry.

Based on recommendation of NB government, proponent undertook pre-EIA consultation with First Nation organizations adjacent to the seismic program, to compile information on traditional use of the area and to discuss issues and concerns.

Some consultation was done under auspices of the Assembly of First Nation Chiefs of NB (AFNCNB), an organization from which the Elsipogtog FN withdrew in 2013 citing inadequacies in the shale gas exploration consultation process.

¹ The narrative and timeline below substantially follow the account that S. Fast (2016) prepared for Positive Energy in a collaborative research study undertaken with the Canada West Foundation, as well as Positive Energy research team member L. Nourallah's doctoral dissertation (2023).

Table 1 – Project Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2010-2016 6 years	100%		
1. Public Identification and Pre-consultation	2010-2014 4 years	71%	Seismic surveys had little regulatory oversight. Government licensing included FN lands without consultation. Public and FN protests. Regulatory framework for project submission and review under development	No regulatory framework for new technology while physical work proceeded; inadequate FN consultation; limited public engagement
2. Regulatory Submission and Review	2014 < 1 year	10%	Formal application to drill exploratory wells under new rules	New regulatory framework garnered poor public confidence
3. Regulatory Decision	2015-2016	18%	New provincial government elected on platform to place a moratorium on HF activities	Regulatory framework not tested; Project cancelled; interim, then indefinite moratorium on shale gas development
4. Investment Related			\$47M government requirement for proponent expenditures during seismic survey work	Full benefit of industry to NB was questioned, as compared with environmental costs
5. Construction	NA			
6. In Service and Monitoring	NA			

2012-2013

Outreach:

- Dr. Louis Lapierre, a prominent New Brunswicker, was commissioned by the provincial government to tour nine locations across the province in mid-2012, seeking feedback on proposed shale gas regulations
- Virtual town halls, streamed and phone-in questions held by Department of Energy and Mines to solicit feedback on proposed shale gas regulations
- Canadian Association of Petroleum Producers representatives completed more than 150 meetings with local Chamber of Commerce organizations giving “Hydraulic Fracturing 101” presentations. These were explicitly designed to not be open to the public for fear of attracting controversy.

Provincial government released recommendations for updated regulations / rules for large-scale unconventional gas sector.

2013

Meetings between proponent SWN and AFNCNB representatives and elders from Elsipogtog. The meetings were complicated by questions of who represented the Elsipogtog community.

Public protests during seismic testing, with water contamination concerns consistently the most important factor.

SWN lawsuit against 13 protesters for damages during the proponent's seismic survey work. Court injunctions against protesters; RCMP arrests; highway closed.

Protests against Kent County HF activities also occurred in Fredericton, Montreal and Toronto.

Violent clash near Kent County, including burning police cars.

Regulatory Submission and Review

2014

Proponent began the regulatory submission process under rules for Industry, *Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick* (2013) (since updated, version available is Government of New Brunswick 2021) to drill four exploratory wells, including formal requirements for notification and public comment period for the proposed environmental protection measures.

EIA documents were published in April, with detail for location of well pads, road construction, drilling, and potential impacts to air quality, GHGs, and water. Department of Environment approved the application in August.

Written notification to landowners and public officials, with documentation posted online and at the library in Kent County. Public notification through newspaper notices and online posting of EIA documents.

Provincial election was fought in large part on pro-shale gas development on one side, the other promising a moratorium. A new provincial government, in fulfilling this election promise, placed a temporary moratorium on HF. SWN activities stopped.

Investment Related

The government's RFP required SWN to invest \$47 million in exploration activities. By 2013, the Elsipogtog First Nation officials noted that inclusion of their reserve land in selling exploration leases was inappropriate, as it was not the province's land to include.

No Regulatory Decision or Subsequent Steps

2015

NB Commission on Hydraulic Fracturing established. Commission toured province with a wide mandate focused on the root causes of the conflicts surrounding shale gas development.

2016

Results of the Commission included five conditions that must be met before the moratorium could be lifted. Government also singled out several recommendations it would have to implement before reassessing the issue, including:

- creation of an independent regulator
- resources assigned to properly plan for potential impacts to public infrastructure; and
- the need to work with Indigenous leadership in NB to adopt a nation-to-nation consultation process for HF.

No timeline was suggested for action.

SWN closed its Moncton office citing uncertainty about the industry. Relatedly, the price for natural gas was half what it was in October 2013.

4. Key Issues Raised by This Profile

Regulatory – Framework

HF in New Brunswick did not begin with an adequate regulatory framework. No framework was in place for the pre-consultation step (initial seismic studies used existing permitted activities without a formal review). Concerns also centred on the inclusion of FN lands without permission.

As well, the posting of EIA documents under new rules for industry occurred late in the exploration schedule and well after distrust had built.

Regulatory – Engagement

The lack of a more thorough notification process for seismic and exploration activities and understanding of the FN context was problematic and demonstrates how an essentially unannounced presence in the community can be received. Indigenous voices stressed that the whole foundation of trust for regulation was missing.

Social Acceptance

The social context of high levels of illiteracy within Kent County and a sensitivity over past expropriation appear to have not been adequately considered by the proponent or the government.

The public and FN concerns and protests culminated in a change in government and eventual moratorium on HF. This changed the direction for the potential of a shale gas industry in the province for the foreseeable future.

5. Discussion

This project profile concerns advancing an energy industry, namely the potential of gas extraction using hydraulic fracturing, in a province with little previous oil and gas development. The government used a market-based tool – a request for tender – for the private sector to explore and map shale gas potential for over one-fifth of the province. The uncertainty over the resource potential meant uncertainty over the potential for investment and growth of a shale gas sector.

With respect to supporting clarity and predictability that might affect new (and sometimes controversial) energy technologies, one question concerns what level of effort should be expended on the part of policymakers to develop regulations for nascent technologies or for practices with uncertain futures? There is certainly a contrast between HF in New Brunswick and the Quest CCS project in Alberta, where development of a comprehensive regulatory framework preceded the application and regulatory assessment process.

Prior PE research interviews (see Fast 2016) found that those active in the provincial business community and proponents were in favour of shale gas development proceeding but, at the local level of Kent County, 70 per cent of the population surveyed (and 80 per cent of Elsipogtog First Nation members) were opposed to shale gas exploration. There was a lack of acceptance and lack of perceived benefits to society at large.

In terms of the regulatory process, this profile also serves as a cautionary tale for regulators to demonstrate some expertise in overseeing a relatively new technology: 1) There was a general lack of confidence in the ability of public officials to enforce any environmental regulation more generally; 2) There was a recognition among various actors, including regulators themselves, that the dual policymaker/regulator role was problematic. The Department of Mines and Energy acted as both a proponent, in the sense of supporting HF as a source of energy and economic development, as well as being the regulator of the shale gas industry in issuing exploration licenses and receiving the formal EIA. 3) There was also a general lack of confidence in regulators because of controversies involving prominent public authority figures in the project under study and others.

In terms of FN engagement, the initial communications of the proponent, a US-based company, were underwhelming but maybe understandable at the time. Since the time this project was active, numerous Supreme Court of Canada decisions have provided guidance for what constitutes the Crown's duty to consult and accommodate Indigenous Peoples. At the time of this project, the proponent dealt with an umbrella organization and may have been blind to a sizeable and powerful constituency whose interests were not represented. The consequences of complex questions of FN representation were far-reaching and contributed to the blockade and violent incident in October 2013.

As at 2016 (public opinion survey conducted by Positive Energy in Fast 2016), the new government's moratorium decision appeared to have restored some confidence in the energy decision-making process. When asked if the provincial government decision to extend the moratorium indefinitely made residents more or less confident in energy decision making authorities, 65 per cent reported being more or much more confident. However, this does not address whether additional components of the energy regulatory decision-making process have been instituted or whether the positive response is based in the simple decision to extend the moratorium. Another energy related case in NB might shed light on more recent issues in project timelines.

Sources

Fast, S. (2016). A Matter of Trust, The Role of Communities in Energy Decision-Making. Shale Gas Exploration: Case Study Kent County and Elsipogtog First Nation, New Brunswick. Canada West Foundation and Positive Energy. https://www.uottawa.ca/research-innovation/sites/g/files/bhrs kd326/files/2023-03/2016%20Fast%20Trust%20case_NB%20shale%20gas.pdf (accessed 14 March 2024)

Government of New Brunswick (2021). *Responsible Environmental Management of Oil and Natural Gas Activities in New Brunswick UPDATED Rules for Industry*. Available at <https://www2.gnb.ca/content/dam/gnb/Departments/en/pdf/ong-rules-for-industry.pdf> (accessed 14 March 2024)

Nourallah, L. (2023). "Hydraulic Fracturing in New Brunswick: Trust, Deliberation, and Risk Decision-Making" in M. Gattinger, ed. *Democratizing Risk Governance: Bridging Science, Expertise, Deliberation and Public Values*. Switzerland: Palgrave Macmillan. <https://link.springer.com/book/10.1007/978-3-031-24271-7> (accessed 14 March 2024)

Hydroelectric Station or Electricity Transmission

Site C Clean Energy Project, British Columbia

1. Project Description

Site C is a 1,100 MW/ 5.1 TWh per year hydro electricity generation project in Northeast British Columbia. The proponent, BC Hydro, is the provincial Crown Corporation utility that owns most of the province's electricity system.ⁱ In October 2024, one of its six generators began operations. Site C is expected to go fully on stream in 2025.ⁱⁱ

The project was assessed and approved for environmental impacts through a joint federal/provincial review panel (JRP). The environmental impact of Site C is large. The dam will flood approximately 6,500 hectares forming an 83 km long reservoir, while requiring diversion of a segment of the Peace River.ⁱⁱⁱ

Site C is now the third dam on the Peace River and will also have considerable effects on the economic activities in the region. Treaty 8 Nations have claims over the Peace River Land. BC Hydro reports reaching benefit agreements with several Treaty 8 First Nations impacted by the project.^{iv} Legal challenges have not led to any interruptions.

The British Columbia Utilities Commission (BCUC) is the economic regulator with interest in the impact of the project on electricity rates. However, the project was exempt from BCUC examination until after construction began. Costs have increased from CAD 8.8 bn (estimated in 2014)^v to CAD 16 bn (2021).^{vi}

While the project has been at the centre of political contention, a report issued in 2021 attributes delays and cost (?) overruns to geo-technical complications, and not to social acceptance and political obstacles.

Regulatory Summary

Environmental regulation: Substitution agreement between the federal and provincial governments, with process led by the provincial government (2011 to 2014).

Economic regulation: Site C was exempted from BCUC reviewing the economic convenience of the project.

Indigenous consultation started on September 30, 2011, with the environmental assessment (EA) process.

Permitting: media and proponent documents do not show that permitting caused significant delays.^{vii}

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2009-ongoing	100%		
1. Public Identification and Pre-consultation	2010-2011	16%	Studies and design enhancements (following failed project of 1980). Political debate around the merits of the project.	Foregoing the evaluation of economic convenience has weighed into the arguments against the project. But timelines for regulatory process (economic and environmental) were not material to the delays and overruns of the project.
2. Regulatory Submission and Review	2011-2014	19%	Formal announcement by provincial government in 2010. Joint federal/provincial EA, with process upheld in court.	
3. Regulatory Decision	2014	3%	Provincial cabinet approval 5 months after EA	
4. Investment Related	2014	1%	Provincial government approves BC Hydro-led investment for CAD 8 bn.	6 months elapsed between FID and beginning of construction.
5. Construction	2015-present	65%	Delays mostly due to geo-technical complications. 87 percent progress (June 2024). ^{viii} One of six generators operational as of October 2024.	This highlights the array of uncertainties for infrastructure projects; not related to political and social support.
6. In Service and Monitoring			Expected to be fully in service by 2025. ^{ix}	

3. Timeline Detail

Public Identification and Pre-consultation

1983. The British Columbia Utilities Commission turned down a proposition for damming the current Site C location, seeing no economic justification for the project.

2001 to 2006. BC Hydro conducts feasibility studies narrowing design options and location of components of the Site C dam.

2009. BC Hydro requests approval from BCUC to carry out consultation towards defining the project.

2010. The BC government announces the Site C project, signaling its willingness to build it upon completion of environmental assessments.^x (At the same time, the government passes legislation exempting a large set of new projects from review by the BCUC).^{xi}

Regulatory Submission and Review

2011. May. BC Hydro submits a Project description to the British Columbia Environmental Assessment Office (BCEAO). The submission initiates consultations on what would be included in the Environmental Impact Statement (EIS) filed by BC Hydro (August 2013).^{xii}

August. Official start of the environmental assessment process when the BCEAO refers the project to the Ministry of the Environment of BC.

2012. The federal and provincial governments agree to collaborate in the assessment process by forming a Joint Review Panel.

2013. The BC government endorses the electricity generation plans of BC Hydro, confirming the necessity of the hydropower project.^{xiii}

The Joint Review Panel Stage begins on August 2nd, after deeming the amended EIS adequate.^{xiv}

The public hearing starts in December 2013 and concludes in February 2014.^{xv}

Regulatory Decision

2014. May. The Joint Review Panel issues its Report, estimating that Site C could provide least expensive electricity, while pointing at important assumptions that led BC Hydro to overestimate future demand.^{xvi}

October. Environment Canada announces the approval of the project. Shortly after that, BC's Environment and Forest, Land and Natural Resource Operations Ministries issue BC Hydro an EA certificate with 77 conditions.

Investment Related

2014. December. The provincial government decides to approve the project for a cost of CAD 8.8 bn. In 2024, BC Hydro reported that the project had accumulated a cost of \$16 bn.^{xvii}

Construction

2015. Construction begins in the summer of 2015, concurrent with debate over the provincial government's decision to exempt the project from review by the BCUC.^{xviii}

By the end of 2015, multiple legal challenges opposing the dam are dismissed, including those from the Peace Valley Landowner Association, and West Moberly (WM) and Prophet River First Nations.^{xix} (more below).

2017. July. Through a vote of non-confidence against the Liberal Party, and with the help of the Green Party, the NDP takes over the provincial government. The NDP temporarily suspends tenders for new contracts for the dam and directs the BCUC to issue a review of costs through completion.^{xx}

Later in 2017, following the advice of the BCUC, the government announces that construction will continue.^{xxi} The BCUC report recognizes the viability of alternative projects, whereby these options could have supplemented the energy to be provided by Site C, without completing the dam. However, the report reasons that completing Site C would be less costly than terminating it at that point in time.^{xxii}

2018. The Supreme Court of British Columbia hears but dismisses an injunction brought by the WM First Nation, on grounds that Site C infringed on Treaty Rights. The Court of Appeals of BC also dismissed a case against the certificate of public convenience granted to the project.

2021. Technical reports and legal challenges continued to question the benefits or even call for stopping construction of the project. The NDP government maintained resolve to bring Site C to completion, arguing that canceling would significantly impact BC ratepayers and taxpayers. A report commissioned by the provincial government and issued in February 2021 underscores that delays were caused by geo-technical difficulties unforeseen in the planning stage.

June. The Supreme Court of BC rules in favor of the Blueberry River First Nations in what is referred to as a precedent-setting case. According to the ruling, cumulative impacts can be considered breaches of Treaty Rights.^{xxiii} Specialists point to the increased decision-making capabilities of First Nations created by this ruling and at the implications that it could have for individual projects, such as Site C.^{xxiv}

2022. June. A tripartite negotiated settlement partially solves a civil claim brought up by the WM First Nation. The agreement between the BC provincial government, BC Hydro and the WM First Nation, includes financial and contracting benefits, and a land agreement.^{xxv}

4. Key Issues Raised by This Profile

Policy Support

The change of governing coalition in 2017 triggered a brief pause in new construction contracts. However, with the review undertaken by the BCUC, the new government decided to carry on with the project even after the NDP had opposed Site C while in opposition. Construction was not interrupted during this time.

Economic – Engineering, Procurement, Construction Technical Complications

Technical complications had the most impact on the timeline for this project. A report commissioned by the provincial government and issued in February 2021 underscored that delays were caused by geo-technical difficulties unforeseen in the planning stage.

Regulatory – Permitting

The progress report ending in June 2024 mentioned a total of 675 federal and provincial permits needed for the project, out of which 650 had been obtained.^{xxvi}

The Courts

By the end of 2015, multiple legal challenges had been dismissed, including those from Peace Valley Landowner association, and WM and Prophet River First Nations.^{xxvii} None of these challenges delayed or stopped construction.^{xxviii}

5. Discussion

Although Site C has attracted great national and international attention and contention, it is difficult to attribute delays and overruns to problems related to lack of political or social support for the project.

With respect to the environment-related regulatory framework and process, the JRP conducted the EA within the allotted timeframe. The time allocated to the hearing process was brief: only three months, including the end of year holidays. This brevity does not seem to have compromised the durability of the outcome or its vulnerability to legal challenges.

On the other hand, a report commissioned by British Columbia's Ministry of Energy in 2015 pointed to the recurring practice of the provincial government to exclude the participation of the economic regulator, the BCUC, in the review of major projects.^{xxix} Interestingly, the BCUC played a critical role in solving the brief impasse of the construction process in 2017.

Of note, this project and natural gas development in the region triggered the negotiation of a broader agreement between BC and Treaty 8 Nations around future resource development.

Sources Other Than Media

Amatulli, G., (2022) "Cumulative Effects of Industrial Development and Treaty 8 Infringements in Northeastern British Columbia: The Litigation *Yahey v. BC* (S151727)" – Case Comment. [Online] 13 (2022), 160–170. BC Hydro, 2023, Site C Clean Energy Project, https://www.bchydro.com/energy-in-bc/projects/site_c.html

BC Hydro quick facts, <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/cs-2480-bc-hydro-quick-facts-2022.pdf>

BC Hydro, 2010, *Integrated Resource Plan*. Released by. <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/integrated-resource-plans/current-plan/irp-appx-3a-3-20130802.pdf>

Hoberg, George, 2021, "The Site C Dam and the Political Barriers to Renewable Energy", *The Resistance Dilemma. Place-based Movements and the Climate Crisis*. MIT, MA. Chapter 9.

Review Panel Established by the Federal Minister of the Environment and the British Columbia Minister of the Environment, 2014, "Report of the Joint Review Panel. Site C. Clean Energy Project. BC Hydro" [En106-127-2014-eng.pdf \(publications.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/106-127-2014-eng.pdf?geo=0&lang=eng)

Notes (All Sources, Including Media)

- i <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/cs-2480-bc-hydro-quick-facts-2022.pdf>
- ii <https://www.sitecproject.com/first-generating-unit>
- iii Report of the Joint Review Panel. Site C. Clean Energy Project. BC Hydro. May 1 2014. Review Panel Established by the Federal Minister of the Environment and the British Columbia Minister of the Environment. Page iii and iv (summary). [En106-127-2014-eng.pdf \(publications.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/106-127-2014-eng.pdf?geo=0&lang=eng)
- iv BC Hydro, <https://sitecproject.com/indigenous-relations/indigenous-engagement> (Accessed on November 12th, 2024).
- v Laverty, G. (2014). "BC hydro's Site C project gets government approval as cost nears C\$8.8B", SNL Energy Power Daily, Retrieved from <https://login.proxy.bib.uottawa.ca/login?url=https://www.proquest.com/trade-journals/bc-hydros-site-c-project-gets-government-approval/docview/1639842396/se-2>
- vi BC Hydro lifts Site C project cost estimate to C\$16 B, SNL Canada, March 8th 2021.
- vii <https://www.sitecproject.com/document-library/permits-and-authorizations>
- viii Progress Report, June 2024, https://www.sitecproject.com/sites/default/files/02_2024_09_19_SC_RPT_34_PUB.pdf
- ix BC Hydro, Site C Home Page, <https://www.sitecproject.com/> (Accessed on November 12th 2024).
- x "Liberals commit to building Site C dam; Review will determine impacts of project expected to exceed \$6 billion", The Vancouver Sun, April 20, 2010.
- xi "BC sidelines energy regulator", The Globe and Mail, 29 April 2010.
- xii JRP 2014.
- xiii *Integrated Resource Plan*. Released by Hydro BC and approved by the Government of British Columbia. <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/integrated-resource-plans/current-plan/irp-appx-3a-3-20130802.pdf>
- xiv JRP Report 2014, 3.
- xv JRP Report, 5.
- xvi Note that the Report was issued within the timeframe of 90 days after the hearing process closed. The Report does not mention the date when the hearing closed. Considering the starting date of December 9th, 2013, and the release of the Report on May 2014, the process took between three to five months at maximum, including the end of year holidays.
- xvii BC Hydro, Quarterly Progress Report No. 34. Accessed on November 12th 2024, from https://www.sitecproject.com/sites/default/files/02_2024_09_19_SC_RPT_34_PUB.pdf
- xviii "Review Panel head questions push for BC Hydro's Site C dam". SNL Financial Extra. 12 March 2015.

- xix Smockum, Dayna. “Damned: A look at B.C.’s controversial Site C.” This Magazine, vol. 55, no. 3, Nov.-Dec. 2021, p. 6. Gale OneFile: CPI.Q, link.gale.com/apps/doc/A687529947/CPI?u=otta77973&sid=bookmark-CPI&xid=12d5c062. Accessed 17 Jan. 2023.
- xx <https://news.gov.bc.ca/factsheets/factsheet-site-c-hydroelectric-project>
- xxi Office of the Premier of BC, December 11 2017, “Government will complete Site C construction, will not burden taxpayers or BC Hydro customers with previous government’s debt”, news release accessed at <https://news.gov.bc.ca/releases/2017PREM0135-002039>
- xxii The Costly Future of Site C. Mondaq. December 8 2017, and, British Columbia Hydro and Power Authority – British Columbia Utilities Commission Inquiry
Respecting Site C – Project No. 1598922 – Final Report <https://www.wildernesscommittee.org/sites/all/files/publications/2017%2011%2001%20-BCUC-Site-C-Inquiry-Final-Report.pdf>
- xxiii “For the first time in Canadian legal history, cumulative effects and Treaty 8 infringements were addressed before the Court (...).The Court recognised that in authorising industrial development, the Province had been unable to consider and deal with the cumulative impacts that projects had on the traditional lifestyle of BRFN members, besides breaching its obligation to BRFN under Treaty 8”. Guiseppa Amatulli (2022) “Cumulative Effects of Industrial Development and Treaty 8 Infringements in Northeastern British Columbia: The Litigation Yahey v. BC (S151727)” – Case Comment. [Online] 13 (2022), 160–170.
- xxiv The Canadian Press, November 10th 2022, “How the Blueberry ruling in BC is a gamechanger for the Site C dam, extractive industries and Indigenous Rights”.
- xxv “MIL-OSI Canada: West Moberly First Nations, B.C., BC Hydro and Canada reach settlement related to the Site C Project”, Foreign Affairs, June 30 2022.
- xxvi BC Hydro, Quarterly Progress Report No. 34. Accessed on November 12th 2024, from https://www.sitecproject.com/sites/default/files/02_2024_09_19_SC_RPT_34_PUB.pdf
- xxvii Smockum, Dayna. “Damned: A look at B.C.’s controversial Site C.” This Magazine, vol. 55, no. 3, Nov.-Dec. 2021, p. 6. Gale OneFile: CPI.Q, link.gale.com/apps/doc/A687529947/CPI?u=otta77973&sid=bookmark-CPI&xid=12d5c062. Accessed 17 Jan. 2023.
- xxviii Treaty 8 Nations include: Blueberry River First Nations, Dog River First Nation, Fort Nelson First Nation, Halfway River First Nation, McLeod Lake Indian Band, Prophet River First Nation, Saulteay First Nations and West Moberly First Nations.
- xxix “Province seeks to exempt two BC Hydro Projects from review.” The Globe and Mail, September 17th 2015.

Western Alberta Transmission Line, Alberta¹

1. Project Description

The Western Alberta Transmission Line (WATL), a project of AltaLink Management Ltd, a Berkshire Hathaway Energy Company, is a 350km, 500 kV (500,000 volts) Direct Current (DC) transmission line built between the Genesee and Langdon areas (connecting Calgary and Edmonton areas). The project includes a converter station at each end of the line that changes electricity from DC to Alternating Current (AC) so the DC line can connect with the rest of the province's AC electricity system. The overall timeline began with initial consultation steps in 2010, with WATL in service in December 2015.

Historical Context

The regulatory application, review and decision process of an earlier project proposal negatively affected the WATL approval process.

In 2004, the Alberta Electric System Operator (AESO), in its role to determine the need for new transmission facilities in Alberta, identified the need for two 500kV lines and directed AltaLink to build the lines. The project, as proposed, was abandoned, as described below. Concurrently, the Alberta Energy and Utilities Board (EUB) was dissolved and replaced for the purposes of utilities projects by the Alberta Utilities Commission (AUC).

A lack of engagement by both the EUB and AltaLink for this project cast doubt on the legitimacy of WATL, with lingering feelings of mistrust despite actions taken to address the problems.

Regulatory Summary

A first project proposal and WATL were both proposed by the 'system planning' regulator (the AESO) in an application to the electricity utility regulator (initially the EUB, replaced by the AUC).

The initial project's regulatory process took 4 years. Without any public notification, the EUB accepted an AESO application/direction to AltaLink (Alberta's largest regulated electricity transmission company) to build the proposed transmission lines. During the period, a primary concern was that the project had not undergone a needs assessment, which was then not a jurisdiction of the EUB. AltaLink applied to the EUB for construction and operation permits. After three years of distrust among landowners, the proceedings were discontinued without a decision from the regulator, and with allegations of bias of the EUB.

WATL regulatory approval took approximately two and a half years. Prior to the second regulatory application and review, the Alberta government confirmed by legislation that the WATL was needed infrastructure. AltaLink enhanced its pre-consultation for a Facilities Application to AUC. Delays arose through the AUC proceedings, including at the start of the hearings, when the Minister of Energy advised the Chair of the AUC that the government was reviewing its approach to three critical transmission infrastructure projects to include a full AUC needs assessment process. WATL was ultimately excluded from this requirement. The project was approved, with benefits to the community in the form of landowner compensation.

¹ The narrative and timeline below substantially follow the account that S. Sajid (2016) prepared for Positive Energy in a collaborative research study undertaken with the Canada West Foundation.

2. Project Timeline Summary

Phase 1² – Initial Project Application

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2004-2008 4 years	100%	Phase 1 abandoned [45% of total timeline for both phases]	Phase 1 implications for Phase 2 timeline
1. Public Identification and Pre-consultation	None		No landowner consultation except for right of entry	Distrust; Landowner group created
2. Regulatory Submission and Review	2004-2007 3 years	75%	Focus on lack of needs assessment; included 'spy scandal' Distrust for regulator and proponent continued	Surprise regulatory process for landowners EUB (regulator) dissolved. AUC (regulator) created
3. Regulatory Decision	2007-2008 1 year	25%	Proceedings were discontinued after allegations of bias within the EUB	Not completed
4. Investment Related	NA			
5. Construction	NA			
6. In Service and Monitoring	NA			

² Phase 1 is considered important in its effects on Phase 2 timeline.

Phase 2 – Western Alberta Transmission Line

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2010-2015 6 years	100%		Phase 1 implications for Phase 2 timeline
1. Public Identification and Pre-consultation	2010 1 year	16%	Proponent attempted improved early consultation	Smoother entry into regulatory submission and review for some landowners, but not all
2. Regulatory Submission and Review	2011-2012 1.5 years	25%	Facilities application included summary of consultations	Improved approval process but distrust of AUC ongoing
3. Regulatory Decision	2012		As project was based on government identified need, approval was not in question	Approval process more important than decision
4. Investment Related			Public infrastructure paid by ratepayers	Ratepayer concerns were subordinate to infrastructure development
5. Construction	2012-2015 3 years	50%	Ongoing court cases did not delay construction	
6. In Service and Monitoring	December 2015			

3. Timeline Detail

Phase 1

Public Identification and Pre-consultation

None

Regulatory Submission and Review

2004

The AESO submitted a “Need Identification Document” to the Energy Utilities Board (EUB) as part of the needs application process necessary to move two 500kV transmission towers forward. The EUB accepted the application and directed AltaLink to build the proposed AC lines.

AltaLink applied to the EUB for construction and operation permits for the North-South transmission line. AltaLink began notifying landowners of its intention to build the lines across their properties. Many participants objected, claiming this was the first time they had heard of the project.

AltaLink used traditional media vehicles; there was no direct contact with affected landowners. The only direct public engagement was third party ‘landmen’ to negotiate property access.

Interest groups helped fill the information gap by disseminating information in the community. One of the biggest weaknesses in this project was that the EUB initially operated on the assumption that people understood complex legal terms and regulatory procedures.

2007 – EUB Hearings

Ongoing concern of landowners asking to see the needs assessment for the project. Other concerns included environmental impacts, health hazards, impact on agricultural production and property values. The concerns were judged by EUB to be outside the scope of its mandate.

Only one route was proposed, with no alternative.

At one hearing in Red Deer, it was alleged that the EUB had hired four private investigators to infiltrate the landowners group and provide information to the EUB board. In a 2010 report, the Royal Society of Canada stated the 2007 incident damaged the EUB's credibility as an independent quasi-judicial board (Gosselin et al., 2010).

Proceedings were discontinued after allegations of bias within the EUB.

Other Provincial Interventions

2008 – EUB dissolved; replaced by AUC (utilities) and ERCB (energy production).

2009 – passage of new Critical Infrastructure legislation to resolve the question of 'need' definitively and authoritatively.

Phase 2

After the initial EUB hearing process, the community did not trust the information provided by AltaLink or public authorities. AltaLink went back to the drawing board and reconsidered their public engagement strategy.

Public Identification and Pre-consultation

2010

AltaLink public consultation, including detailed route selection and refinement process.

When the newly established AUC tried to engage the community in some pre-hearing community sessions, it wasn't viewed to be very effective, given the existing mistrust of the regulator.

Regulatory Submission and Review

2011-2012

AltaLink's Facilities Application to AUC.

The AUC held a number of community hearings on the merits of WATL as well as a process meeting. Just over 50% of polled residents thought that the process was respectful of the local community. The AUC examined (and dismissed) landowner arguments to the effect that the lines were interprovincial undertakings that should be subject to federal regulation.

Hearings were delayed from November 2011 to February 2012 after the Minister of Energy advised the Chair of the AUC that the government was reviewing its approach to three critical transmission infrastructure projects. The Electric Utilities Amendment Act, 2012 (also known as Bill 8) removed the critical infrastructure authorization and required that all future transmission infrastructure projects go through a full AUC needs assessment process. WATL was exempted.

Relevant court cases

- 2011 – allegations of bias within the AUC
- 2012 – case arguing that the AUC had to establish need as part of its assessment of public interest (although this case was for a different project) – resolved with Bill 8

Regulatory Decision

2012 – the AUC approved the majority of the preferred route.

Construction

2012-2015

Once an intraprovincial transmission line is approved for construction by the AUC, the operator must acquire necessary rights of way – either private agreements or by right of entry under the Surface Rights Act.

The AUC issued permits related to both the construction and operation of the transmission lines.

2015 Court proceeding

AltaLink sought a right of entry order over private property from the Surface Rights Board (SRB). The landowner opposed, arguing among other things, that the approval of WATL by the AUC was not within the AUC's constitutional jurisdiction. SRB rejected the claim; AltaLink was granted a right of entry (ROE) Order.

The landowner applied for a judicial review of SRB's decisions by the Alberta Court of Queen's Bench. The application was dismissed. Two SRB cases were then taken to the Alberta Court of Appeal and dismissed, principally because the landowners' applications were deemed to be a 'collateral attack' on the AUC's decision – an attempt to seek a different decision through a different or subordinate regulator is not permitted.

In Service and Monitoring

2015

4. Key Issues Raised by This Profile

In Alberta, once the need for a transmission line has been determined and approved, the AESO directs a facility owner (like AltaLink) to site and build the project. This raises three issues.

Public Policy and Political Support

Under the revised legislative framework of Bill 50 (2009), the WATL project was designated Critical Transmission Infrastructure, a designation that bypassed the needs assessment (see 'Regulatory framework' below).

In this context, AltaLink took a more comprehensive approach to the development of the WATL Project in Phase 2. This included emphasizing the importance of transmission infrastructure. A key factor that helped AltaLink in this second round was having senior executives on the frontlines talking to people, trying to understand their concerns, and attempting to build trust.

Regulatory – Framework

For the public, the single biggest concern with both Phases of the WATL project was the decision not to conduct a needs assessment and then eliminating the needs assessment process by declaring the line critical infrastructure.

During Phase 2, the AUC's mandate for any project started pre-2012 was limited to determining the best route for the transmission line. There was no role in determining the need for the project since the government had already declared the line necessary. And there was no process to challenge the AESO's/government's decisions.

Participants did not feel heard in the regulatory review process and the regulator was not viewed as independent from government and industry. Landowners' distrust of the regulator continued, with a view that it could not make a fair decision in the public interest of Albertans. There was a sense that the process was rigged.

An additional concern was over a secret agenda – that the government was trying to force the project through so power could be shipped to potential US customers with costs borne by Alberta ratepayers.

Regulatory – Stakeholder Engagement

During the initial project submission and approval, (Phase 1) there was no pre-consultation while WATL (Phase 2) improved upon this step. It is an open question whether the proponent undertook an appropriate preliminary (pre-regulatory) consultation process in the ‘public identification’ step given the scope of the project. There was no community consultation until 2010. However, in Phase 2, the proponent recognized that for any project to get public support, there must be benefits to the community. In WATL, this manifested as compensation for access to the land.

An additional issue concerns landowners. The profile raises questions about whether a small group of impacted landowners had an outsized impact on the timeline of WATL or whether there was a broader sense among Albertans that they were getting a bad deal with respect to the proponent’s guaranteed rate of return.

The Courts

For some, the regulatory process was a step to get to the appeal court where people felt they would get a fairer hearing.

However, the Court of Appeal confirmed the jurisdiction for the regulator’s approval of WATL. According to some energy-focused lawyers, the landowner *Togstad* case is of widespread significance to the energy industry, given what appears to be a recent trend for aggrieved parties to seek to overturn regulatory decisions in a different forum, rather than pursuing an appeal through the regulator or judicial review.³ The ruling that focused on ‘collateral attack’ provides greater regulatory certainty to industry proponents.

5. Discussion

The total WATL timeline, over two phases, took 12 years (2004-2015), without any activity during 2009.

Phase 1 proceedings reinforced the perception that the proponent, AltaLink, was enjoying special privilege stemming from a cozy relationship with the EUB. There was so much public distrust that the EUB was dissolved and replaced (although there were likely additional reasons to split the regulator into two entities).

The provincial Ministry of Energy had an integral role in managing the regulator and its legislative framework in three ways: a) in 2008, the EUB was dissolved; the AUC was created (although with essentially the same staff); b) in 2009, Critical Infrastructure legislation quashed the question of need for WATL, a chief concern for the public; and c) in 2011, the government requested a delay in AUC hearings after the Minister of Energy advised the Chair of the AUC that the government was reviewing its approach to three critical transmission infrastructure projects to institute a requirement for a needs assessment within AUC jurisdiction. WATL was exempted from the list of projects.

WATL reinforces the need for proponents to engage early on, and to build relationships based on shared values with the community. Timelines for projects need to build in that engagement and project co-creation at the front end. In Phase 2, the proponent did a better job and garnered enhanced public support. Some stakeholders had a more positive view of how project decision-making unfolded in the second phase: one in two residents polled said community concerns were taken into account (see Sajid, 2016).

The case also raises the question of whether there is a role for the regulator to undertake consultation and understand community concerns. The regulator could be a neutral independent party as compared with a proponent that has a vested interest in the process/project. For example, the regulator should ensure that it understands key aspects of the community context, including, for example, ensuring that the timeline for hearings not conflict with peak stakeholder/public activities (in this case, farmers’ harvest season.)

³ Also raised in *Burnaby v. Trans Mountain Expansion* decision.

Sources

Bankes, N. (2015). Landowners Can't Use the Surface Rights Board to Mount a Collateral Attack on the Approval of a Transmission Line. ABlawg.ca. <https://ablawg.ca/2015/06/12/landowners-cant-use-the-surface-rights-board-to-mount-a-collateral-attack-on-the-approval-of-a-transmission-line/> (accessed 14 March 2024)

Gosselin, P., Hrudehy, S. E., Naeth, M. A., Plourde, A., Therrien, R., Van Der Kraak, G., & Xu, Z. (2010). Environmental and Health Impacts of Canada's Oil Sands Industry. Ottawa, ON: Royal Society of Canada Expert panel report. <https://rsc-src.ca/en/environmental-and-health-impacts-canadas-oil-sands-industry> (accessed 14 March 2024)

Ross, A. Marion, M. Salmon, K.A., Williams, R. and Poppel L. (2016). Canada: 2015 Year in Review: Top 10 Regulatory Decisions of Import to the Canadian Energy Industry. 15 January 2016. Borden Ladner Gervais. <https://www.mondaq.com/canada/utilities/458690/2015-year-in-review-top-10-regulatory-decisions-of-import-to-the-canadian-energy-industry> (accessed 14 March 2024)

Sajid, S. (2016). A Matter of Trust, The Role of Communitiies in Energy Decision-Making. Western Alberta Transmission Line: Case Study Eckville and Rimbey, Alberta. Canada West Foundation and Positive Energy. https://www.uottawa.ca/research-innovation/sites/g/files/bhrskd326/files/2022-08/mattertrust_casestudy_eckville_24nov2016.pdf (accessed 14 March 2024)

Wuskwatim Generating Station, Manitoba¹

This profile considers the Nisichawayasihk Cree Nation (NCN) and Manitoba Hydro Wuskwatim Generating Station project. It is owned by the Wuskwatim Power Limited Partnership (WPLP), a legal entity involving NCN and Manitoba Hydro. Manitoba Hydro operates the station on behalf of the WPLP.

The NCN is based in Nelson House, Manitoba, 80 kilometres west of Thompson. About 4,600 members of the NCN live in Nelson House, South Indian Lake, Leaf Rapids, Thompson, Brandon and Winnipeg.

The Wuskwatim project was the first time a utility company and an Indigenous nation entered into a formal partnership to develop and operate a major generating station. The project components include a 200 MW run-of-river generating station and dam on the Burntwood River at Taskinigup Falls, transmission lines to the provincial power grid, and an access road.

Construction of the generating station ran from 2006 to late 2012 at a cost of \$1.3 billion. The \$300-million transmission line is a separate cost item.

Historical Context

In the 1970s, Manitoba Hydro constructed the Churchill River Diversion, which had a great impact on the NCN, because it led to increased flooding. This affected hunting, fishing, trapping, and sacred sites. Manitoba Hydro and the government took few steps to consult with the community before constructing the site.

In 1996, Manitoba, the Government of Canada and Manitoba Hydro began discussions that culminated in the Northern Flood Implementation Agreement (2001). A key feature of this agreement is the process for future development. When Manitoba Hydro wants to build new projects that will affect the community, it must reach compensation arrangements with the NCN before it can proceed.

Regulatory Summary

Initially, Manitoba's Public Utilities Board (PUB), the economic regulator, was responsible for the public review process with respect to the 'justification, need for the project, and alternatives to the proposed projects'. There was a procedural delay because the PUB needs assessment was suspended while the project review was changed from PUB alone to an environmental assessment under Manitoba's Clean Environment Commission (CEC). Two PUB members continued as members of the CEC panel. Within the CEC, co-operative environmental assessment occurred between the federal government and the Government of Manitoba.

2. Project Timeline Summary

See Table 1.

3. Timeline Detail

Public Identification and Pre-consultation

1996-2001

Between Manitoba, Canada, Manitoba Hydro and Nisichawayasihk Cree Nation. Negotiation, and development of the project under the 1996 Northern Flood Implementation Agreement (NFIA).

Under the NFIA, NCN input was critical for the design and planning phase of the Wuskwatim project. For example, the NFIA detailed Manitoba Hydro's obligation to consult and compensate the NCN. The scope of the project was reduced from a proposed 350 MW plant to 200 MW plant that would result in minimal flooding. This ultimately led to NCN support and agreement to proceed with the project.

¹ The narrative and timeline below substantially follow the account that S. Sajid (2016) prepared for Positive Energy in a collaborative research study undertaken with the Canada West Foundation.

Table 1 – Project Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	1996-2012 16 years	100%		
1. Public Identification and Pre-consultation	1996-2001 5 years	31%	Fed/prov/FN negotiation and resolution for flood implementation agreement	Underlying support for the potential for the project
2. Regulatory Submission and Review	2000-2004 4 years	25%	Begins with needs assessment through PUB (2000); Suspended (2003) and transitioned to joint PUB/Clean Environment Commission panel	Community had continuous right to veto project under the Project Development Agreement in Principle (2001)
3. Regulatory Decision	2004 <1 year	6%	CEC hearings and recommendation	Decision completed with community approval / agreement
4. Investment Related	2001 2006 2009-2011	68%	PDA in Principle PDA formal agreement Revised supplementary agreement	Government and MB Hydro willing to renegotiate
5. Construction	2006-2012 6 years	37.5%	Cost increase of 62% – \$800M to \$1.3B.	
6. In Service and Monitoring	2012			Continuous consultation through monitoring and evaluation

Regulatory Submission and Review

Traditional knowledge was combined with scientific knowledge during the environmental assessment studies, and, in an important procedural innovation at the time, MB Hydro and the NCN undertook a joint environmental impact study, rather than separate studies.

The regulatory submission and approval process resulted in the parties reaching a Project Development Agreement (PDA), the details of which are provided below under the 'Investment related' portion of this timeline.

2000

Environmental impact statement (EIS) submitted to the PUB; included needs assessment.

2003

PUB began public review process with respect to the 'justification, need for the projects, and alternatives to the proposed projects.'

PUB needs assessment process merged into Manitoba's Clean Environment Commission process, with two PUB members on the panel.

NCN's participation was co-ordinated through its Future Development Team that considered economic benefits to the NCN through jobs, training and business opportunities during construction, and long-term benefits through sustainable income from the sale of the power.

2004

Co-operative environmental assessment between the federal government and the Government of Manitoba. The largest unresolved policy issues that were brought up in regulatory hearings concerned climate change and the rights of Indigenous Peoples.

CEC hearings: 32 hearing days over four months ending in June. Even though Manitoba Hydro and the NCN pride themselves on the consultation and engagement process they undertook with the Wuskwatim project, components of the regulatory hearing and consultation process were found to be lacking by some (see Sajid, 2016):

- Accessibility to the hearings (location and travel costs) was noted as a barrier to the ability of community members to participate in the regulatory process. While a couple of hearings were held in Thompson and The Pas, most took place in Winnipeg.
- Additional issues included NCN understanding of technical and legal terms, rules and procedures.
- There was also confusion about overlap between the EA process and the consultation under Section 35 of the Constitution over the consideration of impacts on Indigenous and Treaty rights.

The Federal Department of Fisheries and Oceans (DFO) completed a study of the generation project; submitted to Minister of the Environment and to the Canadian Environmental Assessment Agency, concluding that the project was 'not likely to cause significant adverse environmental effects'.

Regulatory Decision

CEC issued a report of its recommendation to approve the project to the Manitoba Minister of Conservation in October.

Investment Related

The project was forecast to cost \$800 million (actual costs reached \$1.3 billion).

2001

Project Development Agreement (PDA) in principle signed between NCN and Manitoba Hydro that would provide an equity partnership in the project if the NCN elected to exercise that option.

The project had a community-based veto process. The first vote took place when the PDA in principle was drafted. The outcome was in favour of the NCN negotiating an agreement with Manitoba Hydro.

2006

PDA was completed. NCN would purchase a 33 per cent share in the project.

The NCN Council conducted consultations with the community. A second NCN community vote took place. NCN Members voted to ratify the PDA (62 per cent in favour).

2009

A PDA review involved several rounds of consultations with NCN members and resulted in a supplementary agreement which included additional investment options and clarification of the nature of operational jobs on the project (there was criticism about the employment of non-NCN members).

Under the second PDA, NCN committed to invest \$22 million in the project (with a continued option of owning up to 33 percent), with support from a federal government grant for \$4 million and a \$10 million loan from Manitoba Hydro.

The Wuskwatim Transmission facilities used for connecting Wuskwatim to Manitoba's power grid was established and was wholly owned by Manitoba Hydro.

Construction

2006-2012

Manitoba Hydro was contractually responsible for construction and for ongoing management, operation and maintenance of the Wuskwatim Generating Station for WPLP.

The WPLP set up a Monitoring Advisory Committee to review matters related to the station's environmental, social and economic impacts compared with baseline conditions prior to construction.

In Service and Monitoring

2012

Manitoba Hydro provided ongoing management and operations services to WPLP in accordance with the PDA signed in June 2006.

There was also ongoing engagement with NCN through the WPLP Monitoring Advisory Committee.

4. Key Issues Raised by This Profile

Regulatory – FPT Interactions (in this case, also including the NCN)

Governments and Manitoba Hydro were committed to doing better with this project than Manitoba Hydro legacy hydroelectric dam projects. The Northern Flood Implementation Agreement supported the specific Wuskwatim project proposal.

The project was assessed under a joint environmental assessment process.

Regulatory – Engagement

The weaving of traditional knowledge, traditional ways and western science was evident throughout the planning and implementation process, notably through the joint environmental impact assessment.

The NCN remain involved as members of the WPLP Monitoring Advisory.

Economic – Engineering, Procurement and Construction (EPC)

This Profile raises the issue of cost increases, from an estimate of \$800 million to an actual cost reaching \$1.3 billion (the reasons for this could not be determined given the scope of the Profile).

Economic – Partnership Agreement

The PDA was integral to project development. The NCN had veto power at critical stages in project development; voting resulted in support for the agreement three times: once for the PDA in principle; then for specific schedules in the PDA regarding financial considerations and employment; and last, with revisions to the PDA to better reflect conditions as the project proceeded.

Social acceptance was demonstrated by the votes on the PDA. However, NCN support for the project was not unanimous. While the PDA was approved multiple times, some saw the project as a risk and had ongoing environmental and social concerns.

Nevertheless, the PDA describes the ongoing equity stake in the project; and employment opportunities continue at the site.

5. Discussion

A dominant theme in this Profile is the importance of building and maintaining relationships. This project appears to be a procedural success given the prior legacy of distrust between the government, proponent, and the NCN. It took five years to build the government/proponent/FN relationship during negotiations for the Northern Flood Implementation Agreement. Discussions were necessary to overcome the legacy of overwhelming hurt, anger, skepticism, and distrust after past hydro developments.

It appears that the resulting project specific development agreement (PDA) was then key to the entire endeavour. Once the NFIA was in place, the timeline proceeded without undue delay. Moreover, revisiting the PDA occurred in parallel to the approval/construction steps (Table, Section 2). The case affirms the benefit of taking the time upfront to arrive at an alignment of long-term interests and shared values between the proponent and the community. Indeed, a feature of this case was that the engagement did not stop with the construction of the project (as per the Monitoring Committee).

All of this said, regulatory decision-making (submission and review step) were not perfect. Proceedings were delayed while the PUB process focused on the needs assessment was suspended and then integrated into the full joint panel EA under the Clean Environment Commission. However, the proponent considered that the regulators' public outreach and engagement were exemplary.

While these concerns do not appear to have affected the decision timeline, they could be addressed to improve the process in the future:

- Trust in the regulator was not assured. Participants in the regulatory process felt that while some of the senior NCN representatives trusted the regulator to make a fair decision, a significant portion of the community did not. There was also a feeling that the non-Indigenous population would get their way and that the provincial government was biased toward approving the project.
- Participants in the regulatory process stated that there were ways the regulator could have extended citizen engagement with more pre-hearing meetings for community members to express their concerns and become better informed about the rules and process. They suggested the need for interaction between the regulatory panel members and the community members so that communication is not one way.
- Engagement needs to be face-to-face.
- Traditional knowledge and processes, along with broader treaty and Indigenous rights concerns and issues can be a significant part of a regulatory process.

Sources

Manitoba Hydro (2024). Wuskwatim Generation Station Project. https://www.hydro.mb.ca/regulatory_affairs/projects/wuskwatim/ (accessed 14 March 2024)

Manitoba Ministry of Environment, Climate and Parks (2024). Wuskwatim Generating Station. <https://www.gov.mb.ca/sd/water/water-power/wuskwatim-generating-station/index.html> (accessed 14 March 2024)

Sajid, S. (2016). A Matter of Trust, The Role of Communities in Energy Decision-Making – Wuskwatim Hydroelectric Facility Case Study, Nisichawayasihk Cree Nation, Manitoba. Positive Energy and Canada West Foundation. https://cwf.ca/wp-content/uploads/2016/11/NRP_MatterTrust_CaseStudy_NCN_24NOV2016.pdf (accessed 14 March 2024)

Wuskwatim Power Limited Partnership (2024). Wuskwatim Generating Station. <http://www.wuskwatim.ca/index.html> (accessed 14 March 2024)

Wataynikaneyap Power Transmission Project, Ontario

1. Project Description

The Wataynikaneyap Power Transmission Project comprises 1,800 kilometers of transmission lines and 22 substations across a vast area of northwestern Ontario. The project will replace diesel generators at 17 remote First Nations communities.¹

There are two phases to the project: Phase 1 consists of a 230 kV line, approximately 300 kilometres from Dinorwic to Pickle Lake. Phase 1 was completed in 2022, increasing the load supply and flexibility for one of the components of the Phase 2 of the project. Phase 2 includes two separate subsystems, consisting of 1500 kms of overhead 115kV, 44kV and 25kV transmission lines. One section runs northwards of Pickle Lake (the end-point of Phase 1), while the other subsystem runs north from Red Lake (already connected to the grid). The cost of the project is estimated at CAD 1.95 bn dollars.² All components have been energized, and only four communities are pending grid connection.³

First Nations communities have control and a majority stake in the project. The proponent, Wataynikaneyap Power LP, is a licensed transmission company regulated by the Ontario Energy Board (OEB). The general partner of the proponent is Wataynikaneyap Power General Partnership Inc. (WPGP). WPGP is owned 51 percent by the above-mentioned First Nations through FNLP (First Nation LP) and 49 percent, indirectly, by Fortis Inc.⁴ Hydro One Remote Communities Inc. provides the distribution.⁵

Regulatory Summary

Economic regulation: the government determined that the project was in the public interest (2016), bypassing an OEB assessment on its economic necessity. The OEB established and updated transmission rates for the project (distribution is provided by Hydro One Remote Communities Inc.).

Environmental regulation: Environmental assessment was conducted under the Ontario Environmental Assessment Act. Ontario's Minister of the Environment approved Phase 1. The Minister of Natural Resources and Forestry recommended the approval by the LGIC for Phase 2.

- ¹ The Remote Communities are: Sandy Lake, Poplar Hill, Deer Lake, North Spirit Lake, Kee-Way-Win, Kingfisher, Wawakapewin, Kasabonika Lake, Wunnumin, Wapekeka, Kitchenuhmaykoosib Inninuwug, Bearskin Lake, Muskrat Dam Lake, Sachigo Lake, North Caribou Lake, and Pikangikum. OEB. (2015). "Electricity Transmission Licence ET-2015-0264 2472883 Ontario Limited on behalf of Wataynikaneyap Power LP Valid Until August 31, 2036," <https://www.rds.oeb.ca/CMWebDrawer/Record/785053/File/document> Background – Watay Power (accessed March 14, 2024).
- ² Wataynikaneyap Power LP. 2018), Application Presentation. EB-2018-0190. [Wataynikaneyap Power LP – Application Presentation \(November 2, 2018\) \(oeb.ca\)](https://www.oeb.ca/Wataynikaneyap-Power-LP-Application-Presentation-(November-2-2018)-(oeb.ca)) page 20. The map of the lines, and the progress of construction can be monitored at [Construction Progress \(Public\) \(arcgis.com\)](https://www.wataypower.ca/project/community-connection-schedule) (accessed March 14, 2024); For expected dates of connection for north of Red Lake segment see <https://www.wataypower.ca/project/community-connection-schedule> (accessed March 14, 2024).
- ³ Wataynikaneyap Power, 2024, Deer Lake First Nation Energized by Wataynikaneyap Power. September 16th 2024. (<https://www.wataypower.ca/updates/deer-lake-first-nation-energized-by-wataynikaneyap-power>) Progress of construction can be monitored at this portal: [Construction Progress \(Public\) \(arcgis.com\)](https://www.wataypower.ca/project/community-connection-schedule) (accessed September 20, 2024).
- ⁴ [Opiikapawiiin Services LP](https://www.oslp.ca/Opiikapawiiin-Services-LP) (oslp.ca)
- ⁵ Independent Power Authorities serving six remote communities were transferred to HORCI as part of the project. See : OEB, (2018), Decision and Order 2018-0190. [EB-2018-0190 – Decision | Ontario Energy Board \(oeb.ca\)](https://www.oeb.ca/EB-2018-0190-Decision-Ontario-Energy-Board-(oeb.ca)) (accessed March 14, 2024)

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2012-2024	100%		
1. Public Identification and Pre-consultation	2012-2014	22%	WP identified as a priority in provincial electricity planning.	Extensive federal and provincial financial and other supports.
2. Regulatory Submission and Review	2014-2019	36%	EA process adhered to provincial process.	Regulatory assessment of economic convenience not required.
3. Regulatory Decision	2019 Phase 1 and 2, 10 and 2 months, respectively	<1%	Process concludes with provincial approval of the two phases.	
4. Investment Related	2018-2019		Partnership Agreement outlines all key sources of funding simultaneous to EA.	
5. Construction	2019-2024	40%	Without notable delays, despite COVID-19.	The project moved swiftly after EA to construction and completion.
6. In Service and Monitoring	From 2022			

3. Timeline Details

Public Identification and Pre-consultation

2008

The original Central Corridor Energy Group was given the mandate to pursue the planning and development of an electrical transmission line, owned by First Nations, to connect 10 communities to the provincial electricity grid.⁶

2010

The Long-Term Energy Plan of Ontario pointed to the necessity of a transmission project connecting remote communities in northwestern Ontario.⁷

⁶ Ontario. (2021). Ministry review of the new transmission line to Pickle Lake project environmental assessment. <https://www.ontario.ca/page/ministry-review-new-transmission-line-pickle-lake-project-environmental-assessment> (accessed March 14, 2024).

⁷ Government of Ontario, 2010, Ontario's Long-Term Energy Plan, page 45. https://files.ontario.ca/books/final_mei_ltep_en_acc.pdf (accessed March 14, 2024).

2012

The Ontario Power Authority elaborated the first draft of a Technical Report for the connection of First Nations. The plan intended to “establish the technical and economic viability of connecting remote First Nations to the provincial grid.”⁸ Wataynikaneyap Power prepared a draft of the Terms of Reference (ToR) for an environmental assessment of Phase 1 of the project (From Dryden to Pickle Lake).

Regulatory Submission and Review



2014

November – Amended ToR submitted to the Ontario Minister of Environment and Climate Change.⁹ In accordance with the EA Act of Ontario, submitting the ToR initiates an environmental assessment process.

Phase 2 of the project was also carried out under the EA Act of Ontario, but through three Class EAs consolidated in the same report. Class EAs apply to “projects that are carried out routinely and have predictable environmental effects that can be readily managed”.¹⁰ Portions of Phase 2 were under the purview of the Ministry of the Environment, but the Ministry of Natural Resources and Forestry oversaw the EA process.¹¹

2015

January – the Independent Electricity System Operator (IESO) released the North of Dryden Integrated Regional Resource Plan prefiguring the project.¹²

February – Ministerial approval of the ToR for EA of Phase 1.

April – Start of EA process for Phase 1.¹³

2016

July – Following a decision of the provincial Governor-in-Council (cabinet), pursuant to the OEB Act (section 96.1), the OEB accepted the project as a *priority transmission* project.¹⁴

The government of Ontario directs the OEB to modify the license of WP to *develop and seek approvals* for both phases of the project.¹⁵

November – Through an MOU, the Ontario Ministry of Energy, as an agent of the Crown, delegated the procedural aspects of consultation to Wataynikaneyap Power.¹⁶

-
- 8 Ontario Power Authority for North Western Ontario First Nation Transmission Planning Committee. (2012). Technical Report for the Connection of Remote First Nation Communities in North West Ontario. <https://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/North-of-Dryden/App-1-1-2-2012-Draft-Remote-Community-Connection-Plan.ashx> (accessed March 14, 2024).
- 9 Golder Associates, (2019), Final Amendment to the Amended Environmental Assessment Report for the Phase 1 New Transmission Line to Pickle Lake. Accessed from: [Phase 1 – Watay Power](#) (accessed March 14, 2024).
- 10 Government of Ontario, Class Environmental Assessments : Approved Class EA Information, <https://www.ontario.ca/page/class-environmental-assessments-approved-class-ea-information> (accessed March 14, 2024).
- 11 Government of Ontario, August 16 2019, Order in Council 1118/2019. <https://www.ontario.ca/orders-in-council/oc-11182019>
- 12 IESO. (2015). <https://www.ieso.ca/Sector-Participants/Engagement-Initiatives/Engagements/Regional-Electricity-Planning-Northwest-Ontario> (accessed March 14, 2024)
- 13 “Once the proponent has carried out the EA, including consultation, the EA is submitted to MECP (Ministry of the Environment, Conservation and Parks) for review and a decision”. Ministry Review of the new transmission line to Pickle Lake project environmental assessment (cited above).
- 14 (...) “Pursuant to section 96.1 of the OEB Act, which means that the OEB is required to accept that the construction of the proposed transmission facilities is needed”. OEB, Decision and Order 2018-0190. [EB-2018-0190 – Decision | Ontario Energy Board \(oeb.ca\)](#) (accessed March 14, 2024).
- 15 OEB, Decision and Order 2018-0190. [EB-2018-0190 – Decision | Ontario Energy Board \(oeb.ca\)](#) (accessed March 14, 2024).
- 16 See Government of Ontario, Ministry Review... (cited above), and Wataynikaneyap Phase 2 Final Environmental Study Report: Executive Summary. <https://www.osip.ca/phase-2-blackline-final-esr>. Page ES 4 (Accessed March 14 2024).

2017

November – The proponent submitted the Environmental Assessment Report for the Phase 1.¹⁷

2018

March – Announcement of \$1.55 bn in federal and provincial funding to the project.¹⁸

June – WP applied to the OEB to obtain a Leave to construct (LTC).¹⁹

June and July – Final System Impact Assessment by the IESO on the two phases of the project.²⁰

August – Submission of the Amended Environmental Assessment Report for Phase 1 incorporating information and commitments in response to comments received since 2017.

November – Release for public review of the Final Environmental Study Report (ESR) for Phase 2. Public comments extended until December 2018.

2019

April – OEB approved the LTC and the cost recovery framework.²¹

June – The EA process was completed in June 2019, with the posting of the ESR responding to the comments and amendments resulting from the public consultation (including Indigenous communities) and provincial ministries.²²

Regulatory Decision

2019

June. Ministerial approval (with conditions) of Phase 1.²³

August. Phase 2 is approved by the Lieutenant Governor of Ontario, on recommendation of the Minister of Natural Resources and Forestry.²⁴

Investment Related

2019. October. Finance arrangements complete. The complex structure of financing includes, among other elements:

- \$1.6 bn of federal funds (not a loan), allocated to a trust for construction and operation costs.²⁵
- \$1.34 bn of provincial funds, in the form of a construction loan, and
- \$680m from five Canadian banks.²⁶
- Through Ontario's Aboriginal Loan Guarantee Program, the provincial government guaranteed equity financing of \$200 million.²⁷

17 Government of Ontario, July 08 2019, Notice of Approval – Order in Council 985/2019. <https://www.ontario.ca/page/notice-approval-order-council-9852019> (accessed March 14 2024).

18 The Globe and Mail, First Nations-led energy project lands \$1.6-billion in federal funding. March 23 2018.

19 OEB, Decision and Order 2018-0190. [EB-2018-0190 – Decision | Ontario Energy Board \(oeb.ca\)](https://www.oeb.ca/decision/2018-0190) (accessed March 14, 2024).

20 Wataynikaneyap Power LP. (2018), Application Presentation. <https://www.oeb.ca/sites/default/files/WPLP-Presentation-20181102.pdf> Page 10. (accessed March 14, 2024).

21 Government of Ontario, July 08 2019, Notice of Approval... (cited above).

22 [EMPTY]

23 Government of Ontario. July 08, 2019. Notice of Approval... (cited above).

24 Government of Ontario, August 2, 2019. Order in Council 1118/2019 (cited above).

25 "The federal funding went into an independent trust, where it will either be used for help pay for construction or held in reserve to reduce potential future costs for Ontario ratepayers". The Globe and Mail, October 14th, 2021, "Inside the Indigenous-led power line deal that put 17 First Nations on the grid". By W. Stueck.

26 The Globe and Mail, October 14th, 2021, cited above.

27 Mondaq Business Briefing. Canadian Energy Perspectives. 2 March 2020. "Canadian Power – Key Developments In 2019, Trends To Watch For In 2020: Wataynikaneyap Power Transmission Project.

2021. OEB approved rates for a revenue requirement of 41.5 million dollars for 2022, deriving from a rate base of 418.6 million. Half of these rates will be recovered from all Ontario ratepayers, and the other half from the remote communities.²⁸

Construction

Construction started June 2019.²⁹ Notice to Proceed signed October 29, 2019. Fieldwork was initiated winter 2020. Research for this profile did not find that the proponent identified delays as a result of permitting processes.³⁰

2022

August – The Line to Pickle Lake energized. Phase 1 complete.

2024

September- 12 Communities connected. 4 remaining communities have all the assets in service.³¹ North of Red Lake communities scheduled for 2024 connection: Deer Lake, Keewaywin, North Spirit Lake, Poplar Hill, Sandy Lake First Nations.

4. Key Issues Raised by This Profile

Regulatory – Framework

The Ontario government directed the OEB to *not* require a needs assessment for the project, but the OEB did require the IESO to conduct research on costs and provide input on reliability, quality of service and price.³² The Environmental Assessment step in this project took more than four years, but the process does not seem to have caused a sense of undue delay among the parties involved.

Economic

Extensive public funding was provided to offset the costs of the project and its impact on ratepayers.³³ Part of the rates are distributed across consumers in all of Ontario, and the total ratebase is a fraction of the cost of the project.

28 OEB. (2021). Decision and Order. Wataknikaneyap Power EB-2021-0134 – Application for 2022 Electricity Transmission Rates and Other Charges, <https://www.oeb.ca/sites/default/files/Backgrounder-Wataynikaneyap-Power-20211001-en.pdf> (accessed March 14, 2024).

29 Mondaq Business Briefing. Canadian Energy Perspectives. 2 March 2020.

30 Wataynikaneyap Power LP (2023). Environmental Annual Compliance Report (April 1 2022-March 31, 2023) https://assets-global.website-files.com/58a48de60f46d5e57d3e0a28/6480c71effabaf57cdba3f6e_2023%20Wataynikaneyap%20Environmental%20Annual%20Compliance%20Report_FINAL.pdf

31 Only McDowell Lake First Nation does not have certainty about a future connection. Watay Power LP. Connection Schedule. <https://www.wataypower.ca/project/community-connection-schedule> (accessed September 24 2024).

Government of Ontario, September 12th 2024, News Release: <https://news.ontario.ca/en/release/1005040/ontario-supporting-the-largest-indigenous-led-energy-project-in-provinces-history> (accessed September 24 2024).

32 [Recommended Scope for the new Line to Pickle Lake and Suggested Scope for the Remotes Connection Project \(oeb.ca\)](https://www.oeb.ca/sites/default/files/Backgrounder-Wataynikaneyap-Power-20211001-en.pdf) (accessed March 14, 2024)

33 “The federal funding went into an independent trust, where it will either be used for help pay for construction or held in reserve to reduce potential future costs for Ontario ratepayers”. The Globe and Mail, October 14th, 2021, “Inside the Indigenous-led power line deal that put 17 First Nations on the grid”. By W. Stueck.

5. Discussion

A principal finding of this profile is the importance of Indigenous ownership to seeing a project move successfully from inception to in service. The documents for the EA process (Application for EA, amendments to EA) highlight the extensive engagement and adherence to satisfactory consultations undertaken by the proponent,³⁴ to whom the Duty to Consult had been delegated by the Ministry of Energy.³⁵

Another principal finding is the crucial role of public and private capital investment. Federal subsidies were substantial. And the loan from the Government of Ontario reduced project financing costs because the project was able to attain more favourable access to capital.

In addition, as noted above, the total ratebase represents a fraction (less than a quarter) of the investment in the project and Ontario ratepayers writ large are helping support the project.

³⁴ Wataynikaneyap Power LP. Wataynikaneyap Phase 2 Final Environmental Study Report <https://www.oslp.ca/phase-2-blackline-final-esr> and Wataynikaneyap Power LP, Wataynikaneyap Phase 2 Final Environmental Study Report , <https://www.wataypower.ca/project/phase-1> (accessed March 14, 2024).

³⁵ The Ministry of the Environment, Conservation and Parks in Ontario describes the delegation of the duty to consult: “In the ToR, Wataynikaneyap committed to consulting Indigenous communities within the area surrounding the proposed undertaking during the pre-submission period. First Nation and Métis communities may [have] Aboriginal and/or treaty rights in Ontario that need to be considered in the decision-making process”. Government of Ontario. [Ministry review of the new transmission line to Pickle Lake project environmental assessment | ontario.ca](#) (accessed March 14, 2024)

Muskrat Falls Hydroelectric Generating Station, Newfoundland and Labradorⁱ

1. Project Description

Muskrat Falls (MF) is an 824 MW power generation dam at Muskrat Falls on the Churchill River, in Newfoundland and Labrador (NL). Proposed in 2005, project construction was completed in 2021 and the station was commissioned in 2023. A plan for a second, larger (2 GW) dam at Gull Island did not proceed past the identification stage. The proponent was Nalcor Energy, a Crown corporation of the provincial government, which has since been incorporated as Newfoundland and Labrador Hydro.

A number of transmission projects were linked to Muskrat Falls: two transmission lines within the province and an interprovincial subsea line supplying electricity to Nova Scotia (the Maritime Link) (for the latter project, see profile in this Appendix).

The original project cost of Muskrat Falls was estimated at \$6 bn (plus \$1.2 bn for financing), but by 2021, this had increased to twice that amount.ⁱⁱ The project also suffered delays. At the core of delays and overruns were geotechnical complications experienced after initial excavation. However, the miscalculation highlights a governance issue that affected the project's early stages.

The overruns and delays led to tremendous controversy in the province over the project and a vast federal rescue package was necessary to salvage it. Prior to completion, NL created a Commission of Inquiry to investigate the causes of the cost overruns and delays.

Regulatory Summary

Economic Regulation: The provincial government exempted the project from an economic convenience assessment, normally completed by the provincial Public Utilities Board (PUB).

Environmental Assessment: A federal/provincial Joint Review Panel (JRP) assessed the project under the Canadian Environmental Assessment Act (CEAA 1995).

Consultation with Indigenous Communities under CEAA 1995, was completed by the JRP.

A variety of construction permits were required to complete the project, with federal / provincial cooperation where applicable.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2006-2023 17 yrs	100%		
1. Public Identification and Pre-consultation	2006-2008	10%		
2. Regulatory Submission and Review	2010-2011	19%	The EA identified gaps in the information required to justify the project as a long-term supply alternative.. The Commission of Inquiry identified some inconformities voiced by Indigenous communities and questioned the fairness of consultation.	No significant effect on delays and cost overruns.
3. Regulatory Decision	2012	9%	The inquiry pointed to a strong predisposition by the provincial government to support the project with unrealistic assumptions about its risks, costs and benefits.	Budget and time overruns
4. Investment Related	2012			
5. Construction	2013-2021	49%	Geotechnical and contractual challenges owing mainly to poor assessment of risks and costs. ⁱⁱⁱ	The overruns of Muskrat Falls have led to skepticism about electricity integration projects in the region (e.g., Atlantic Loop).
6. In Service and Monitoring	2023	14%	The operation was on hold due to problems with the Labrador Island Link transmission project.	

3. Timeline Details

Public Identification and Pre-consultation

2004. The NL provincial government and Labrador Hydro undertake a redefinition of the province's strategy to develop its energy resources. The development of electricity generation in Gull Island and Muskrat Falls is an essential component of the plan.

2005. Consultation with stakeholders and Indigenous communities for both Gull Island and MF begins.

2006. December. NL Hydro registers the description of the project (two components: Gull Island and Muskrat Falls) with federal and provincial regulators.^{iv}

2007. NL government releases an Energy Plan announcing the creation of a Crown Corporation to develop the energy potential of the Lower Churchill River. Through its subsidiaries, the new corporation would be exempted from regulatory oversight.^v Since 2000, the government had exempted the development of Lower Churchill generation assets from oversight of the provincial economic regulator, the Public Utilities Board (PUB).^{vi}

February. Transport Canada and Fisheries and Oceans Canada determine that an assessment is required under the CEAA (1992). The GNL and Canada agree to conduct an environmental assessment through a Joint Review Panel with the mentioned federal agencies as responsible for the assessment.^{vii}

2008. The provincial government established Nalcor Energy as a new Crown corporation (Nalcor).

2010. Quebec rejects a transmission project for the original hydropower project at Gull Island (2GW). Muskrat Falls (800 MW) remains the only feasible option, with surplus electricity exports to be sent to Nova Scotia via a subsea line. Muskrat Falls enjoys the political attractiveness of circumventing Quebec – labeled a *stranglehold* – by policymakers who see the project with a sense of local pride.^{viii}

Regulatory Submission and Review

2008. July. Final EIS Guidelines Issued after a process of consultation.^{ix} The EA process commences.

2009. January. JRP Established.^x

2010-2011. A federal/provincial Joint Review Panel conducts the EA for Muskrat Falls. First Nations dispute the adequacy of consultations before and during the process.^{xi}

August 2011. The JRP releases the EA Report. The report identifies significant adverse environmental and cultural effects, but also points at the benefits of the project. Importantly, the report signals gaps of information with the potential to reveal the best alternatives for power generation. The JRP specifically recommends using Integrated Resource Planning.^{xii}

Regulatory Decision

2012. March (15th) Following the report from the JRP, the federal and provincial governments approve the project.^{xiii}

March (30th). Public attention and concern about the economic convenience of the project increases in the months before financial sanction. In two trampled reviews carried out by the PUB, Nalcor fails to give enough information to determine the economic convenience of the project. The PUB reports that the information and restricted scope of the review does not allow reaching any conclusions.^{xiv}

October. MHI, an independent consultant retained by the GNL, releases a report looking at the assessment of risks in the project as financial sanction was under consideration. The Commission of Inquiry finds that Nalcor managed to limit the scope and the information giving basis to the report, for instance, by excluding an entire category of risks.^{xv}

April. The GNL passes legislation that exempts Muskrat Falls from Public Utilities Board oversight, and “allows GNL to direct the PUB to include the costs of the Muskrat Falls Project in NL Hydro’s regulated rates”.

Investment Related

2012. December. Muskrat Falls receives financial sanction from the GNL marking the start of the execution phase.^{xvi}

2017. The provincial government establishes a Commission of Inquiry to identify the causes and make recommendations about the cost overruns and other issues. The Commission’s report, released in 2020, documented the failure of Nalcor and the GNL to adequately plan the development of energy resources. The report identified flaws in the roles and responsibilities of the proponent (as determined by the provincial government), leading to an underestimation of risks and costs. The Commission also admonished the government for exempting the project from a PUB assessment of the costs and risks of the project.^{xvii}

2021. Given the cost over-runs, the federal government agrees to provide a CAD 2 bn loan guarantee to the project and to transfer \$3.2 bn in oil royalties to the province.^{xviii}

Construction

2013. Construction begins. Unforeseen complications in the construction of transmission of the Labrador Island Link become one of the largest contributors to cost overruns. The Commission of Inquiry points out that the information available at the time of sanctioning of the project was extremely limited.^{xix} In addition to these complications, other overruns are attributable to contracts awarded in excess of budget and settlement agreements.^{xx} Strains in relationships between the proponent and contractors aggravate overruns and delays.^{xxi}

2021 Muskrat Falls generation facility construction is complete. Electricity supply to Nova Scotia cannot start, due to operational complications with the Labrador-Island Link that carries power to Newfoundland (and then connects to the Maritime Link).

2023. April. Complications with the operation of the Labrador-Island Link push the start of supply to Nova Scotia to April 2023.^{xxii} The project goes on stream, through the LIL interconnection.^{xxiii} Technical problems have continued to affect the project.^{xxiv}

4. Key Issues Raised by This Profile

Political

The Commission of Inquiry noted that the project was affected by optimism bias (psychological underestimation of costs and risks) and political bias (also referred to as *strategic misrepresentation*, driven by ownership and interest in a specific course of action) on the part of Nalcor and the provincial government.^{xxv}

The Commission of Inquiry states that “Nalcor and GNL never seriously considered any option other than the project”.^{xxvi}

Regulatory – Cabinet Decision

The project had been exempted from economic regulatory oversight since 2000. The Commission of Inquiry noted that there was inadequate assessment of the viable generation options (for example, contracting blocks from Churchill Falls, building new natural gas-powered generation, or importing power from Quebec, among others). Against the advice of the JRP, Nalcor did not develop an integrated resource plan (IRP), noting that Muskrat Falls was being developed – and hence, negating the pertinence of evaluating other options.^{xxvii}

Economic

The Commission of Inquiry identified a number of governance failures that negatively affected the project.

The cost overruns have created skepticism in some quarters about the cost of large electricity projects (e.g., the Atlantic Loop).

5. Discussion

Cost and schedule overruns are the norm and not the exception in megaprojects. In this case, politics appears to have overridden many principles and procedures. Observing the proponent and the provincial government, the Commission of Inquiry pointed to a pattern of organizational behavior that underestimates risks and costs (*psychological bias*) and that pursued a specific course of action (*political bias*).

Regulatory agencies exist partly to buffer political pressure that could otherwise lead to suboptimal results for consumers and public finances. For Muskrat Falls, however, the Commission found that the province bypassed regulatory oversight and methods that could have revealed the project’s true economic implications. While some cost and schedule overruns were unavoidable, the Commission’s report revealed a failure to plan for contingencies and establish realistic initial budgets. Finally, a regional observation is in order. The Maritime Link component was completed on time and within budget. However, Muskrat Falls delays have impacted energy decision-making in Nova Scotia. Due to delays in both Muskrat Falls and the Labrador Island Link, Nova Scotia Power has incurred extra costs from federal carbon pricing non-compliance and fuel purchases to compensate for missing Muskrat Falls electricity.^{xxviii}

Notes

- i Except for other sources listed below, this profile is based on the Muskrat Falls Commission of Inquiry Report, issued in 2020: Richard D. LeBlanc, (2020), Commission of Inquiry Respecting the Muskrat Falls Project, Volume 1 – Executive Summary, Key Findings and Recommendations. Accessed From: <https://www.muskratfallsinquiry.ca/final-report/>. Some specific pages have been indicated for ease of reference.
- ii Commission of Inquiry Report, Volume 1. Page 15. [\\$5.2B deal reached between feds, N.L. government to stave off skyrocketing power bills | CBC News](#)
- iii Summarized in Volume 1, page 30 and subsequent.
- iv The application includes the Gull Island Component. Commission of Inquiry, Volume 1, Page 43. And <https://www.muskratfallsinquiry.ca/files/P-00005.pdf>, page 3.
- v Volume 1. Page 4.
- vi Commission of Inquiry Report, Volume 1. Page 6.
- vii Joint Review Panel, 2011, Report of the Joint Review Panel, page 1. Accessed on November 18 2024 from <https://www.gov.nl.ca/ecc/files/env-assessment-projects-y2010-1305-lower-churchill-panel-report.pdf>
- viii “Newfoundland power curse was born from a thirst for revenge”. The Globe and Mail. July 29, 2021. By K. Yakabuski.
- ix Government of NL, 2024, Lower Churchill River Hydroelectric Generation Project – Newfoundland and Labrador Hydro, accessed from <https://www.gov.nl.ca/ecc/projects/project-1305/> The guidelines are available at <https://www.gov.nl.ca/ecc/files/env-assessment-projects-y2010-1305-lower-churchill-final-guidelines-en.pdf>
- x The agreement is accessible at: <https://www.gov.nl.ca/ecc/files/env-assessment-projects-y2010-1305-lower-churchill-joint-review-panel-agreement.pdf>
- xi Commission of Inquiry Report. Volume 1, page 39.
- xii Joint Review Panel, 2011, cited above Recommendation 4.3.
- xiii https://iaac-aeic.gc.ca/archives/evaluations/26178/details-eng_pid=26178.html and <https://www.releases.gov.nl.ca/releases//2012/nr/0315n02.htm>
- xiv Commission of Inquiry Report, Volume 1, page 19. After considering options for a broad scope review of the project by an independent consultant, the GNL decided on referring a narrow question to the provincial regulator. Rather than examining the array of possibilities for supply, the Reference Question asked the PUB to determine whether the project was a least cost option as compared to other compatible hydroelectricity pathways. Nalcor did not provide timely and sufficient information for the PUB to fulfil the terms of the request. (The Board of Commissioners of Public Utilities’ report to the government can be found at: https://www.gov.nl.ca/lowerchurchillproject/muskrat_falls_pub_final_report.pdf)
- xv Costs and risks fell into four categories: base cost estimate, contingency levels, management reserve, and escalation allowance. In the express and repeated view of the Commission of Inquiry, all of them were knowingly understated, leading to unreasonable schedules and estimations of cost. (See page 53 of the Volume 1, for a summary).
- xvi Commission of Inquiry Report, Volume 1, Page 88. <https://www.muskratfallsinquiry.ca/files/P-00005.pdf>
- xvii Commission of Inquiry Report. Volume 1. Pages 67 and subsequent.
- xviii The Globe and Mail, July 30 2021, “Muskrat Falls is Newfoundland’s biggest financial disaster. Justin Trudeau just put it on your tab”, Editorial Board. <https://www.theglobeandmail.com/opinion/editorials/article-muskrat-falls-is-newfoundlands-biggest-financial-disaster-justin/>
- xix Commission of Inquiry Report. Volume 3. Page 197.
- xx Commission of Inquiry Report, Volume 3, page 190.
- xxi Commission of Inquiry Report. Volume 1.
- xxii <https://www.theglobeandmail.com/business/article-muskrat-falls-hydroelectric-project-considered-commissioned-ceo-says/>
- xxiii The Globe and Mail, April 12, 2023, “Muskrat Falls hydroelectric power considered commissioned, CEO says”.
- xxiv <https://www.cbc.ca/news/canada/newfoundland-labrador/muskrat-falls-transmission-fix-new-equipment-1.6908866>
- xxv Commission of Inquiry Report. Executive Summary. Page 17.
- xxvi Volume 1, page 6.

xxvii Commission of Inquiry Report. Executive Summary. Page 12 and 13.

xxviii CBC News. January 10, 2022, "Undelivered Muskrat Falls hydro has cost NS Power ratepayers \$205 M since 2018".

Maritime Link Project (Interprovincial)

1. Project Description

The Maritime Link is a high-voltage transmission project of DC and AC lines (500 MW; +/- 200 to 250 kv) between Newfoundland and Nova Scotia. The link brings power generated in the Muskrat Falls dam in Labrador (800 MW) to Nova Scotia. The proponent, Nova Scotia Power Maritime Link, is a wholly owned subsidiary of Emera Newfoundland & Labrador Holdings Inc., a subsidiary of Nova Scotia Power, the provincial electricity utility.

The project was budgeted at \$2.1 bn and includes 180 km of subsea lines and 98 km of overhead lines in Newfoundland and Labrador (NL).ⁱ Emera, the subsidiary of NS Power, also owns 29 percent of the 900MW, 1,100 km Labrador Island Transmission Link, connecting Muskrat Fallsⁱⁱ (located in Labrador) to the island of Newfoundland.ⁱⁱⁱ

The Maritime Link was conceived to take 20 percent of the capacity of Muskrat Falls (the so-called “Nova Scotia Block”). The NS Block started flowing from Muskrat Falls over the Maritime Link to NS in August 2021. In contrast to Muskrat Falls, which was commissioned in 2023, the Maritime Link was completed in 2018, on schedule and on budget.^{iv}

Regulatory Summary

Environmental Assessment: federal (Canadian Environmental Assessment Agency) and provincial authorities (Newfoundland and Labrador Department of Environment and Conservation and the Environmental Assessment Branch of Nova Scotia Environment) undertook the assessment. The EA Certificate was issued with conditions on June 21, 2013.

The economic review was completed in late 2013, when the Nova Scotia Utility and Review Board (NSUARB) approved the project as the least-cost alternative to deliver renewable energy to the province.^v

2. Timeline Summary

(MF-Muskrat Falls/ML-Maritime Link)

Step	# Years to Date	% of Total Time ^{vi}	Main Issues	Key Effects
Overall Timeline	2010-2024	100		
1. Public Identification and Pre-consultation	2010 <1 year	10%	Project announced in tandem with MF	ML is tied materially and financially to MF.
2. Regulatory Submission and Review	2012 ~1 year	7%		
3. Regulatory Decision	2013 0.5 year	<3%		
4. Investment Related	2011-2012 1 year	11%	The project was sanctioned before the environmental assessment concluded.	
5. Construction	2014-2017 4 years	25%	Construction was executed on schedule and budget.	
6. In Service and Monitoring	2023	44%	Delayed due to delays at MF and a separate transmission link	Service delayed until generation and transmission completed in NL.

3. Timeline Detail

2009. Nova Scotia passes legislation with a long-term plan to cap the emissions of its energy system.^{vii}

Public Identification and Pre-consultation

2010. November. Announcement of the Muskrat Falls project and the Maritime Link project, the latter to be constructed by Emera NL, a subsidiary of Emera.^{viii} Emera agreed to pay for the Maritime Link in exchange for a contracted amount of electricity from Muskrat Falls – the NS Block – for around 20 percent of NS's demand (890 GWh per year).^{ix} At the end of the 35-year period of transfer of the NS Block, property of the Maritime Link, will be transferred to the provincial electricity utility in NL that owns Muskrat Falls.^x

2011. Start of consultation and engagement for Maritime Link.^{xi}

Regulatory Submission and Review

2012. February. Beginning of environmental assessment undertaken by the Canadian Environmental Assessment Agency and provincial authorities.^{xii}

2013. January. Submission of NL's Environmental Assessment Report.^{xiii}

Regulatory Decision

2013. June. Environmental Assessment Approval issued by provinces of NS and NL and federal government. Note that the investment decision preceded the environmental approval, likely because the transmission is concomitant to the generation component at Muskrat Falls.

Investment Related

2012. December. Muskrat Falls and Maritime Link receive financial sanction.^{xiv} The Maritime Link was facilitated by a loan guarantee from the federal government, finalized in 2013.^{xv} The loan guarantee reduced the financing costs of the project by \$325 million.^{xvi}

Construction

2014. Construction begins in November.^{xvii}

2015. Spring. The proponent signs an agreement with the Mi'kmaq Chiefs of NS. The agreement is based on the consultations within the EA process and contains provisions for environmental monitoring programs and building skills for the community to work with contractors on the project.^{xviii}

2017. December. Maritime Link complete and commissioned.^{xix}

In Service and Monitoring

2021. August. Maritime Link commences deliveries, but only to a limited extent given technical constraints in the generation and transmission components in NL. Despite ad hoc mitigation arrangements, ratepayers in NS faced extra costs for amortization of the link (partially unused) and the purchase of fuels for generation inside NS (estimated at \$205 million).^{xx}

2023. April. Muskrat Falls commissioned. Despite technical problems with MF and the link between MF and NL, by the end of 2023 NS had received more than 100 percent of the yearly contractual obligations associated with the NS Block.^{xxi}

4. Key Issues Raised by This Profile

Economic – Partnership Agreements

The Maritime Link project, in its own standing, was executed on schedule and on budget. However, the Muskrat Falls time and cost overruns and complications with the transmission link between Labrador and the Island of Newfoundland led to excess expenditures by Nova Scotia on energy. Nova Scotia expected to substitute imported renewable electricity for coal-generated power. However, for approximately five years until Muskrat Falls was on stream, NS ratepayers had to shoulder – in addition to the amortization of the Maritime Link – maintaining generation that the province had planned to be phased out.

5. Discussion

Nova Scotia has turned to hydropower to attain its goal of phasing out coal-fired power generation and meeting its legislated greenhouse gas emissions reductions targets. Deliveries from the NS Block has been exceeding yearly expected amounts. However, the unanticipated costs to NS arising from generation and transmission delays created upward pressure on electricity rates and generated skepticism about interprovincial energy integration.

The uncertainty of transmission costs, along with the complex challenges of integrating markets and systems across provinces, can be a barrier to building cross-border electricity infrastructure that fosters emissions reductions.^{xxii} By the fall 2023, concerned about affordability, the Nova Scotia government abandoned the Atlantic Loop, a proposed project to extend the Maritime Link to bring power from Quebec to NS and New Brunswick.^{xxiii} The province's new clean power plan will instead focus on wind and solar projects in the province.^{xxiv}

Notes

- i CEAA, 2023, Maritime Link Transmission Project. (Emera, the subsidiary of NS Power, also owns 29 percent of the 900MW, 1,100 km Labrador Island Transmission Link, connecting Muskrat Falls to Newfoundland).
- ii See separate profile for this generation project.
- iii CEAA, 2023, Maritime Link (cited above)
- iv The Globe and Mail, April 12, 2023, “Muskrat Falls hydroelectric power considered commissioned, CEO says”. Muskrat Falls started supplying power only in 2022, due to delays in the generation components, and to synchronization failures in the transmission link between the generation dam and Newfoundland (the Labrador-Island Link).
- v Contify Energy News. (2013) November 23, 2013. NS UARB Gives Final Approval to Emera’s Maritime Link Project. Accessed via Factiva.
- vi 147 months from project identification through in-service.
- vii <https://www.novascotia.ca/just/regulations/regs/envgreenhouse.htm>
- viii Emera is a corporation headquartered in NS. Emera also owns Nova Scotia Power, the provincial vertically integrated utility. Emera NL (2016). Maritime Link. Project Overview. Accessed from: https://www.emeranal.com/docs/librariesprovider13/maritime-link-documents/01242014ml-overview.pdf?sfvrsn=91526a49_2
- ix CBC News, February 5th 2023, “The NS Block for 890 GWh and a Supplemental Block of 240 GWh for the first five years of the project. N.L. Hydro is now meeting its obligation to Nova Scotia Power. But what about N.L.?” accessed on May 7th 2024, from <https://www.cbc.ca/news/canada/newfoundland-labrador/muskrat-falls-hydro-larry-hughes-1.6734535> The Canadian Press, January 10th 2022. Nova Scotia utility paid \$205 million for replacement fuel after Muskrat Falls delays. Accessed via Factiva on May 7th 2024.
- x NSUARB, 2023, December 23, Decision 231. Page 7. <https://nsuarb.novascotia.ca/sites/default/files/NSUARB%20Board%20Decision%20-%20NSP%20Maritime%20Link%20Incorporated%20%28M11285%29.pdf>.
- xi Emera NL, 2013, Maritime Link EA Report. https://www.emeranal.com/docs/librariesprovider13/maritime-link-documents/environmental-review/1_enl_es_toc.pdf?sfvrsn=7b623690_2 Page 3.

- xii CEAA (2012), Notice of Commencement of an Environmental Assessment, accessed on April 29 2024 from <https://ceaa-acee.gc.ca/050/evaluations/document/80070?culture=en-CA>. In the Notice of Commencement, the CEAA states (February 2012) that Natural Resources Canada, Fisheries and Oceans Canada and Public Works and Government Services Canada are participating in the screening of the project, as they may have to undertake an assessment. (The coordination is also based on the federal financial assistance). For the provinces, the leading agencies were the Newfoundland and Labrador Department of Environment and Conservation (NLDEC) and the Environmental Assessment Branch of Nova Scotia Environment.
- xiii Newfoundland and Labrador, Environment and Climate Change, Summary of the EA Process, <https://www.gov.nl.ca/ecc/projects/project-1618/>
- xiv Emera NL (2016). Maritime Link. Project Overview. https://www.emeranal.com/docs/librariesprovider13/maritime-link-documents/01242014ml-overview.pdf?sfvrsn=91526a49_2
- xv CQ FD Disclosure, (2013) February 8th 2013, Q4 2012 EMERA INC Earnings Conference Call – Final and Emera (2016), Project Overview. Cited above. Accessed from Factiva.
- xvi Global Data Point (April 24th, 2014). Emera finalizes financing for Maritime Link. Accessed from Factiva.
- xvii Emera, 2014, Maritime Link Benefits Agreement Creates Local Economic and Employment Opportunities <https://investors.emera.com/news/news-details/2014/Maritime-Link-Benefits-Agreement-Creates-Local-Economic-and-Employment-Opportunities/default.aspx>
- xviii Emera (2015). April 9th 2015. Nova Scotia Mi'kmaq and NSPML finalize a Socio-Economic Agreement for the Maritime Link Project. Accessed on May 6, 2024 from <https://www.emeranal.com/information-news/news/2015/04/09/nova-scotia-mi-kmaq-and-nspml-finalize-a-socio-economic-agreement-for-the-maritime-link-project>
- xix History Made with First Successful Energy Exchange across Emera's Maritime Link. <https://investors.emera.com/news/news-details/2017/History-Made-with-First-Successful-Energy-Exchange-across-Emeras-Maritime-Link/default.aspx>
- xx The Canadian Press, January 10th 2022. Nova Scotia utility paid \$205 million for replacement fuel after Muskrat Falls delays. Accessed via Factiva on May 7th 2024. And, verbatim, from the NS Utilities and Review Board (2023) Decision 2023 NSUARB 1. February 2nd, 2023. 'NS Power's customers are, in effect, paying for the delivery of the NS Block energy but not receiving the energy in the timeframe contemplated. As such, NS Power must generate or procure other energy to replace the missing NS Block energy. (...) To the extent that current customers are paying for NS Block energy that will be delivered later, this can create a timing mismatch between the cost that is being paid and the benefit that is being produced. This can create unfairness in the costs paid by customers in different time periods, giving rise to so-called "intergenerational equity" concerns. These concerns arise from the delayed delivery of the NS Block even if NS Power is made whole by future deliveries.' (page 65).
- xxi VIQ FD Disclosure, February 26th, 2024. Q4 2023 Emera Inc Earnings Call – Final. Accessed via Factiva, on May 7th 2024.
- xxii The Globe and Mail, October 16, 2023, "Feds, two Atlantic premiers agree to 'modified' Atlantic Loop project" <https://www.theglobeandmail.com/canada/article-feds-two-atlantic-premiers-agree-to-modified-atlantic-loop-project/>; The Globe and Mail. February 3rd, 2023. "NS regulator defies province with large utility-rate hike".
- xxiii The Globe and Mail, October 23 2023, "The same forces that killed the Atlantic Loop may stymie other major transmission projects" <https://www.theglobeandmail.com/business/article-nova-scotia-atlantic-loop-electricity-transmission-projects/>; CBC, "Ottawa, Nova Scotia at odds over \$4.5B for Atlantic Loop." By P. Withers. Ottawa, Nova Scotia at odds over \$4.5B for Atlantic Loop | CBC News; CBC, Premier claims Atlantic Loop could bankrupt province, but opposition is skeptical <https://www.cbc.ca/news/canada/nova-scotia/atlantic-loop-tim-houston-renewable-energy-climate-change-1.6893511>
- xxiv CBC, Clean Power Plan Abandons Atlantic Loop. October 11, 2023. <https://www.cbc.ca/news/canada/nova-scotia/clean-power-plan-abandons-atlantic-loop-1.6992765#:~:text=Nova%20Scotia%20is%20abandoning%20the%20proposed%20Atlantic%20Loop,Resources%20and%20Renewables%20Minister%20Tory%20Rushton%20announced%20Wednesday>

Renewable Energy and Storage

Travers Solar Project, Alberta

1. Project Description

The Travers Solar Project is a photovoltaic solar facility located in Vulcan County, Alberta. It was first developed in 2017 and commissioned in late 2022, with an expected operational period of 35 years or more.

At a nameplate capacity of 465MW, harnessed by 1.3 million solar panels spread across 3,330 acres of private land, the facility is the largest solar farm in Canada. The initial principal proponents, who announced a development agreement in February 2020, were Greengate Power Corporation and Copenhagen Infrastructure Partners (CIP). CIP provided funding, construction, and operations, with Greengate providing management services. In January 2023, CIP sold its ownership stake in the project to Axiom Infrastructure.

The Travers Solar Project is under the regulatory jurisdiction of the Alberta Utilities Commission for project approval, as well as Alberta Environment and Parks for the environmental assessments (called Renewable Energy Referral Reports in Alberta). The Alberta Electric System Operator was responsible for reviewing and approving the project's connection with the Alberta grid.

Regulatory Summary

Alberta Utilities Commission/Alberta Utilities Commission Act. The principal utilities regulator in Alberta. Issued the project approval in 2019. The full environmental assessment report was not required to be submitted to the AUC, as confirmed by the AUC in the 2019 decision. Instead, the AUC decision was based on the Renewable Energy Referral Report issued by the AEP (see below).

Alberta Electric System Operator/Electric Utilities Act/Renewable Electricity Act. Operates the province's electrical grid, the Alberta Interconnected Electric System (AIES).

Ministry of Environment and Parks (also known as Alberta Environment and Parks during part of the project's timeline)/Environmental Protection and Enhancement Act. Responsible for oversight of the environmental assessment process. Given the nature of the Travers solar farm project, it was subject to the Wildlife Directive for Alberta Solar Energy Projects (2017) and the Conservation and Reclamation Directive for Renewable Energy Operations (2018).

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2017-2022	100%	No federal regulatory framework, coupled with quick responses from the regulatory agencies of Alberta (5 months for the AUC), contributed to a fairly rapid implementation of what is now the largest solar project in Canada.	
1. Public Identification and Pre-consultation	2017	20%		
2. Regulatory Submission and Review	2017-2019	40%	A division of responsibility between the AEP and the AUC aimed to reduce duplication with respect to environmental assessment. AUC did not require environmental assessment reports, instead relying on the AEP's evaluation and its issuance of a Renewable Energy Referral Report.	This attempt to reduce duplication of efforts, whereby the AUC does not go over the same assessment reports that the AEP has already approved, may have contributed to a shortening of the timeline of the project, both by relieving the proponent from added regulatory hurdles, as well as reducing the AUC timeline overall.
3. Regulatory Decision	2019	10%	The AUC application process and decision took 5 months.	Regulatory processes did not form any meaningful barrier to the project.
4. Investment Related	2020	20%		
5. Construction	2021-2022	40%		
6. In Service and Monitoring	2022-present			

3. Timeline Detail

Public Identification and Pre-consultation

2017: Greengate began developing the project. Environmental field studies were initiated by Greengate, including wildlife surveys, vegetation surveys, desktop wetland delineation and habitat mapping.

2018: Consultation with Vulcan County began in May. Environmental field studies concluded and compiled in a third-party evaluation report, published by Matrix Solutions Inc. Evaluation was sent to Alberta Environment and Parks in December. Further studies were conducted, including a Noise Impact Assessment and a Glare Analysis.

2019: Initial public consultation. Open houses were held in February. Following these meetings, minor modifications were made to the project plan, and announced in March. An initial construction schedule was presented, with construction commencing in mid to late 2019.

Regulatory Submission and Review

2019: April

Submission to AESO to connect the facility to the AIES.

Application to AUC.

Regulatory Decision

2019: Greengate received a Renewable Energy Referral Report from Alberta Environment and Parks Wildlife Management, finding that the project posed low environmental risk.

AUC approval, with conditions, issued in August.

In November, the AUC granted permission, with conditions, to Travers Solar GP Ltd to construct a substation and transmission lines to connect the project to the existing grid.

Investment Related

2019: Travers Solar GP Ltd. was incorporated to take charge of the project in October, as general partner of Travers Solar LP.

2020: Due to an internal reorganization in January, Travers Solar LP transferred all ownership to Travers 2 Solar LP, with Travers Solar GP Ltd. as the general partner. No further updates or changes were required for applications already submitted.

Greengate and CIP announced an agreement to fund and develop the project in February. CIP would provide funding for the development, construction and operation of the Project. Greengate, the original developer of the Project, would retain an ongoing economic interest and provide management services throughout the life of the project.

The cost of the investment was estimated to be around \$700 million. In October, a modification was made to the scale of the project, going from 400 MW to 465 MW. The changes were approved by AUC.

2021: CIP announced a Purchase Power Agreement with Amazon Inc. for 400MW.

2023: Axiom Infrastructure Canada finalized acquisition of Travers Solar Project in February.

Construction and In Service

2021

Construction by PCL Construction, the principal contractor, began.

Travers LP requested an extension for the construction of the transmission line, first to November 2021, then to December 2021.

In Service and Monitoring

2022: Construction completed in November/December, with commercial operations soon after.

2023: NRG Systems was selected to provide Solar Resource Monitoring systems to the Travers Solar Project in January.

4. Key Issues Raised by This Profile

Regulatory – Framework

There is a fairly clear division of responsibility between the AEP and the AUC in regard to the evaluation of environmental assessment reports. This led to a reduction in duplication with concomitant potential reduction in the time spent during regulatory approval. Indeed, environmental assessment reports, once approved by the AEP, are no longer required for subsequent regulatory steps, with the AUC relying on the Renewable Energy Referral Report in order to approve or reject a project proposal.

5. Discussion

The use of the AEP environmental assessment report by the AUC appears to be a key component affecting the Travers project timeline.

In addition, the location of the project is important. Vulcan County has a low population and density (4200), as well being located far from a major urban area (Calgary is over 100km away; neighbouring Lomond has a population of just 178). This helps to explain the low attendance of the open houses (21) and rapid consultation phase. Vulcan County indicated to Greengate that AUC approval was not required prior to filing a development permit application.

Sources

Alberta Electric System Operator. (August 2019). "Appendix C: AESO Participant Involvement Program". <https://www.aeso.ca/assets/Uploads/Appendix-C-AESO-PIP-Travers-Solar.pdf>

Alberta Electric System Operator. (2022) "TVS1 Travers change in maximum capability (MC) notice". <https://www.aeso.ca/market/market-updates/2022/tvs1-travers-change-in-maximum-capability-mc-notice/>

Alberta Electric System Operator. (August 28, 2019). "Application of the Alberta Electric System Operator for the Approval of the Travers Solar Project Connection Needs Identification Document". <https://www.aeso.ca/assets/Uploads/Travers-Solar-Project-Connection-NID.pdf>

Alberta Environment and Parks. (September 14, 2018). "Conservation and Reclamation Directive for Renewable Energy Operations". <https://open.alberta.ca/dataset/8c4e8ed9-a9bb-4a1e-8683-8136b33f8dff/resource/f1704d4c-78af-4de3-91da-d9873e9f50a4/download/direct-renewenerop-sep14-2018.pdf>

Alberta Major Projects. Travers Solar Project. <https://majorprojects.alberta.ca/details/Travers-Solar-Project/3656>

Alberta Utilities Commission database: https://www.auc.ab.ca/regulatory_documents/recent-updates/

Campbell, Q. (May 19 2022). "Massive solar project in southern Alberta nearly complete". Global News. <https://globalnews.ca/news/8849911/southern-alberta-solar-project-construction/>

Dunn, C. (November 3, 2021). "How Canada's largest solar farm is changing Alberta's landscape". CBC. <https://www.cbc.ca/news/canada/calgary/travers-solar-project-vulcan-1.6233629>

Fine, A. (January 24, 2023). "Copenhagen Infrastructure Partners Sells Travers Solar to Axiom Infrastructure". <https://solarindustrymag.com/copenhagen-infrastructure-partners-sells-travers-solar-to-axium-infrastructure>

Fischer, A. (January 5, 2023). "NRG Systems provides monitoring solution for largest PV plant in Canada". PV Magazine. <https://pv-magazine-usa.com/2023/01/05/nrg-systems-provides-monitoring-solution-for-largest-pv-plant-in-canada/>

Frangoul, A. (August 28, 2019). "Canada's 'largest' solar project gets green light for construction". CNBC. <https://www.cnbc.com/2019/08/28/canadas-largest-solar-project-gets-green-light-for-construction.html>

Hall, M. (August 28, 2019). "Alberta approves Canada's largest PV project – free of subsidy and planned on a merchant basis". PV Magazine. <https://www.pv-magazine.com/2019/08/28/alberta-gives-approval-for-canadas-largest-pv-project/>

Globe Newswire. (January 24, 2023). "Copenhagen Infrastructure Partners sells ownership of Travers Solar project in Canada". <https://www.globenewswire.com/news-release/2023/01/24/2594561/0/en/Copenhagen-Infrastructure-Partners-divests-ownership-of-Travers-Solar.html>

Government of Alberta. (October 4, 2017). "Wildlife Directive for Alberta Solar Energy Projects". <https://open.alberta.ca/dataset/6a71e752-8d72-4126-a347-e9f328279904/resource/527c6a99-4004-440c-8033-07872cb8adb0/download/wildlifedirective-albertasolarenergyprojects-oct4-2017.pdf>

Greengate Power Website, Portfolio. <https://greengatepower.com/portfolio>

NS Energy, "Travers Solar Project, Alberta". <https://www.nsenergybusiness.com/projects/travers-solar-project-alberta/>

On-Site. (June 24, 2021). "PCL starts construction on \$700M Alberta solar project, Canada's largest". <https://www.on-sitemag.com/infrastructure/pcl-starts-construction-on-700m-alberta-solar-project-canadas-largest/1003974282/>

O'Nyons, H. (January 11, 2020). "Vulcan County Could be the Home to One of Canada's Largest Solar Farms". Okotoks Online. <https://okotoksonline.com/articles/vulcan-county-could-be-home-to-one-of-canada-s-largest-solar-farms>

Operis. (February 2, 2023). "Axiom Acquires Travers Solar Farm". <https://www.operis.com/axium-acquires-travers-solar-farm/>

PCL Construction, Our Work, Travers Solar. <https://www.pcl.com/au/en/our-work/travers-solar>

Power Technology. (July 19, 2021). "Travers Solar Project, Alberta, Canada". <https://www.power-technology.com/projects/travers-solar-project-alberta-canada/>

Power Technology. (January 25, 2023). "CIP sells ownership of Travers Solar to Axiom Infrastructure". <https://www.power-technology.com/news/cip-travers-solar/#catfish>

Stantec. "Travers Solar Project". <https://www.stantec.com/en/projects/canada-projects/t/travers-solar-project>

Torys LLP. "Travers Solar Project". <https://www.torys.com/en/work/no-date-folder/278ae68b-20a9-401e-9ebe-a2c97c200735>

Travers Solar Project Website. <https://www.traverssolar.ca/>

Henvey Inlet Wind Energy Centre, Ontario

1. Project Description

The Henvey Inlet Wind Energy Centre (HIWEC) is a 300MW wind farm located on the northeastern shore of Georgian Bay in Ontario, under Ontario's Feed-in Tariff (FIT) program for large scale renewable energy generation. Under the FIT, Ontario commits to paying renewable electricity generators a guaranteed price over a 20-year contract for all the electricity that is generated and delivered to the grid. The project site includes 87 Vestas 3.45MW turbines and is connected to 104 km of transmission line, also built as part of the project. The project was commissioned in late 2019 and has been operational since.

The principal proponent of the project is the Henvey Inlet First Nation (HIFN), an Anishinabek community in Robinson Huron Treaty territory. HIFN entered into a partnership with Pattern Energy in 2014 through the Nigig Power Corporation, itself wholly owned by HIFN.

The principal regulatory framework which has governed the development of this project is the HIFN Band government's Environmental Stewardship Regime and Land Code. This regulatory arrangement is supported by the Framework Agreement on First Nations Land Management (FA) and the associated *First Nations Land Management Act* of 1999 (FNLMA) (superseded by the *Framework Agreement on First Nations Land Management Act* [FAFNLMA] 2022). Participating First Nations can develop a Land Code which sets out "the general rules and procedures that apply to the use and occupancy of First Nation land" and grants them the right of "withdrawing their lands from the land management provisions of the *Indian Act* in order to exercise control over their lands and resources for the use and benefit of their members" (FA, 1996).

Regulatory Summary

Henvey Inlet First Nation Band Government/Framework Agreement on First Nations Land Management of 1996/First Nations Land Management Act of 1999 (superseded by Framework Agreement on First Nations Land Management Act of 2022)/HIFN Land Code 2009: Primary jurisdiction of the project and associated regulatory frameworks which govern the territory. The FNLMA of 1999 (and its subsequent replacement legislation) provides Indigenous band governments that implement a land code a greater degree of self-management, empowering them to institute their own environmental protection requirements (within broader federal guidelines), as well as their own regulatory agencies which can review projects.

Ontario Power Authority (merged with the IESO in 2012)/Electricity Restructuring Act, 2004.

IESO/Electricity Act of 1998: This regulator is involved in providing the permitting required for connecting the Henvey Inlet project to the rest of the Ontario grid.

Ontario Energy Board/Ontario Energy Board Act, 1998: provided the construction permit for the project.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2007-2019 (12.5)	100%	The HIWEC falls under Indigenous jurisdiction as defined by the FAFNLMA	HIWEC has followed a different set of regulatory requirements than other projects in Ontario, which may have impacted time spent from inception through in-service.
1. Public Identification and Pre-consultation	2007-2010 (3)	24%		
2. Regulatory Submission and Review	2007-2013 (6.5) 2015-2016 (1.5)	52% 12%	Continuous feasibility studies across the lifecycle of the project, in part to satisfy local Indigenous requirements for consultation.	While the regulatory submission and review may have taken over 60% of the timeline, this may have led to a reduction in time spent on other parts of the project's lifecycle, notably in regulatory decision and investment.
3. Regulatory Decision	2010-2011 (1.5) 2016	12%		
4. Investment Related	2014 2017	At least 4% At least 4%		
5. Construction	2017-2019 (3)	24%		
6. In Service and Monitoring	2019- Present			

3. Timeline Detail

Public Identification and Pre-consultation

2005

A referendum was held by HIFN to set aside 10,000 acres of land on Henvey Inlet #2 for commercial development. However, previous attempts to develop projects on the land had not yielded positive results.

2007

HIFN begins negotiations with 401 Energy concerning the potential to develop an energy project on the land designated for commercial development. A one-year radar interference study was initiated to determine the potential impact of wind turbines on the nearby Britt radar station.

2008

A financial feasibility test and financial market assessment were undertaken to determine the financial feasibility of the project. In parallel, the first wave of information packages was sent to HIFN Band Members to seek support for the project. At this point, the project was estimated to be completed (if approved) by 2012 at the earliest.

2009

HIFN issued a Notice of Intent to establish a wind farm on its land, seeking public opinions on the project. A one-year wind assessment of the selected site was initiated.

Economic Regulatory Submission and Review/Regulatory Decision

2010

HIFN's Nigig Power Corporation (NPC) submitted a FIT application to the Ontario Power Authority (OPA) (now the Independent Electricity System Operator) for a 300MW wind farm project.

2011

The OPA awarded NPC with the FIT contract for HIWEC.

2018

HIFN applied for an Electricity Generation License in January, receiving the license from the OEB in March.

Environmental Regulatory Submission and Review/Regulatory Decision

2011

Following the 2011 FIT contract decision, an ecological assessment was initiated by LGL Limited. It was completed in two years.

2013

A terrestrial survey was initiated by Stantec Consulting. It was completed in one year.

2015-2016

An Environmental Assessment was conducted and released by AECOM. As a result of this assessment, the HIFN Environmental Stewardship Regime awarded the project an Environmental Permit, allowing the project to move forward.

2017

The OEB issued a Decision and Order granting NPC leave to begin construction on the selected site.

2018

Torys LLP, representing the proponents, submitted to the OEB a notice of proposal to construct a transmission and distribution system to link the HIWEC with the Ontario energy grid at Parry Sound.

Investment Related

2010

Due to 401 Energy being unable to meet Ontario's FIT Program requirements, the relationship between HIFN and 401 Energy was terminated. In its place, HIFN established the Nigig Power Corporation (NPC) with a mandate to develop the Energy Centre, with HIFN as its sole shareholder.

2011



OPA (now the IESO), in its decision, committed to paying NPC a guaranteed price over a 20-year period.

2014

After negotiations, a partnership was signed between NPC and Pattern Energy to jointly own and develop the project.

2017

Financing for a value of \$1 billion was completed late in the year with Torys LLP, representing a consortium of 11 banks.

Construction

2017

Construction began at the end of the year, with Construction Énergie Renouvelable as the general contractor.

In Service and Monitoring

2019

Both the wind farm and transmission lines were completed by October, with the facility's operation the same year.

4. Key Issues Raised by This Profile

Regulatory – Framework

A particularity of this profile was the predominance of the HIFN Band government in the decision-making process. Indeed, the regulatory framework for the project, established by the *First Nations Land Management Act*, granted the HIFN Band government the right to enforce their Land Code across their territory, empowering the Band government with primary jurisdiction over the project.

Feasibility studies were initiated almost immediately after the negotiations with 401 Energy were initiated, with at least four financial and technical assessments conducted in the first two years, prior to further environmental and ecological assessments. As indicated in the timeline summary, feasibility studies composed over half of this project's total timeline, taking place throughout all the major steps, with the exception of construction

Regulatory – Engagement

The HIFN Band government engaged in community consultation very early in the lifecycle of the project, releasing information packages only a few months after finalizing the initial negotiations with 401 Energy.

Economic – Partnership Agreements

Due to an inability to obtain a FIT contract from the OPA, HIFN terminated its contract with 401 Energy. After creating the NPC, it took four years to negotiate another partnership agreement with a developer to be able to move forward with the project (though it is hard to determine if this time led to a substantial delay on the project, as assessments were being conducted at the time).

5. Discussion

The HIWEC is one of the few profiles that operates under a different regulatory framework than the other projects studied. Indeed, along with the Oneida energy storage project, its principal proponent is a First Nation. This situates the HIWEC project outside of traditional federal or provincial regulatory frameworks, particularly given the context of the *First Nations Land Management Act*, which delegates to the First Nation government much more authority in deciding how to use their lands and resources.

This brings forth several questions: given the more limited role of federal and provincial governments, and the conversely prominent role played by the HIFN Band government through its Land Code and its ownership of NPC, did this reduce the time taken in key steps of the project's development? This question is particularly relevant in the context of community consultation processes included in the HIFN Land Code, as well as the environmental assessment step of the project, which is governed by the HIFN Band government.

Sources

- AECOM. (September 2015). "Henvey Inlet Wind Energy Centre Natural Environment Assessment: Evaluation of Importance Report Final Draft". https://patternenergy.com/wp-content/uploads/2021/09/A-Appendix_F3_NHAEvaluation_of_Importance-1.pdf
- BBA. (2021). "300Mw Henvey Inlet Wind Project". <https://s3.ca-central-1.amazonaws.com/medias.bba.ca/documents/pdf/bba-2021-henvey-inlet-project-page-v1-EN.pdf>
- First Nations Land Management Resource Centre. (October 2019). "Framework Agreement on First Nation Land Management, Executive Summary". <https://labrc.com/wp-content/uploads/2018/11/Long-FA-Summary-2.pdf>
- Henvey Inlet First Nation. (September 2006). "First Nation Land Management Act S.C 1999, c24, Executive Summary". https://www.hifn.ca/images/Land_Laws/Land_Code_-final/FINAL-LAND-CODE-summary-of-act.pdf
- Henvey Inlet First Nation. (December 2008). "Henvey Inlet First Nation Wind Farm Project Information Package". https://www.hifn.ca/images/Wind_Farm_/wind-farm-info-package-final-version-2.pdf
- Henvey Inlet First Nation. (May 2009). "Henvey Inlet First Nation Notice of Intent". https://www.hifn.ca/images/Wind_Farm_/notice-of-intent.pdf
- Henvey Inlet First Nation. (September 2009). "Henvey Inlet First Nation Land Code". https://www.hifn.ca/images/Land_Laws/Land_Code_-final/FINAL-LAND-CODE-hifn-land-code-sept-9-09-sa-rev.pdf
- Henvey Inlet First Nation. (October 2009). "Framework Agreement on First Nation Land Management, Executive Summary". https://www.hifn.ca/images/Land_Laws/Land_Code_-final/FINAL-LAND-CODE-summary-of-framework-agrmt.pdf
- Henvey Inlet First Nation. (October 2009). "Summary of the Henvey Inlet First Nation Land Code", , https://www.hifn.ca/images/Land_Laws/Land_Code_-final/FINAL-LAND-CODE-summary-of-land-code-9-28-09.pdf
- Henvey Inlet First Nation. (October 2009). "Summary of the Henvey Inlet First Nation Individual Agreement". https://www.hifn.ca/images/Land_Laws/Land_Code_-final/FINAL-LAND-CODE-summary-individual-agreement.pdf
- Henvey Inlet First Nation. (December 2009). "Wind Farm Development Milestones". https://www.hifn.ca/images/Wind_Farm_/wind-farm-strategy-and-milestones.pdf
- Henvey Inlet First Nation. (June 2010). "Nigig Power Corporation Fact Sheet". https://www.hifn.ca/images/Wind_Farm_/nigig-fact-sheet-june-2010.pdf
- Henvey Inlet First Nation. (June 2010). "Henvey Inlet First Nation Wind Farm Project Information Package Update". https://www.hifn.ca/images/Wind_Farm_/nigig-power-wind-farm-info-package-june-2010-version.pdf
- Henvey Inlet First Nation. (August 2015). "Henvey Inlet First Nation Environmental Stewardship Regime for the proposed HIW Energy Centre on Henvey Inlet Reserve #2 Lands: Environmental Assessment and Permitting". https://www.hifn.ca/images/Land_Laws/LL-2015-16-009-HIFN-ESR-EA-and-Permitting-.pdf
- Henvey Inlet First Nation. (January 2016). "Henvey Inlet First Nation Environmental Stewardship Regime for the proposed HIW Energy Centre on Henvey Inlet Reserve #2 Lands: Environmental Protection". https://www.hifn.ca/images/Land_Laws/LL-2015-16-011-HIFN-ESR-Environmental-Protection.pdf
- Henvey Inlet First Nation. (February 2016). "Henvey Inlet First Nation Environmental Permit Draft", https://www.hifn.ca/images/Environmental/DRAFT_ENVIRONMENTAL_PERMIT.pdf
- Henvey Inlet First Nation. (November 2017). "Henvey Inlet Wind & Transmission Line Construction Summary #1". https://www.hifn.ca/images/Wind_Farm_/HIW-Construction-Progress-Summary--1.pdf
- Ontario Energy Board. (May 2017). "Decision and Order". <https://www.rds.oeb.ca/CMWebDrawer/Record/571747/File/document>

Ontario Energy Board. (March 2018). “Electricity Generation License”, <https://www.rds.oeb.ca/CMWebDrawer/Record/601541/File/document>

Pattern Energy. (Summer 2019). “Henvey Inlet Wind Construction Update”. https://patternenergy.com/wp-content/uploads/2021/08/HIW-Newsletter_Web_copy_FINAL-May2019-web.pdf

Torlys LLP. (January 2018). “Henvey Inlet Wind LP – Notice of Proposal Under Section 81”. <https://www.rds.oeb.ca/CMWebDrawer/Record/596109/File/document>

(December 2018). “Text of the Framework Agreement on First Nation Land Management”. <https://nalma.ca/wp-content/uploads/2016/01/Framework-Agreement-Amendment-5-edited.pdf>

Oneida Energy Storage, Ontario

1. Project Description

Oneida Energy Storage (OES) is an ongoing project to construct a 250MW/1000MWh lithium-ion energy storage system in Haldimand County, Ontario. The principal proponent of the project is the Oneida Energy Storage LP, a joint venture between the Six Nations of the Grand River Development Corporation (SNGRDC), an economic development corporation owned by the Six Nations of the Grand River Elected Council (SNGREC), and NRStor Incorporated, a Canadian energy storage project developer. In addition, Northland Power Inc. (NPI), and Aecon Group Inc. (Aecon) have partnered together to lead the development, construction, and operations of the project, with NPI becoming the majority stakeholder in 2023.

The project was initially proposed at the start of 2018, and is being constructed under an Energy Storage Facility Agreement (ESFA) with the Independent Electricity System Operator (IESO) executed in December 2022. As well, as the storage is planned to be linked to the Ontario electricity transmission grid, it is also under the regulatory umbrella of the IESO and the Ontario Energy Board (OEB). Construction started in May 2023 and the project is estimated to be completed in 2025.

Regulatory Summary

Six Nations of the Grand River Development Corporation: principal project proponent and decision-maker. Wholly owned by a single shareholder, the Six Nations of the Grand River Elected Council.

IESO/Electricity Act of 1998: provided the project with an Energy Storage Facility Agreement (ESFA), allowing the project to move forward.

Ontario Energy Board/Ontario Energy Board Act, 1998. Approved the proponent's application for an Electricity Storage License, allowing the project to be connected to the Ontario electricity transmission grid.

Class Environmental Assessment for Minor Transmission Facilities: Ontario Ministry of the Environment, Conservation and Parks/Environmental Assessment Act

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2018-present	100%	External events, notably COVID-19 and the ensuing economic disturbances, have led to project delays	
1. Public Identification and Pre-consultation	2018	18%		
2. Regulatory Submission and Review	2020-2021	36%		
3. Regulatory Decision	2021-2023	60%	Pressure from the Ontario government to expedite project approval; province also provided the proponents with government support	
4. Investment Related	2019 2021 2023	27%	The Canada Infrastructure Bank provided the project with financial support.	Government funding may have made it easier to access other sources of funding
5. Construction	2023	N/A		
6. In Service and Monitoring	N/A	N/A		

3. Timeline Detail

Public Identification and Pre-consultation

2017

Talks began between Six Nations of the Grand River Development Corporation (SNGRDC) and NRStor, exploring possible opportunities for an energy project. As part of these talks, a confidentiality agreement was signed.

2018

A Memorandum of Understanding was signed between SNGRDC and NRStor Inc. to jointly develop a 250MW/1000MWh lithium-ion battery energy storage system. The first proposed timeline: Revenue contracting at the end of 2018; Construction to start in 2019; and operations by 2020.

2019

The SNGRDC and NRStor approached the IESO and the Government of Ontario to “assess pathways to induce investment into the Oneida Energy Storage (OES) project”. Meanwhile, the SNGRDC Board of Directors passed a resolution authorizing the CEO to create a new corporation for the special purpose of exploring development initiatives. SNGRDC and NRStor entered into a Limited Partnership agreement and created a new corporation, Oneida Energy Storage GP Inc., to manage the project, with 50% ownership for each proponent.

Regulatory Submission and Review

2020

Feasibility studies were initiated, including detailed design and engineering work, site selection, and archeological assessments. Meanwhile, the proponents submitted an application for the purpose of creating an interconnection between the project and the Ontario electricity transmission grid. The SNGREC also approved the community outreach plan, to begin in 2021.

2021

The project was publicly unveiled.

February – An application was filed by Oneida Energy Storage LP to the Ontario Energy Board. In addition, correspondence between the proponents and with Haudenosaunee Confederacy Chiefs Council and Mississaugas of the Credit First Nation started. A Six Nations community commentary period was established but was later extended due to a low response rate.

Environmental studies were also initiated and concluded in the first half of the year.

Regulatory Decision

2021

The OEB approved the proponent's application for an Electricity Storage License.

Investment Related

2021

A Memorandum of Understanding was signed between the Canada Infrastructure Bank (CIB) and Oneida Energy Storage LP, with an agreement on the parameters of the CIB investment to be confirmed in spring 2021. A final report on the Community Investment Review Was published, and the SNGREC moved to accept the report and move forward with the project. Throughout the year, the Ontario Minister of Energy repeatedly instructed the IESO to enter into contract negotiations with Oneida Energy Storage LP. In addition, the CIB announced a \$170 million investment in the half billion-dollar OES project (estimate now out of date), and NRCan provided \$50 million.

2022

The Ontario Minister of Energy again repeatedly instructed the IESO to finish negotiating a contract with Oneida LP. The IESO entered into an Energy Storage Facility Agreement (ESFA) for the Oneida Storage Project.

2023

Northland Power announced an investment in OES, becoming the majority stakeholder. As part of the agreement, Aecon Utilities received the engineering, procurement and construction contract; batteries will be provided by Tesla.

Construction

2023

Construction on the project began in spring/summer 2023 and is expected to be completed by 2025.

4. Key Issues Raised by This Profile

Political - Ongoing Policy Support

The Ontario government repeatedly instructed the IESO to engage in contract negotiations with the project proponents throughout at least 2 years of project development. This was due to changes in both macro and micro economic factors and conditions, principally disruptions in the wake of the COVID pandemic.

Economic – Engineering, Procurement and Construction

With the letters and directives issued by the Ontario Ministry of Energy to the IESO, a portion of the project's delay seems to be attributable to the disruptions caused by the outbreak of the COVID-19 pandemic in 2020. Indeed, these documents cite supply chain disruptions as a cause of delays. Moreover, Northland Power's chief strategy officer is quoted citing inflation as an obstacle to the project's development, particularly in relation to the process of obtaining the ESFA from the IESO.

5. Discussion

The repeated instructions and directives from the Ontario government to the IESO to engage in contract negotiations with the project proponents indicates the government's pressing desire to move forward with this project. It would be interesting to determine whether macro-economic factors, such as COVID, may have contributed to the time taken by the IESO to engage in negotiations, or whether other factors were at play.

Sources

Aecon. (2023, February 10). Aecon Partnership Executes Agreement for Innovative Oneida Energy Storage Project in Ontario. <https://www.aecon.com/press-room/news/2023/02/10/aecon-partnership-executes-agreement-for-innovative-oneida-energy-storage-project-in-ontario>

Barnsley, P. (1995, August 23). Election guidelines ignore Indian Act. Tekawennake News. <https://vitacollections.ca/sixnationsarchive/details.asp?ID=3285964>

Canada Infrastructure Bank. (2021, May 19). Canada Infrastructure Bank to Invest Up To \$170 Million In One Of The World's Largest Clean Energy Storage Projects. <https://cib-bic.ca/en/medias/articles/canada-infrastructure-bank-to-invest-up-to-170-million-in-one-of-the-worlds-largest-clean-energy-storage-project/>

Canada Infrastructure Bank. (2021, January 12). Canada Infrastructure Bank Signs Memorandum Of Understanding For Oneida Energy Storage. <https://cib-bic.ca/en/medias/articles/canada-infrastructure-bank-signs-memorandum-of-understanding-for-oneida-energy-storage/>

Curley, T. (2021, April 30). Final Report. Six Nations Community Investment Review of Oneida Energy Storage LP. https://www.sfnfuture.com/wp-content/uploads/2021/05/OES-Final-Report-Full-Appendix_April-30.pdf

Independent Electricity System Operator. (2021, September 2). IESO to draft a contract for Oneida Battery Park Project. <https://www.ieso.ca/Sector-Participants/IESO-News/2021/09/IESO-to-Draft-a-Contract-for-Oneida-Battery-Park-Project>

Independent Electricity System Operator. (2022, April 21). Minister Directs IESO to Enter into Contract for Oneida Battery Park Project, Waive Bruce Power Off-Ramp. <https://www.ieso.ca/en/Sector-Participants/IESO-News/2022/04/Minister-Directs-IESO-to-Enter-into-Contract-for-Oneida-Battery-Park-Project>

Independent Electricity System Operator. (2023, February 16). Oneida Energy Storage Project Update. <https://www.ieso.ca/Sector-Participants/IESO-News/2023/02/Oneida-Energy-Storage-Project-Update>

Natural Resources Canada. (2023, February 2). Governments of Canada and Ontario Working Together to Build Largest Electricity Battery Storage Project in Canada. <https://www.canada.ca/en/natural-resources-canada/news/2023/02/governments-of-canada-and-ontario-working-together-to-build-largest-electricity-battery-storage-project-in-canada0.html>

Northland Power. (2023, February 10). Northland Power and Partners Execute Major Agreements for Oneida Energy Storage Project. <https://www.northlandpower.com/en/news/northland-power-and-partners-execute-major-agreements-for-oneida-energy-storage-project.aspx>

- NRStor Incorporated. (2021, January 12). Canada Infrastructure Bank Signs Memorandum of Understanding for Oneida Energy Storage Project. <http://nrstor.com/2021/01/12/canada-infrastructure-bank-signs-memorandum-of-understanding-for-oneida-energy-storage-project/>
- NRStor Incorporated. (2023, February 10). NRStor and Partners Execute Major Agreements for 1000 MWh Oneida Energy Storage Project. <http://nrstor.com/2023/02/09/nrstor-and-partners-execute-major-agreements-for-1000-mwh-oneida-energy-storage-project/>
- Oneida Energy Storage LP. (2019, November 7). Limited Partnership Agreement. <https://www.sfuture.com/wp-content/uploads/2021/01/Executed-LP-Agreement-Nov-2019.pdf>
- Oneida Energy Storage LP. (2019, November 7). Ministry of Government and Consumer Services Limited Partnership Registration. <https://www.sfuture.com/wp-content/uploads/2021/01/OES-LP-Registration-Document-Nov-2019-.pdf>
- Oneida Energy Storage LP. (2021, December 17a). Letter to the Haudenosaunee Confederacy Chiefs Council regarding the Oneida Energy Storage Project. <https://www.sfuture.com/wp-content/uploads/2022/01/MCFN-Dec-17-2021-Letter-from-Oneida-LP.pdf>
- Oneida Energy Storage LP. (2021, December 17b). Letter to the Haudenosaunee Confederacy Chiefs Council regarding the Oneida Energy Storage Project. <https://www.sfuture.com/wp-content/uploads/2022/01/HCCC-Dec-17-2021-Letter-from-Oneida-LP.pdf>
- Ontario Ministry of Energy. (2022, February 10). Directive – Order in Council 137/2022. <https://www.ontario.ca/page/directive-order-council-1372022>
- Qureshi, U. (2023, February 10). Canada's Oneida Energy Storage Project to be Powered by Tesla Megapacks. iPhone in Canada. <https://www.iphoneincanada.ca/2023/02/10/canada-oneida-energy-storage-project-tesla-megapacks/>
- Rickford, G. (2021, February 22). Minister of Energy, Letter to the Independent Electricity System Operator regarding the Oneida Battery Park Project. <https://www.sfuture.com/wp-content/uploads/2021/05/MC-994-2021-146-letter-to-IESO-re-Oneida-Battery-Park-Project.pdf>
- Six Nations of the Grand River Development Corporation & NRStor Incorporated. (2018, June 13). Memorandum of Understanding. <https://www.sfuture.com/wp-content/uploads/2021/01/Onedia-Energy-Storage-MOU-between-NRStor-and-SNGRDC-June-13-2018.pdf>
- Six Nations of the Grand River Development Corporation. (2019, June 4). Motion Memorandum. <https://www.sfuture.com/wp-content/uploads/2021/01/Newco-for-NRStor.pdf>
- Six Nations of the Grand River Elected Council. (2020, June 29). Motion Memorandum. <https://www.sfuture.com/wp-content/uploads/2021/01/SNGREC-Affirms-Support-for-Oneida-Battery-Park-Motions-ICSC03-0619-2020.pdf>
- Six Nations of the Grand River Elected Council. (2021, January 8). Motion Memorandum. <https://www.sfuture.com/wp-content/uploads/2021/01/SNGREC-Reaffirms-Support-for-Oneida-Battery-Park-ICSC12-15-2020.pdf>
- Six Nations of the Grand River Development Corporation. (2021, January 12). An Innovative Solution to Ontario's Energy Problem Co-Developed by Six Nations of the Grand River Development Corporation. <https://www.sfuture.com/wp-content/uploads/2021/02/Media-Release-OES-Final-Jan-12.pdf>
- Six Nations of the Grand River Development Council. (2021, January 12). Notice of Community Investment Review of Oneida Energy Storage Project. <https://www.sfuture.com/wp-content/uploads/2021/02/OES-Notice-of-Community-Investment-Review-to-SNEC-Chief-Jan-12.pdf>
- Six Nations of the Grand River Development Corporation. (2021, January). Information Package for the Investment Review of the Oneida Energy Storage Project. <https://www.sfuture.com/wp-content/uploads/2021/01/Info-Package.pdf>

Six Nations of the Grand River Development Corporation. (2021, January). Community Mailer for the Investment Review of the Oneida Energy Storage Project. <https://www.snfuture.com/wp-content/uploads/2021/01/OES-Community-Mailer.pdf>

Six Nations of the Grand River Development Corporation. (2021, January). Poster for the Investment Review of the Oneida Energy Storage Project. <https://www.snfuture.com/wp-content/uploads/2021/01/OES-Poster-1.pdf>

Six Nation of the Grand River Elected Council. (2021, May 13). Motion Memorandum. <https://www.snfuture.com/wp-content/uploads/2021/05/MOTIONS-ICGC-MAY1121-ONEIDA-ENERGY-PROJECT.pdf>

Six Nations of the Grand River Development Corporation. (2021, May 18). Oneida Energy Storage Secures Support from Six Nations Elected Council. <https://www.snfuture.com/wp-content/uploads/2021/05/OES-May-18-2021-MEDIA-RELEASE.pdf>

Smith, T. (2021, August 27). Minister of Energy, Letter to Lesley Gallinger, CEO of the Independent Electricity System Operator. <https://www.snfuture.com/wp-content/uploads/2021/09/Letter-from-the-Minister-of-Energy-Oneida-20210827.pdf>

Sokic, N. (2023, February 10). Oneida LP, Aecon to begin building 250MW energy storage facility. Sustainable Biz Canada. <https://sustainablebiz.ca/oneida-lp-reaches-agreement-with-ieso-for-250mw-energy-storage-facility>

Saint-Valentin Wind Farm, Quebec¹

1. Project Description

Proposed under Hydro-Quebec's second call for tenders in 2005 for 2000MW of wind power capacity, the Saint-Valentin wind farm was a \$150 million project to be built in the municipality of Saint-Valentin, as well as a small section in the neighbouring St-Paul-de-l'île-aux-Noix, close to the Quebec border with the United States. The project consisted of 25 turbines in total (21 in Saint-Valentin) providing 51.8MW of capacity

The project was first proposed by TCI Renewables (TCI) in 2006, later in partnership with Canadian Hydro Developers through the jointly owned Venterre NRG. In 2009, Canadian Hydro Developers was bought out by TransAlta; this move was labelled a "flip" by the community, as will be explained below (Simard 2016, 2018).

The project was under the regulatory jurisdiction of Quebec's Hydro-Quebec Act, the Act respecting the Régie de l'énergie, and the Environment Quality Act.

Although it was selected by Hydro-Quebec and included in the 2008 announcement of the results of the second call for tenders, the Saint-Valentin wind farm project was cancelled in 2011 by the Quebec Government after public hearings and subsequent release of a Bureau d'audiences publiques sur l'environnement (BAPE) report. The principal reason cited for the cancellation of the project was the lack of social acceptance by the concerned population (BAPE 2011).

Regulatory Summary

Hydro-Quebec/Hydro-Quebec Act: the primary public utility and crown corporation. It initiated the process through its call for tenders, and ultimately cancelled the project.

Régie de l'énergie du Québec/Loi sur la Régie de l'énergie du Québec: the economic regulatory agency in Québec. The Régie did not really get involved in this project, presumably because the project did not last to the point of requiring its justification.

Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs/Loi sur la qualité de l'environnement: Environmental regulation and assessments. This regulatory aspect was not the focus of this project because the lack of social acceptance was the principal cause of its failure.

Le Bureau d'audiences publiques sur l'environnement/Règlement relatif à l'évaluation et l'examen des impacts sur l'environnement de certains projets/Règles de procédure du Bureau d'audiences publiques sur l'environnement: the BAPE is the entity that enabled the public to voice their views on the project.

Regional County Municipality of Montérégie/Code municipal du Québec/Loi sur les compétences municipales: regulatory framework which governs the actions of regional county municipalities in Québec, and provides the institutional space for concerted local action between townships and municipalities.

¹ The narrative and timeline below substantially follow the account that L. Simard (2016) prepared for Positive Energy in a collaborative research study undertaken with the Canada West Foundation.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2006-2011	100%	Lack of public acceptance of the project, highlighted by a perception that it was a “flip”.	
1. Public Identification and Pre-consultation	2006-2008	40%	The identification process did not attempt to include municipalities other than Saint-Valentin.	
2. Regulatory Submission and Review	2008-2010	40%	As per Quebec regulation, large public outcry against the project led to it being reviewed by the BAPE through a series of public hearings.	
3. Regulatory Decision	2010-2011	20%	Due to the overwhelming lack of public support from outside Saint-Valentin, after the release of the BAPE report, the province opted to reject the project.	Project rejected by the government.
4. Investment Related	N/A	N/A		
5. Construction	N/A	N/A		
6. In Service and Monitoring	N/A	N/A		

3. Timeline Detail

Public Identification and Pre-consultation

2005

As part of the broader provincial energy policy and strategy of promoting renewable energy, Hydro-Quebec Distribution issued its second call for tenders for the purchase of 2000MW of wind energy capacity across the province (out of a broader goal of 4000MW of wind capacity through 2007).

2006

To secure the signatures needed to meet the requirements for the call for tenders, TCI Renewables, an Oxfordshire, UK based renewable energy company with projects across the UK and North America, met with municipalities, MPs, stakeholders and landowners regarding the project.

Secrecy surrounded these initial consultations because of Quebec’s existing legal framework, which requires 60 to 80 percent approval among landowners affected by a potential wind project. This had the effect of encouraging proponents to act secretly to obtain approval lest they have their projects “stolen”.

2007

Saint-Valentin Council voted in favour of the project. A series of public meetings were held, but due to their being scheduled during haymaking season, only 10 people attend. An agreement was reached with Saint-Valentin regarding royalties and allowing TCI to submit the proposal to Hydro-Quebec. However, neighbouring St-Paul-de-l'Île-aux-Noix, set to host a small section of the wind farm, was opposed to the project.

Regulatory Submission and Review

2008

Hydro-Quebec announced the list of projects for the second call for tenders, which included Saint-Valentin. Following this, the environmental assessment was initiated. A series of open houses were held, but the resulting consensus was that citizens needed more information on the project.

2009

A series of regional level meetings were held with the Regional County Municipality to set rules for distance from activities around the turbines. The Saint-Valentin Urbanism Consultative Council (UCC) opposed 3 turbines.

2010

Members of the UCC formed the Don Quixote association to fight the project. This triggered several actions against the project, such as media campaigns, door to door petitions and the creation of a coalition of mayors against the project.

The environmental assessment was completed. Following the information and consultation period, 43 requests for public hearings were filed.

2011

BAPE public hearings were held between March and April. In the summer, the BAPE report was released, concluding that upstream consultation by the developer and the municipality was inadequate, unidirectional, not consultative enough, and not transparent.

Regulatory Decision

On the same day of the release of the report, the Quebec government officially rejected the project.

Investment Related

2007

TCI partners with Canadian Hydro Developers to form Venterre NRG Inc.

2009

In December, Canadian Hydro Developers was bought out by TransAlta. This event was perceived by the concerned communities as a “flip”, whereby a smaller proponent sells a project to a larger developer for a profit once major steps are completed (in this case, acquiring the required signatures to qualify the project). This soured relations between the community and the proponent, as it paints the proponent as not invested in the project enough to see it through, and more interested in short term gain than the community concerned.

4. Key Issues Raised by This Profile

Regulatory – Framework

The regulatory framework under which this project unfolded, most prominently the Environment Quality Act that established the BAPE, enabled communities that had been sidelined by the proponents' outreach to make their opposition to the project heard. This led to the ultimate rejection of the project by the Quebec government.

Socio-political – Social Acceptance

The principal issue that led the Quebec government to reject the Saint-Valentin wind farm project was, according to the government, the lack of social acceptance of the project by local communities. This was in part the result of a lackluster effort on behalf of the developer in reaching out to the communities surrounding Saint-Valentin – such as not taking into account local seasonal activities which may have hindered locals' abilities to attend information events – combined with a concerted effort by civil society organizations and advocacy groups such as the Don Quixote association to lobby against the project, as well as the secrecy surrounding initial consultations

The lack of social acceptance of the project stems in large part from local opposition to the project on the grounds of “community values”. Indeed, the local community prides itself on its rural and pastoral setting, and the prospect of having their community disrupted by the installation of large industrial infrastructure turned many away, despite the potential financial gain.

Moreover, the acquisition of Canadian Hydro Developers by TransAlta was perceived by the local communities as an attempt by the developers to make a quick profit once major regulatory hurdles had been overcome, souring relations between the developers and the population.

5. Discussion

The failure of the Saint-Valentin project focuses on the crucial issue of social acceptance of energy infrastructure. The project's rejection by the government can be directly attributed to: the proponents' lack of adequate outreach in communities neighbouring the Saint-Valentin municipality; the development of organized opposition, demonstrated by the Don Quixote association (which emerged due to the perceived 'flip' of the project); and this association acting as a means for communities to voice their opinions in the stages prior to and outside of the official government consultation period and process, which normally comes after the EA.

A possible question to consider is if the presence of review processes similar to those employed by the BAPE at an earlier stage of the project's development may have either highlighted consultation failures earlier on and helped the proponents adapt accordingly or accelerated the project's demise by bringing these failures to light.

Moreover, the perception of a “flip” when Canada Hydro Developers was bought by TransAlta cannot be understated. The fact that initial negotiations and meetings in Saint-Valentin were undertaken in secrecy, a result of the two-step process for receiving Hydro-Quebec's approval and the developer's desire to “avoid having its project stolen by another firm” reinforced this perception. It may be thus worthwhile to consider how increasing the level of transparency in such project approval processes might attenuate these perceptions.

Sources

Boralex. (March 27 2012). “Boralex Announces Acquisition of 50 MW Wind Power Project in Québec”. Press Release: <https://boralex-global.imgix.net/boralex-announces-acquisition-of-50-mw-wind-power-project-in-quebec.pdf>

Bureau d'audiences publiques sur l'environnement (BAPE). (June 2011). “Projet de parc éolien de Saint-Valentin Rapport d'enquête et d'audience publique”. <https://www.bape.gouv.qc.ca/fr/dossiers/parc-eolien-saint-valentin/>

Canadian Hydro Staff, (May 8 2008). “Canadian Hydro and TCI Renewables awarded 116 MW of wind power contracts in Quebec”. Windfair. <https://w3.windfair.net/wind-energy/pr/4632-canada-canadian-hydro-and-tci-renewables-awarded-116-mw-of-wind-power-contracts-in-quebec>

The Canadian Press. (July 28 2016). “Clean energy project opposition from the Bay of Fundy to Powell River, B.C.”. CityNews. <https://toronto.citynews.ca/2016/07/28/clean-energy-project-opposition-from-the-bay-of-fundy-to-powell-river-b-c/>

Hydro Quebec. (2012). “Convention relative aux modifications apportées au contrat d’approvisionnement en électricité relatif au parc éolien St-Valentin”. <https://www.hydroquebec.com/data/achats-electricite-quebec/pdf/contrats/st-valentin-amendement-2.pdf>

Ministère du Développement durable, de l’Environnement et des Parcs. (August 19 2011). “Le gouvernement du Québec ne donnera pas suite au projet de parc éolien Saint-Valentin”. Press Release: <https://www.environnement.gouv.qc.ca/infuseur/communique.asp?no=1937>

Ministère des Ressources naturelles et de la Faune. (2006) “Using Energy to Build the Quebec of Tomorrow: Quebec Energy Strategy 2006-2015”. <https://www.apgq-qoga.com/english/publications/energy/strategy/energy-strategy-2006-2015.pdf>

Simard, L. (2016). “A Matter of Trust: The Role of Communities in Energy Decision-Making: Wind Farm”. Canada West Foundation and Positive Energy, University of Ottawa.

Simard, L. (2018). “Socially Not Acceptable: Lessons from a Wind Farm Project in Saint Valentin, Quebec”. Case Studies in the Environment 2 (1): 1–10. Available at: https://www.academia.edu/43310742/Socially_Not_Acceptable_Lessons_from_a_Wind_Farm_Project_in_St-Valentin_Quebec

Nuclear

Ontario Power Generation Deep Geological Repository for Low and Intermediate Level Radioactive Waste, Ontario

1. Project Description

The Ontario Power Generation's (OPG) Deep Geological Repository (DGR) Project was a project proposal to construct a deep geological radioactive waste disposal facility for low and intermediate level radioactive waste (L&ILW). The project was ultimately abandoned by OPG. L&ILW is produced as a by-product of the operation of nuclear generating stations owned by OPG at the Bruce, Pickering and Darlington sites in Ontario. Low-level waste can be handled without special radiation protection, and intermediate level waste is made up of non-fuel waste containing significant quantities of long-lived radionuclides. The DGR proposed location was at the Bruce nuclear site in the municipality of Kincardine. The L&ILW waste was (and still is) stored at the Western Waste Management Facility (WWMF), a surface facility at the Bruce nuclear site.

The proposed project consisted of a storage facility located 1.2 kilometers from the shore of Lake Huron and 680 meters below ground. The purpose of the DGR would be to safely manage L&ILW in the very long term, so that radioactivity in the waste would not pose a concern to the health and safety of persons and the environment.

The project was planned to unfold over two phases: a pre-closure phase of about 60 years, which would have included site preparation, operations (filling the facility), and decommissioning; followed by a post-closure phase, a period of institutional control followed by permanent abandonment.

The project was initially proposed in 2002, as an aspect of a Memorandum of Understanding (MoU) between OPG and the Municipality of Kincardine concerning long term management of the WWMF. However, after 18 years of extensive technical work, environmental assessment, public engagement, and formal environmental review, the project was cancelled by OPG in 2020 because the Saugeen Ojibway Nation (SON) did not endorse it. In May of that year, OPG withdrew its application for a Site Construction License, in line with their 2013 commitment to not move forward with the DGR project without the express support of the SON.

Regulatory Summary

The project's review process fell within federal regulatory frameworks.

Canadian Nuclear Safety Commission/Nuclear Safety and Control Act (NSCA) of 1997 – the CNSC was the principal regulator overseeing the proposal and the final regulatory decision-maker. In 2006, the CNSC recommended to the federal Minister of the Environment that the project be referred to a federal environmental assessment review panel.

Canadian Environmental Assessment Agency/Canadian Environmental Assessment Act of 2012 – Under both the *Canadian Environmental Assessment Act* (CEAA) (1999) and the *Canadian Environmental Assessment Act* (CEAA2012), the Canadian Environmental Assessment Agency (CEAA) was responsible for the project's environmental assessment.

Joint Review Panel: established in January 2012 by the federal Minister of the Environment and the President of the Canadian Nuclear Safety Commission in order to undertake the review of the DGR project under the *Canadian Environmental Assessment Act*, (2012) and the *Nuclear Safety and Control Act* of 1997, as well as to obtain information about potential adverse effects that the project might have on potential or established Indigenous rights, title or Treaty rights. As described in its 2015 report, "The Panel is both a Review Panel pursuant to the Canadian Environmental Assessment Act for the purposes of carrying out an environmental assessment of the project; and a Panel of the Commission, created pursuant to section 22 of the Nuclear Safety and Control Act, for the purposes of the review of the license application under section 24 of the Nuclear Safety Control Act".

Federal Minister of the Environment / federal cabinet: ultimate decision-maker as to whether the project would proceed or not based on recommendation received from the JRP.

2. Timeline Summary

Step	# Years to Date	% of Total Time	Main Issues	Key Effects
Overall Timeline	2002-2020 18 years	100%	Opposition to the project from multiple parties, in particular the SON.	Project halted and then cancelled by OPG.
1. Public Identification and Pre-consultation	2002-2004	16%		
2. Regulatory Submission and Review	2003-2015	72%	Failures to communicate the potential risks (or lack thereof), coupled with insufficient Indigenous consultation	Repeated requests for information from the JRP contributed to an increased total time required for the hearing process as well as additional studies required after the Joint Review Panel report was released in 2015.
3. Regulatory Decision	2015-2020	27%	Despite the creation of the JRP to review the environmental assessment of the project, the proponent did not adequately incorporate social considerations, particularly Indigenous considerations, into their decision-making	Opposition of the SON to the project lead to the cancellation of the project.
4. Investment Related	N/A	N/A		
5. Construction	N/A	N/A		
6. In Service and Monitoring	N/A	N/A		

3. Timeline Detail

Public Identification and Pre-consultation

2001

First reading of the *Nuclear Fuel Waste Act*. Although the Act focuses on (high level) used nuclear fuel and not L&ILW, it spurred debate within the Municipality of Kincardine regarding long-term management of L&ILW stored in the WWMF. Kincardine Council approached OPG in relation to this issue.

2002

MOU between OPG and Municipality of Kincardine was signed in April. The MOU set out the terms under which OPG, in consultation with the Municipality of Kincardine, would develop a plan for the long-term management of L&ILW at the WWMF.

Regulatory Submission and Review

a) Conceptual Feasibility

2003

As part of the MOU with Kincardine, a Geotechnical Feasibility Study and a Preliminary Safety Assessment of Concepts were conducted. The studies concluded that multiple concepts, including a deep rock cavern vault and covered above-grade vaults, were technically feasible and met radiological protection criteria. Communication and consultation activities began in the Municipality of Kincardine, as well as neighbouring municipalities. This included open houses and newsletters. The Municipality of Kincardine and OPG reached out to neighbouring First Nations, including the Saugeen First Nation.

2004

As part of the MOU, Golder Associates released an Independent Assessment of Long-Term Management Options for Low and Intermediate Level Wastes at OPG's WWMF (referred to as the Independent Assessment Study). The report assessed "the costs, impacts and benefits of constructing and operating each of three long term management concepts at the WWMF, namely: a) Enhanced Processing and Storage, b) Surface concrete Vaults and c) Deep Rock Vaults". The assessment concluded that all three options were technically feasible and could be safely constructed.

The Council of Kincardine passed a resolution that endorsed advancing the DGR concept for long term management of L&ILW. OPG and the Municipality of Kincardine signed a Hosting Agreement for a DGR. Stakeholder meetings were held, and further newsletters are released.

Additionally, presentations were given to a Joint Council of the Chippewas of Saugeen First Nation and the Chippewas of Nawash Unceded First Nation, who together make up the Saugeen Ojibway Nation. OPG and the First Nations selected an Administrative Coordinator and a technical advisor for the DGR proposal. Additionally, OPG and the two First Nations signed an MOU outlining terms and a process for OPG and the First Nations to communicate on the DGR in the short-term, with longer term discussions underway.

2005

Further stakeholder meetings were held, as well as independent consultations with residents of the Municipality of Kincardine regarding the proposed plan (with 60 percent of respondents in favour). The two First Nations held Peer Review Public Meetings to review proposed plans. Open houses were also held in neighbouring municipalities and First Nations. A project description was released in November to meet CEAA requirements to initiate the Environmental Assessment process. Finally, in December, OPG sent a Letter of Intent to Construct a DGR to the CNSC.

b) Specific Feasibility, Assessment and Review

2006

A Comprehensive Study of the project was initiated (the start of the federal Environmental Assessment process). The Ontario Ministry of the Environment confirmed that the project did not fall under its jurisdiction but expressed a desire to participate in the Comprehensive Study, along with several federal authorities with relevant expertise: NRCAN (which stated that it has no responsibilities for this project under the CEAA), Health Canada, Transport Canada, and Environment Canada.

The CNSC released a draft Scoping Document for the EA, identifying CEAA as the Federal Environmental Assessment Coordinator for the project. Open houses and public hearings were held regarding the EA guidelines. While the CNSC approved the guidelines laid out in the Scoping Document, the SON expressed concerns regarding long term adverse effects on SON's Aboriginal and Treaty rights, requesting that the EA be conducted in public with full SON participation.

A Geoscientific Site Characterization Plan was initiated as part of the EA and was estimated to take 5 to 6 years.

In December, the CNSC released the Environmental Assessment Track Decision Report which covered the scope of the project, the factors to be considered in its assessment and the scope of those factors, public concerns in relation to the project, the potential of the project to cause adverse environmental effects, and the ability of the Comprehensive Study to address issues relating to the project. Additionally, the Report included the recommendation that the EA be undertaken by means of a review panel.

2007

The federal Minister of the Environment announced approval of the CNSC recommendation of appointing a JRP to oversee the EA. OPG applied to the CNSC for a Site Preparation and Construction License. These two processes were separate, but ran in parallel. Another round of open houses was conducted in Kincardine and neighbouring municipalities.

2008

SON sent a letter to the CNSC in February expressing strong concerns, stating that “These projects will not be acceptable from SON’s perspective until we have a high degree of certainty that harm to our rights and interests will be avoided over many hundreds of years”. The letter recommended the forming of a JRP with substantial SON representation. At the same time, draft guidelines for the Environmental Impact Assessment were prepared by CEAA and the CNSC in consultation with Health Canada, NRCan and Environment Canada. In July the Métis Nation of Ontario (MNO) requested Crown consultation for the project.

A draft agreement between the federal Minister of the Environment and the CNSC to establish a JRP for the project was prepared. SON expressed further concerns, stating that agreements between SON and the CNSC in February regarding review panels were not respected. OPG submitted proposed acceptance criteria for the post-closure safety assessment of the DGR to the CNSC in May, which were accepted in August. Additionally, CEAA and the CNSC set up an open house information session regarding the JRP process.

Several cities in Michigan issued resolutions opposing the construction of the DGR, beginning a trend that extended to cities around the Great Lakes in Canada, and lasted until the cancellation of the project. OPG authorized the Nuclear Waste Management Organization (NWMO) to act as its representative and agent for the geotechnical studies portion of the JRP process. Finally, the Phase 1 Geosynthesis Technical Reports were submitted by the NWMO to the CNSC.

2009

Final guidelines for the preparation of the environmental impact statement (EIS) as well as the JRP Agreement between the Minister of the Environment and the CNSC were issued in January. In May, a project agreement was signed detailing the roles and responsibilities of the various actors and agencies in relation to the project. It stated that a) the CNSC had regulatory and statutory responsibilities under the NSCA; b) NRCan, Environment Canada, and Health Canada were relevant federal authorities; c) CEAA had administrative and advisory responsibility in support of the EA and JRP; and d) Indian and Northern Affairs Canada had advisory responsibility for federal Aboriginal Engagement and Consultation. Also in this year, the CNSC completed its review of the Geosynthesis report, and the NWMO submitted a first version of the Pre-closure Safety Assessment Report to the CNSC.

2010

Additional open houses were held. A Participation Agreement between the Historic Saugeen Metis Community (HSMC), OPG and the NWMO was signed in August, which provided a framework and capacity support for HSMC’s participation in the regulatory approvals process. The CNSC held a meeting with the MNO.

2011

OPG released its Environmental Impact Statement, Preliminary Safety Report and other documents in support of both the EA and the application for a site preparation and construction license for the DGR.

A participation agreement was signed between the MNO, OPG and the NWMO, with the intent to “to assist the Métis Nation of Ontario in accessing capacity to participate in the environmental assessment process for the DGR Project”.

2012

After reviewing the EIS from OPG, the Minister of the Environment entered into an agreement with the CNSC in January to formally establish the JRP, with a three-member panel: Dr. Stella Swanson, Dr. James F. Archibald, and Dr. Gunter Muecke. An amended Panel Agreement was released in August containing adjustments required to comply with the new *Canadian Environmental Assessment Act* (CEAA2012). The Amended Agreement stipulated that the Panel conduct the review in a manner that: discharged the CEAA2012 requirements; permitted it to obtain the information and evidence required for it to consider the license application under the *Nuclear Safety and Control Act*; and, permitted it to obtain information and evidence about the adverse effects the project may have on potential Aboriginal rights, title or Treaty rights as identified to the Panel by the SON and other Aboriginal groups, and enabled it to bring any such information and evidence to the attention of the Minister of the Environment and the Responsible Authority for the project in support of consultation between the Crown and the SON and other Aboriginal groups.

During the summer and fall, the JRP held three Technical Information Sessions on (1) proposed design, construction and operational details; (2) modelling; and (3) socio-economic assessment. The JRP also visited and reported on repository sites in Germany, Sweden and the United States.

From spring to the end of 2012, the JRP produced eight Information Request (IR) packages to be addressed by OPG. These IRs were based on its own review plus comments from federal authorities, provincial departments and agencies, Aboriginal groups, municipal governments, civil society organizations, unions, professional associations, American government representatives and agencies, and the general public.

A notable submission from the SON in 2012 was an Application for a Determination on the Scope of Review and Inclusion of a Project for the Long-Term Management of High-Level Nuclear Wastes. The application raised issues such as the reluctance of OPG to include a high-level waste project analysis within its study (despite the SON claiming that this could become a “reasonably foreseeable” future project and covered under CEAA2012).

2013

The JRP produced two more IR packages in February and March. The public comment period ended on May 24, 2013, after a total of 10 rounds of IRs.

In May, the SON submitted documents expressing concern regarding “the non-inclusion of a project for the long-term management of used nuclear fuel in the cumulative effects assessment of the DGR”. The MNO sent a letter to the JRP highlighting how the proponent had so far failed to include the MNO in the EIS process. The HSMC also expressed concern regarding OPG’s consultation and engagement process.

The JRP determined that there was sufficient information to proceed with the public hearing, with dates announced on June 18. The hearings took place from Sept 16-October 11 in Kincardine and from October 28-30 in Saugeen Shores.

During the summer, the SON sent a letter to the JRP expressing concerns regarding the Panel’s ability to meet SON requirements, and that “its unique status and integral role in this review will be diluted and reduced to that afforded to any other interested party”.

This exchange culminated in August with a letter from OPG to SON expressing a commitment to not move forward with the project without express support from SON.

Following the hearings, the JRP issued IRs and follow-up to OPG and the CNSC in November, including further information on the expansion of the DGR to potentially accommodate higher levels of waste.

Late in the year, the cities of Toronto and Windsor issued resolutions opposing the DGR.

2014

In response to reports of a fire and release of radioactivity at the Waste Isolation Pilot Plant (WIPP) in the US in February, the Panel requested additional information about the incident as part of their IR Package No. 13 released in March.

CNSC staff met with SON, where the SON “expressed concerns that there would not be public hearing days to allow for a comprehensive review of the information submitted by OPG in response to the Panel’s IRs”. The SON noted: given that the landscape of the project changed and that JRP hearings were not based on a complete application, a more robust process than a written exercise was required to assess OPG’s IR responses, particularly the information on decommissioning waste.

On June 3, the JRP announced additional public hearing days scheduled for two weeks in September. Topics included expansion plans for the DGR, relative risk analysis for alternative means of carrying out the project, implications of revisions to the reference waste inventory, and applicability of the recent incidents at the WIPP to the safety case for the DGR project.

In July, the MNO and OPG signed an MOU which outlined the process for continued consultation between the MNO and OPG.

During the added JRP hearings, the SON sent a written submission which stated that information provided by OPG failed to address SON concerns. A month later, SON released its closing remarks for the public hearings of the JRP, stating that “OPG’s proposed DGR Project stands to adversely impact [SON] Rights and interests in significant ways”, clarifying that their “principal concerns have been the lack of clarity on the scope and key characteristics of the DGR Project, deficient study of potential adverse impacts on SON Rights and interests, the failure to consider the cumulative effects of the DGR Project with a reasonably foreseeable future used fuel repository, and a materially incomplete analysis of reasonable alternatives to the DGR Project”.

Regulatory Decision

2015

The JRP submitted its Environmental Assessment Report in May. In addition to concluding that the project was “not likely to cause significant adverse environmental effects”, it concluded that “the changes in the natural environment that may be caused by the project [...] are not likely to cause significant adverse effects on Aboriginal interests”. It also noted that “the sooner the waste is isolated from the surface environment the better”.

Additionally, in response to previous requests by SON to include “a project for the disposal of used nuclear fuel” in the cumulative effects assessment for the DGR review, the JRP report stated that such a process was not “likely to be carried out, for the purposes of cumulative effects assessment”.

In June, CEAA invited public comments on the JRP report and its proposed potential conditions on the project. OPG commented that though the conditions were not necessary from a technical perspective, they may serve to increase public confidence in the project, and therefore agreed with most of them.

However, SON responded to the CEAA proposed conditions and JRP recommendations by stating that the environmental assessment of the Project and the JRP Report failed to satisfactorily address their concerns and had, in material ways, created additional problems and concerns. The MNO found that “the main issue with the Report was the characterization of Aboriginal Interests, the lack of Métis information and the lack of any recommendation related to Aboriginal Interests or Aboriginal Peoples”. For its part, HSMC stated that they “believe that potential adverse impacts of the project have been adequately addressed by the JRP’s recommendations”.

Throughout the year, the deadline to issue a Decision Statement by the federal Minister of Environment and Climate Change (ECCC) on the project was continuously extended.

2016

The ECCC minister requested additional information from OPG, including information on alternate locations, and an updated list of mitigation commitments. The deadline to issue a Decision Statement was extended.

2017

A public comment period and technical review of OPG’s responses to the Minister of Environment and Climate Change IRs was completed. After considering comments from the public, Indigenous groups and federal authorities, CEAA issued the response to the IR from OPG, including a study of alternate locations for the DGR.

HSMC released a review of OPG's additional information and concluded that little information was given concerning alternate sites for the DGR, while the MNO concluded "that OPG's response to the Request contains certain deficiencies that will make it difficult for the CEAA to conclude that OPG's response has appropriately taken into consideration Métis rights, interests and way of life considerations".

CNSC, NRCan, Fisheries and Oceans, ECCC and Health Canada provided expert feedback on the OPG response. ECCC and Health Canada raised issues with responses they saw as unsatisfactory, but they did not propose additional IRs.

After a review of the additional information, CEAA determined that the EA could proceed to the next step, commencing preparation of a Draft Report and Potential Conditions. Meanwhile, SON sent letters to the Minister of ECCC reiterating that the DGR should not move forward without support from the SON community, pursuant to the SON - OPG Commitment. In response to this letter, the Minister of ECCC requested additional information from OPG, including that OPG update its cumulative effects analysis of the Project on physical and cultural heritage and informed by the SON community process.

2018

OPG acknowledged receipt of the request for additional information from the ECCC Minister and stated that it would respond after engaging in dialogue with SON and the release of the SON community process results.

2019

The *Impact Assessment Act* replaced CEAA 2012. However, this had no effect on the project review as it was grandfathered under the CEAA 2012 process.

2020

In January, SON advised OPG that the SON Communities had voted and determined that they did not support the project. In May, OPG withdrew its application for a Site preparation and Construction License and informed the Minister of ECCC that it wished to terminate the EA process for the DGR, effectively announcing the cancellation of the project. In June, the Minister of ECCC terminated the EA.

4. Key Issues Raised by This Profile

Regulatory – Framework and Interactions

Several dozen IRs were made to OPG, most notably during the JRP's mandate (but not exclusively). While these requests can be understood as the JRP collecting information to undertake the EA, of note is the number of requests made and the time taken to respond to, and in some cases even acknowledge, these IRs. In one case, an IR made by the Minister of ECCC concerning SON consultation in the analysis of the effects of the project in August 2017 was only acknowledged by OPG in March 2018, with a response stating that an answer to the request will emerge after engagement with the SON. While the research for this Profile does not enable us to know what factors may explain these situations, such "administrative" or "procedural" delays, when stacked across the dozens of IRs made throughout the project's lifecycle, accumulated into a substantial period of time. While the unique nature of the project (a DGR) contributes to the large amount of requests as well as the time taken to respond to these requests, the sometimes disjointed nature of these requests and the delays in answering them seems to have contributed to delays in the project as a whole as well as a challenge for those attempting to follow or engage in the project review.

Regulatory – Indigenous Engagement

Related to social acceptance (below), the lack of support from the neighbouring Indigenous nations, most prominently the Saugeen Ojibway Nation, proved decisive in the ultimate cancellation of the DGR project by the proponent. This lack of support was established very early on in the project's lifecycle, despite multiple attempts by Indigenous nations to communicate their concerns to OPG, as well as an overt and clear commitment by OPG to not move forward with the project without SON approval. This friction was not improved by the JRP process, which was criticized by Indigenous nations regarding its inability to take their interests into consideration in an acceptable manner when assessing the impact of the project.


Socio-political – Social Acceptance

The DGR project was marred since its inception with a tenuous level of social acceptance, despite the supportive technical and scientific assessment of the project. Though the Municipality of Kincardine approached OPG about the project, and they entered into an MOU indicating a level of acceptance within the Municipality, it is clear from the long list of other city resolutions, Indigenous group correspondence and comments, and public commentary, that the project faced substantial opposition from neighbouring communities that felt potentially impacted by the project. This also included multiple resolutions and statements of opposition from communities and congressional representatives from the United States.

Moreover, as evidenced by the JRP's final report and the correspondence with the SON, social acceptance may have been impacted by a perception that the DGR would be (eventually) used as a storage area for used fuel (High Level Waste). As explained by the JRP report, "According to the Saugeen Ojibway Nation, the high level radioactive waste project is reasonably foreseeable and should have been included as part of the cumulative environmental effects assessment for the following reasons: 1) the proposed DGR site is a suitable location for a high level nuclear waste repository; 2) Nuclear Waste Management Organization had begun formal consideration of sites within the study area; and 3) Nuclear Waste Management Organization and OPG repeatedly refused to confirm that the Bruce site was not considered for high level radioactive waste. The Saugeen Ojibway Nation submitted that the Panel should send specific directions to OPG to amend its EIS to include consideration of a high level radioactive waste project and to provide full consequential data and analysis". The JRP's decision to reject the SON's request to include the analysis of the effects of storage of high-level waste as a part of the environmental assessment of the project was itself rejected by the SON. Indeed, as expressed in the environmental assessment report itself, "After the Panel released its opinion, the Saugeen Ojibway Nation continued to take the position that the high-level nuclear waste project ought properly to have been included in the cumulative effects analysis of the DGR project. The Saugeen Ojibway Nation referred to the lack of inclusion of a high-level nuclear waste project as a fundamental deficiency".

5. Discussion

It seems clear that while OPG may have been able to obtain the Municipality of Kincardine's support early on, the company not only underestimated the opposition to the DGR, but did not sufficiently adapt and respond to this opposition. As evidenced by the near continuous correspondence between OPG and the SON leadership – whereby the latter repeatedly reiterated its concerns regarding the project, the possible threats to their interests which may have arisen from it, and the inclusion of Indigenous concerns into the EIS process – as well as the thousands of comments from the broader public, OPG failed to secure public support for the project.

However, it is also important to note that the very nature of the project – a  subterranean vault used to store radioactive material – contributed dramatically to the challenge of securing public support. Many public comments emphasized the potential risks posed by the DGR, even though technical reports had demonstrated a limited potential for negative impacts.

This highlights two major issues in this project: first, disagreements between Indigenous nations and the proponent and government over the scope of the EIS reinforce perceived risks by the First Nations and Métis communities and created a measure of distrust between OPG (and the JRP) and SON and other Indigenous groups such as the MNO (as evidenced by the SON letter requesting the assessment take into consideration the possibility of a high level waste facility being located in a similar vicinity to the OPG's DGR project).

Second, this case highlights the challenge of providing the public with trusted accessible data demonstrating limited risks. This could be a consequence of different understandings of what constitutes safety risks when it comes to nuclear projects or from a lack of public trust in nuclear operators and regulatory frameworks, leading to a rejection of findings. It could also result from inadequate availability of information for the public. Regarding this last proposition, the author of this project profile found that accessing the technical reports which contain the relevant data was neither intuitive (requiring careful navigation of the CEAA's website, as OPG does not make most of the documentation available on its website), nor reliable (with the website often being offline for extended periods of time).

Finally, a note must be made concerning the IRs made in relation to the project. As mentioned above, these requests are entirely justified, particularly in the context of the JRP being established and requiring the relevant data to accomplish its task. However, the frequency of IRs, further clarifications to these requests, coupled with a sometimes very long delay in responding (or even acknowledging receipt) on the part of OPG, may have contributed to a delay in the project's development. While some delay is understandable as data collection can take time, repeated requests may create confusion and lead to a "logjam". A detailed analysis of the dozens of individual IRs could help clarify if the request process itself may have been the source of delays, and if any opportunities exist to streamline it.

Sources

Agreement to Establish a Joint Review Panel For the DGR by OPG within the Municipality of Kincardine, December 2008: <https://iaac-aeic.gc.ca/050/documents/55761/55761E.pdf>

Canadian Environmental Assessment Act of 2012: <https://laws.justice.gc.ca/PDF/C-15.21.pdf>

CNSC, December 2006, Deep Geologic Repository Project – Environmental Assessment Recommendation: <https://iaac-aeic.gc.ca/050/documents/40439/40439E.pdf>

CNSC, June 2006, Draft Comprehensive Study Scoping Document <https://ceaa-acee.gc.ca/050/documents/22983/22983E.pdf>

DGR Hosting Agreement Between OPG and the Municipality of Kincardine, October 2004: https://archive.opg.com/pdf_archive/Deep%20Geologic%20Repository%20Documents/Historical%20Project%20Documents/D071_HostingAgreement.pdf

Golder Associates Ltd, January 2003, LLW Geotechnical Feasibility Study: https://archive.opg.com/pdf_archive/Deep%20Geologic%20Repository%20Documents/Historical%20Project%20Documents/D072_4.3.67_LLWGeotechnicalFeasibilityStudy.pdf

Golder Associates Ltd, February 2004, Independent Assessment of Long-Term Management Options for Low and Intermediate Level Wastes at OPG's WWMF: https://archive.opg.com/pdf_archive/Deep%20Geologic%20Repository%20Documents/Historical%20Project%20Documents/D069_IAS_Report.pdf

Golder Associates Ltd. March 2011, OPG's Deep Geologic Repository for Low & Intermediate Level Waste Environmental Impact Statement, Volume 1: Main Report: https://archive.opg.com/pdf_archive/Deep%20Geologic%20Repository%20Documents/DGR%20Submission%20Documents/D149_01.Environmental-Impact-Statement-%28Volume-1%29.pdf

Golder Associates Ltd. March 2011, OPG's Deep Geologic Repository for Low & Intermediate Level Waste Environmental Impact Statement, Volume 2: Appendices: https://archive.opg.com/pdf_archive/Deep%20Geologic%20Repository%20Documents/DGR%20Submission%20Documents/D150_02.Environmental-Impact-Statement-%28Volume-2_1%29.pdf

Guidelines for the Preparation of the Environmental Impact Statement for the Deep Geologic Repository for Low- and Intermediate-Level Radioactive Wastes, January 2009: <https://iaac-aeic.gc.ca/050/documents/39323/39323E.pdf>

Impact Assessment Act of 2019: <https://laws-lois.justice.gc.ca/PDF/I-2.75.pdf>

Joint Review Panel, May 2015, Environmental Assessment Report: <https://iaac-aeic.gc.ca/050/documents/p17520/101595E.pdf>

Nuclear Safety and Control Act of 1997: <https://laws-lois.justice.gc.ca/PDF/N-28.3.pdf>

Nuclear Fuel Waste Act of 2002: <https://laws-lois.justice.gc.ca/PDF/N-27.7.pdf>

OPG, December 2005, Intent to Construct a Geologic Repository for Low and Intermediate Level Waste: <https://ceaa-acee.gc.ca/050/documents/39411/39411E.pdf>

OPG, August 2007, Deep Geologic Repository for Low and Intermediate Level Waste (DGR) – Application for the Site Preparation and Construction License: <https://api.cnscccsn.gc.ca/dms/digital-medias/3070094.pdf/object?subscription-key=3ff0910c6c54489abc34bc5b7d773be0>

OPG, May 2020, Request for Terminating the Environmental Assessment for the DGR Project: <https://iaac-aeic.gc.ca/050/documents/p17520/135184E.pdf>

Project Agreement for OPG DGR at Kincardine, May 2009: <https://major-projects.canada.ca/sites/mpmo.gc.ca/files/files/project-projet/pdf/kincardine-eng.pdf>

Saugeen Ojibway Nation, February 2008, Comments regarding the Draft Agreements for the project: <https://iaac-aeic.gc.ca/050/evaluations/proj/17520/contributions/id/38450>

Saugeen Ojibway Nation, April 2008, Letter Regarding Panel Agreement: <https://iaac-aeic.gc.ca/050/documents/56948/56948E.pdf>

Saugeen Ojibway Nation, August 2012, Application for a Determination on the Scope of Review of OPG's DGR Project and the Inclusion of a Project for the Long-Term Management of High Level Nuclear Wastes: <https://iaac-aeic.gc.ca/050/documents/p17520/80907E.pdf>

Additional documentation was found within the following online archives:

Ontario Power Generation document archives: <https://archive.opg.com/?collection=Deep%20Geologic%20Repository%20Documents%2F>

Canadian Environmental Assessment Agency document archives: <https://iaac-aeic.gc.ca/050/evaluations/exploration?projDocs=17520>

Canadian Nuclear Safety Commission document archives: <https://www.cnscccsn.gc.ca/eng/resources/status-of-new-nuclear-projects/deep-geologic-repository/index.cfm>

POSITIVE ENERGY AT THE UNIVERSITY OF OTTAWA USES THE CONVENING POWER OF THE UNIVERSITY TO BRING TOGETHER ACADEMIC RESEARCHERS WITH EMERGING AND SENIOR DECISION-MAKERS FROM INDUSTRY, GOVERNMENT, INDIGENOUS ORGANIZATIONS, LOCAL COMMUNITIES AND ENVIRONMENTAL ORGANIZATIONS TO DETERMINE HOW TO STRENGTHEN PUBLIC CONFIDENCE IN ENERGY DECISION-MAKING.

POSITIVE ENERGY



uOttawa