



Energy Projects and Net Zero by 2050: Can we build enough fast enough?

A White Paper

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Executive Summary

Can Canada build enough fast enough to meet its net zero targets? Does it have the policy and regulatory frameworks needed to attract sufficient investment and enable the vast range and number of projects needed to transform its energy system and broader economy? These questions are high on political and policy agendas of late.

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. That 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 challenge. 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 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 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 very 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, Indigenous organizations and the finance and investment communities.

Key findings. The most important finding from 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 respecting impact assessment. It is also about more than just timeliness of decision-making, but also 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 it will need to build enough fast enough.

Key findings can be grouped into 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 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 for federal impact assessment. Lack of clear delineation, coordination and streamlining between federal and provincial roles, conflicting mandates among regulatory and permitting agencies, and lack of intragovernmental coordination also reduce the attractiveness of Canada for investors.
- ***Relationships with Indigenous communities are a very big part of the solution.*** There has been a veritable transformation in the relationship between project proponents and Indigenous communities in recent years. Indigenous communities 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. 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 beyond the regulatory system:

- ***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.
- ***Planning:*** governments need to take action on a number of areas where planning is essential (energy delivery, electric power systems, the role of Indigenous communities, and costs), but must do so without overturning a largely market based system.
- ***Machinery and capacity:*** all actors need to cooperate and resolve to invest in building policy 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.

Four packages lie within the regulatory system:

- ***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.
- ***Intergovernmental relations and 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 overlap and duplication.
- ***Mandates and 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 would help accelerate innovation, learning and best practice sharing.
- ***A whole of government machine:*** governments need to develop intragovernmental coordinating 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. The aim is to develop a detailed action and implementation plan so that Canada can achieve meaningful and durable progress on the goal of net zero.

1. Introduction

This White Paper, as the title implies, focuses on the question of how Canada can – in effect – rebuild or replace virtually its entire energy system over the next 25 years in pursuit of climate change commitments. It is based on an eighteen-month research study of the same name and represents an interim report prior to publication of a final research report. We style this a White Paper as our intent is to foster debate and discussion of the ideas and recommendations herein, to inform ongoing policy and regulatory reform processes in Canada, and to invite comments for consideration as we draft the final report.

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. That is a big task, bigger than any that has ever been undertaken through deliberate policy – with the exception of wartime – in Canada's history.

There are many questions lying behind all of this. Consistent with Positive Energy's mandate since its inception, the focus of this research is on public confidence in government decision-making systems for energy projects. By 'public' we mean a very broad and in some ways 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 or so, and looking forward to what the next two or more decades might hold.

Based on almost ten years of Positive Energy research and engagement in energy and climate issues (and many more of each of the authors), we have brought to the question two particular perspectives.

First, although in recent times there has been much badly needed debate on what can be done to reform regulatory systems, 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 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 capacity 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 in 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 certainty or at least 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 (as this research reveals) the result is little to no gain on timeliness and an increase in uncertainty.

The White Paper proceeds as follows. The next section lays out our research approach and methodology, as well as 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. Importantly, it synthesizes the overall findings emerging from the research. The final section identifies recommendations emerging from the study. We use the term ‘emerging’ consciously. As a White Paper, our aim is to put forward recommendations for debate, discussion and comment. These will be refined, finalized and published in our final report in the first part of 2024.

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

We approached the topic 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

There has been much written, especially of late, on the processes by which energy projects in Canada are approved by various authorities. Three recent reports are of note.

The Canada West Foundation (2023) and the Business Council of Alberta (2023) have issued reports in the last few months that focus specifically on the federal Impact Assessment Act. Both reports identify problems and possible solutions which – as we will see – closely mirror what we heard from the numerous experts whom we interviewed and broadly align with the recommendations in this paper. Importantly, both reports either implicitly or explicitly make clear that many of the problems derive from policy failures rather than regulatory failures as such¹.

The third report of note 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 problem of net zero given that broad-based electrification of end use is a key pathway to emissions reductions. In a nutshell, PPF notes that the remaking and then doubling or tripling of power system capacity is very much a systemic problem. This further reinforces the point that regulatory reform, while important, is far from the whole issue.

Our final report will provide a more comprehensive literature review. In this paper, we highlight that the literature is consistent on several matters. One is that the project decision-making system (more accurately, systems) entail extraordinary complexity. Another is that, on some matters, they appear to be less clear, certain, predictable and timely than corresponding systems in other jurisdictions. 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). Also unsurprising and of critical importance to the need to attract private capital, is that the current environment is a barrier to investor confidence.

Interestingly, one very big gap in the literature is that very little has been done by way of empirical analysis of projects that have been approved and built or ones that failed in recent years. This led us to the next steam of our research.

2.2 A Look Back – Project Profiles

We undertook '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,

¹ The Supreme Court's recent reference opinion finding that a number of elements of the Impact Assessment Act are unconstitutional – and the federal government's forthcoming response to it – offer 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.

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 will be published as an annex to the final report for this study.



Figure 1: Location of project profiles

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. Collectively, they are reasonably representative of experience in Canada over the past two decades.

Figure 2 illustrates the phases involved in bringing a project from inception to in-service investigated for each profile: public identification and pre-consultation; regulatory submission and review; regulatory decision; construction; and in-service². The project profiles will be published in 2024 as an annex to the final report of this research study.

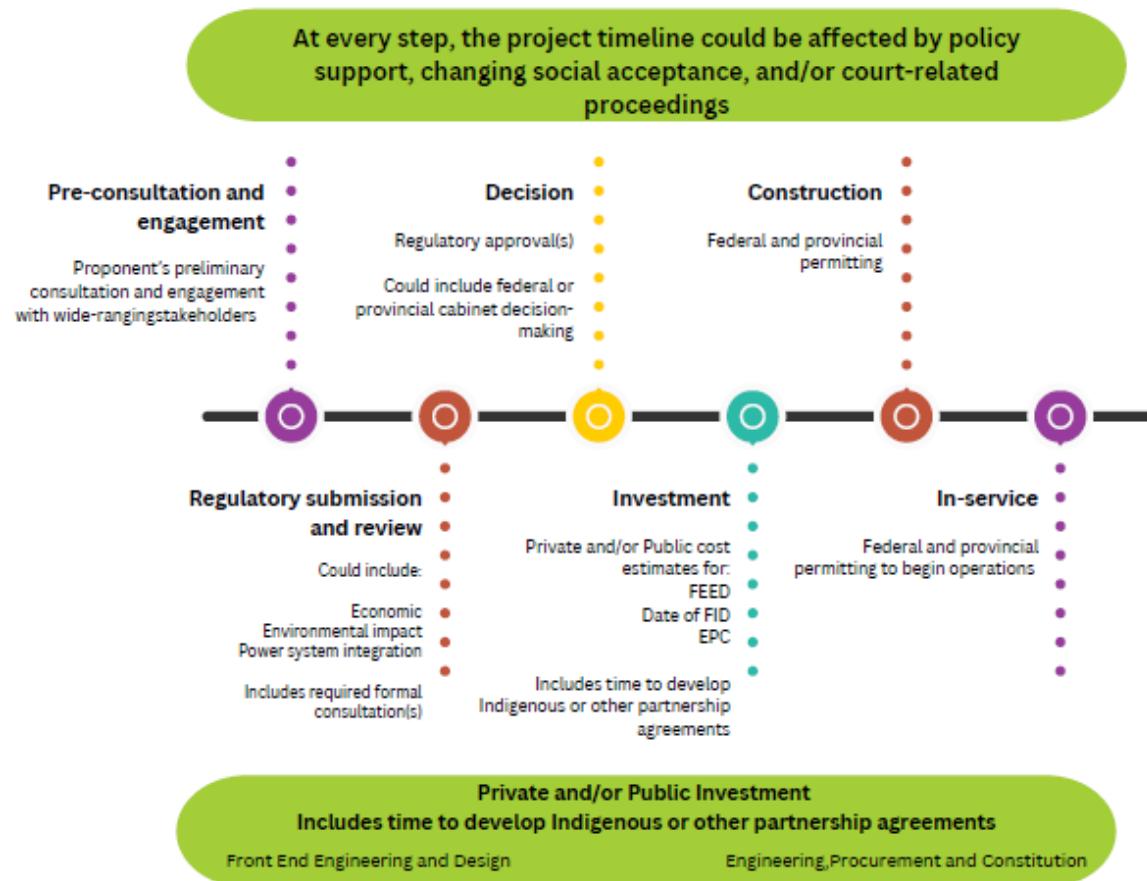


Figure 2: Generic project timeline components

² Notes: a) the time taken by a proponent in advance of the general public's knowledge of a proposed project was not determined; b) the details for the final investment decision are included in the profiles (to be published with the final report emerging from this study).

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 related analysis is provided in Section 3.

Top lines looking back

Learning about people and communities is essential.

A particularly 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 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 this is time well spent if it reduces later delays from protests, fractious regulatory processes, political controversy and litigation.

Activities outside of formal 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 communities.

Apart from that, identification, site selection, determining feasibility and putting financial deals together typically take years and construction takes 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. The point here, as we contemplate how to reform government decision-making processes, is to maintain a realistic perspective on how fast we can get things done, no matter how expeditious government decision-making processes.

Life is full of surprises.

An issue that emerges in most of the profiles is the frequency of 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 (e.g., supply shocks) that cause holdups in arriving at Final Investment Decisions (FID). Geotechnical surprises 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 may have helped mitigate some of them. Again, as with community engagement, more time up front may pay off in reducing later delays. Importantly, policymakers and regulatory authorities may have a role in encouraging such up-front work.

The whole system matters.

In several of the profiles it emerges that up front policy support for a project or type of project can mitigate delays in regulatory decision-making processes. 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 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 direct experience and knowledge of energy project development and

approval. 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.

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 what amounts to a Chatham House Rule format. In other words, individuals and their affiliations are named in the Appendix (a few chose to remain anonymous) but 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 most interviewees expressed concern about the country's prospects of attracting investment on the scale needed in the years ahead.

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.

Many interviewees pointed to the absence of a shared vision and lack of alignment between federal and provincial governments as major stumbling blocks for the country. They also raised the issue of current and future policy uncertainty, which challenge the calculation of project economics. They mentioned carbon pricing and contracts for difference, the functioning of investment tax credits and other major policy levers (e.g., the Clean Electricity Regulations). Policy clarity is especially needed to retain Canada's competitiveness as an attractive investment environment, notably in the wake of the United States Inflation Reduction Act.

The future entails 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.

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.

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.

Finally, who pays for what, when and how is the most 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. Many 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 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 doorsteps but will need to identify ways of mitigating inequities and maintaining economic competitiveness.

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

Again, this reinforces the observations from the profiles and it is something we expand upon below. Capital projects involve many complexities and resolving those takes time. Engineering, construction and securing finance are obvious ones. Looking more to the future there are looming challenges respecting supply chains, the need to work through the uncertainties of new technologies and, above all, labour and skills. All of these challenges are made daunting by the sheer numbers of projects that will have to be undertaken, by the

predictable competition for talent, products and resources as countries the world over try simultaneously to remake their energy systems, and the simple fact that in project terms, from now to 2050 is a very short time.

Public policy and associated decision-making processes can't fix all of this but they can help. They can add to timelines and unpredictability or help to reduce them. The high-level message 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.

The interviewees suggested, almost more than anything else, that governments can do a lot to improve things relatively quickly. The challenges are complex but with political will and management skill, they can be addressed. Of note, many of the issues interviewees raised focused on federal impact assessment, although it is important to note that many issues extend beyond impact assessment.

Given a national goal such as net zero greenhouse gas emissions by 2050, 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 established risk mitigation measures exist. 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.

Interviewees noted 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 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.

One of the main concerns raised by interviewees was over political involvement in decision-making. The role of ministers and cabinet at multiple stages throughout decision-making for an individual project was noted as a major source of uncertainty and unpredictability. Political direction should be provided at the level of vision, policy and planning, after which individual project decisions should be undertaken by expert regulators.

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 1945.

Relationship Building with Communities is the Sine Qua Non of success.

It is no surprise that our interlocutors strongly reinforced the first observation (above) from the profiles: that learning about people and communities is essential. It is important to note that ‘communities’ are not only Indigenous. Indigenous 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.

As one interviewee put it, Indigenous partnerships are ‘table stakes’ for any successful project. 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 communities are making significant progress on this. In many (but not all) industry circles there is a real 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 requirements. 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.

Indigenous communities in Canada are far from homogenous and each community demands 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 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. Finally, most are capacity constrained, whether it be capital or human resources – and both industry and governments need to invest in their capacity.

3. Analysis

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.

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. What's more, \$1.6 trillion may be a conservative estimate. In Ontario, 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, Toronto Hydro Corporation (2021) extrapolated City of Toronto modelling for a net zero future and estimates direct

investments of up to \$10B in climate action infrastructure through 2050. Scale that up to all local distribution in the province, 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 this mean in infrastructure terms? Estimates 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 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 sequestration, hydrogen, renewable natural gas, etc.). All of this is to be done in 25 years – and with very little market pull except where carbon pricing exists at a level sufficient to provide the economic incentive.

To understand what has to happen 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 of potential projects and how that compares to business as usual. There is no very 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 to that 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 the last point, we do know from experience (noted above) 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.

The Canadian Context

Three 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.

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

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, power generation and GHG emissions profiles and resources, and the inevitable inequities entailed in getting every place to net zero emissions.

Finally, the variety of needed projects involves numerous and different decision-making processes managed by various regulatory authorities, some federal, many provincial 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 all the 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. It begins with policy in the largest sense, extending from broad goals to the way governments organize themselves to achieve those goals. 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, and civil society, most notably Indigenous leaders, fully accept that we need to move concertedly in that direction and 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 number of areas of 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. They need to be clear that they see and are acting on the need to work through the complex reality that our energy systems – both domestic and export – are still largely fossil based. They also need to be clear 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.

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.

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 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 recognition of the importance of CCUS, including as a way of mitigating oil production emissions, is encouraging as is the renewed recognition of the role of nuclear. The growing recognition 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.

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. 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. Governments need to critically assess the instruments they have available. All are constrained by circumstances.

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. Carbon pricing in Canada needs to be projected into the future (as is the federal carbon tax), 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 will set back the movement to lower carbon technologies. Carbon contracts for difference will be crucial to mitigate this risk.

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. Policymakers (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, 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 virtually all agreed that the transition itself will entail vast capital expenditures which must be financed somehow. And all 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 consumers through higher taxes. Or it leaves 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. Green 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.

The need for planning. Governments need to project policy through to much more explicit planning. The obvious place 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 emerging where industry and/or governments are working on decarbonization plans for particular sectors (e.g., carbon management in the oilsands) or infrastructure for emerging sectors (e.g., hydrogen hubs). 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. More than anything else, and something emphasized several times by our interlocutors, will be 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. 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. 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.

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/territorial – when it comes to the investment environment for net zero. Meaningful planning, coherent communication and regulatory reform (more about that later) are all needed. Policy clarity on big questions like the desirability of oil and gas projects is also needed. 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, resources and investment, and regulatory and permitting processes between levels of government – are a good foundation, but they are for the most part 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 not only a matter of provincial jurisdiction but in many cases associated with provincial identity, and in all cases may be far more politically fraught than what we find in the hydrocarbon economy. The Atlantic Loop, tying together Newfoundland and Labrador, Quebec and the Maritime provinces, seemed like a promising example of a positive future. But, inevitably perhaps, 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. These could help pave the way to larger collaborative efforts. This is an area where much regulatory reform can hinge but 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. 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 vehicles, some municipalities are moving to prevent new development reliant on natural gas and others have expressed aspirations for the retrofit of established buildings. But in the face of realities such as the maturity and availability of new technologies and consumer (including industrial consumer) uptake, mandates can easily become later dates and consumer uptake can lag expectations. Recent experience in Europe and the UK underscores the point.

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.

Financial and capital markets. Financial and capital markets will be driven by their own dynamics. Policy around carbon pricing, subsidies and mandates will provide some measure of certainty. But 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. 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.

Resources 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 ones driving our systems to net zero emissions it would be feasible, but with most of the world energy system attempting the same thing at the same time the uncertainties around the availability of resources make planning much more difficult. 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.

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. Our research reveals reform is

well within the reach of policy and 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. Given this, it should be a relatively straightforward matter and actionable in the short term.

A caution: the challenge is about more than just timelines. Our research has revealed it is not only timelines that matter (and timelines themselves may well be dictated by other factors). 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 or so 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 (Cleland and Gattinger, 2021). The argument for this rests on the idea of democratic accountability. But democratic accountability can be achieved in considerable measure through policy and planning. Accountability exercised at the level of individual project approvals is largely 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. We heard about this in particular when it comes to federal impact assessment, where the minister of the environment can intervene at multiple points in the process. Worse, a final decision process undertaken in cabinet occurs behind closed doors thereby violating concepts of due process, fairness and transparency.

This problem could be resolved or at least mitigated by governments 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 governments 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 governments do not 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, 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.

Of course, it is characteristic of regulators to carefully assess risks and ensure environmental and other protections are maintained. On this point interviewees were clear: regulators should pursue rigorous environmental protection 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.

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* and it will require policymakers 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 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. Many pointed to the need for more federal forbearance, particularly with respect to impact assessment. A key mechanism for doing

this is through substitution 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.

Indigenous governments have, as yet, less capability, but they have even more interest in protecting environmental and cultural values – and mechanisms are emerging that enable them to be an integral part of assessment processes, as well as lead their own assessments, ideally through substitution or delegation agreements. Meanwhile of course, the federal government has constitutionally mandated responsibilities such as for fish habitat or migratory species. 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. 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. Most importantly, it needs to have teeth; it needs to be directed from the top and above the mandates of individual departments and regulators. 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. 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. Much is already known about habitat management on transmission corridors, stream crossings and monitoring systems. The incremental gain in

environmental protection from constantly reinventing the wheel is often trivial relative to the cost.

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. 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 the requirements for regulatory capacity.

The risk of focusing narrowly on timelines and fast tracking. Finally, 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 may do little to reduce timelines while simply adding unpredictability. Similarly, governments should be careful about fast tracking certain projects or classes of projects. 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. Moreover, the politics surrounding which projects get fast-tracked will simply add time and can lead to blow back if the resulting 'list' is not seen as inclusive. Governments should be neutral about which projects are good or not. 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? It is about putting in place the right system – not making exceptions for individual projects or types of projects.

3.6 Relationships with Indigenous 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.

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 communities are already well down the road of benefiting from the energy transition and doing so in multiple dimensions. Others, perhaps more remote or unfamiliar with resource or project development, may have limited capacity to take on the complex tasks involved. Still others 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, 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.

Rights-based and business-based approaches. A number of our Indigenous interlocutors raised the important point that we are at an inflection point where the attitudes of Indigenous communities are rapidly changing. 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 those rights are now well established (although where overlapping land claims are involved it gets complicated). And, bit by bit, questions about what constitutes adequate consultation are being resolved and there is a growing recognition that seeking ‘consent’ is not a source of blockage but rather a facilitator.

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, in partnerships with proponents or as proponents themselves. Interests are centered 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. Governments and project proponents need to recognize this diversity and learn from the community where they are and where they want to go.

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. 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 Indigenous owners can participate 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 communities develop robust balance sheets that can help them secure financing. This is the future – and one that one of our business interlocutors characterized as “table stakes” for any development.

Indigenous regulation. A trickier question concerns Indigenous control of development and, in effect, Indigenous regulation. This is already happening in some jurisdictions and with some communities, but this will not be of interest to all communities. 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. Most of our interlocutors saw pragmatic ways around the matter. If the federal and provincial governments can agree to cooperate, Indigenous communities could lead processes in their own right through substitution or deferral agreements. In other cases, separate processes but harmonized administration of processes (e.g., on timing) could be pursued. Some interviewees raised the potential for conflict 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 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. Given these important realities, pursuing a measured pace 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. Another is to recognize that those on the ground – Indigenous 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. Capacity remains the big question and there is hardly any role for governments more important than investing in that capacity. Finally, governments need to celebrate what may prove to be the most positive message to communicate to investors. There remains a dearth of understanding in the larger Canadian community 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.

4. Conclusions and Recommendations

The most important conclusion – and one consistent with one of our premises – 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 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 problem 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’. 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. In some cases, this can be done with the expectation that 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.

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 options for action. The precise directions will emerge from the necessary debate and discussion implied by the way we have framed the ‘packages’. Response to this White Paper will inform the process of finalizing recommendations into a final report to be published in the coming months.

Recommendations: Multiple Packages of Reform Must be Addressed

4.1 Beyond the Regulatory System

4.1.1 Predictability and clarity of policy, strategy and vision – governments at all levels need to do better 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 pivotal to 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 by 2050. 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 withered 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 and provincial 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 recent reference opinion on the 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 the federal-provincial energy and resource tables and with intergovernmental collaboration on small modular reactors. But collaboration needs to be scaled up significantly and must speak to core regional or provincial priorities in different parts of the country.

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.

4.1.2 Planning – governments need to take action on a number of areas where planning is essential, but 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 a public who have little to no idea of what they are facing.

Third, the role of **Indigenous 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 system 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 UNDRIP in Canada, to 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 and provincial 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.

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 Machinery and capacity – 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.

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, 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 new reality. Governments and industry need to facilitate this change, recognizing that it will take time and that much of the ideas and solutions must come from the ground up.

4.2 Within the regulatory system

4.2.1 Who provides policy direction for projects and who regulates them is a very large and pressing question that needs serious and pragmatic reflection.

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, cabinet) 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 drawn through their enabling legislation, regulation and appropriately framed government directives of general application, regulators can have scope to be innovative without violating principles of political accountability.

Governments, for their part, should tie their own hands. In so doing, they should convey a sense 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, the role of the minister throughout the process reduced, and the role of cabinet in final approvals limited to accepting, rejecting or sending the decision back to regulators to reconsider specific issues, rather than adding conditions at the cabinet table.

4.2.2 Intergovernmental relations: 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 reliability, affordability and competitiveness. 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 or cooperative agreements that ensure other 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, who 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 necessitate its 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 Mandates and 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 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 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 ongoing forum would help to accelerate this process of innovation, learning and best practice sharing.

4.2.4 A whole of government machine – the machine needs to operate seamlessly for a task this big.

Inevitably at both federal and provincial 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, regulatory and permitting frameworks (e.g., BC's Clean Energy and Major Projects Office, the former federal Major Projects Management 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 should 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.

5. Concluding 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 paper. 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 or solely with an accumulation of isolated policy actions.

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 some pre-publication feedback on this paper, we heard comments to the effect that many of the identified issues needed 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 or 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 will require a process to support further dialogue and debate, always keeping focused and solution-oriented and

involving numerous and diverse perspectives. The aim is to develop an action plan and implementation process for each area. Importantly, the key players 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 buy-in and support from industry, Indigenous organizations, civil society and the broader Canadian public. The first step is to affirm or possibly modify the scope and focus of each package and, in effect, lay out an action and implementation plan. We urge governments and other organizations to collaborate on such a first step and do so as a matter of urgency. From there, the way forward respecting each problem area can be organized for analysis, debate and action so that Canada can move forward in a way that fosters meaningful and durable progress on the goal of net zero.

Positive Energy welcomes feedback and input on this White Paper (please send comments to Positive Energy Project Coordinator Dr. Patricia Larkin, plarkin@uottawa.ca). A final report refining the analysis and recommendations and sharing the detailed project profiles, will be published in early 2024.

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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 Transmission 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, 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?