



FEBRUARY 2022

# A LEADERSHIP BLUEPRINT FOR CANADA'S NET-ZERO ENERGY TRANSITION





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The Public Policy Forum builds bridges among diverse participants in the policy-making process and gives them a platform to examine issues, offer new perspectives and feed fresh ideas into policy discussions. We believe good policy makes a better Canada.

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1400 - 130 Albert Street  
Ottawa, ON, Canada, K1P 5G4  
613.238.7858

ISBN: 978-1-77452-105-2



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## PREAMBLE

Diven by mounting concerns about the impacts of climate change, Canadian expectations for a comprehensive energy transition have gathered momentum. Any credible plan must enable the development of clean supplies of energy that meet or exceed climate objectives, generate shared prosperity, unleash innovation, avert price shocks to consumers and further the cause of reconciliation with Indigenous peoples. To succeed, a net-zero energy transition

that will evolve over 30 years requires alignment across the political spectrum, nationwide support and maximum policy certainty. This journey must reflect both the national interest and global good, while speaking to Canadian values of opportunity, inclusion and fairness. Canada must treat the net-zero challenge as an all-hands-on-deck, nation-building exercise like building the national railway, the St. Lawrence Seaway or developing Canada's energy riches in the first place.

For more than two years, the Public Policy Forum has been meeting in our Energy Future Forum with individuals and organizations who are living and thinking the energy transition and are committed to a net-zero production emissions future. On this there can be no equivocation. Many Energy Future Forum members have begun investing in a portfolio of pathways: renewable energy; cleaner processes for oil and gas production, including electrification, carbon capture and storage clusters; emissions-free hydrogen; and much more. It is time to move from defence to offense. The net-zero transition presents a grand opportunity for Canada to lead on breakthrough technologies and processes and become a global standard-bearer of the

new low-carbon economy. It requires an all-hands-on-deck effort that rallies the ongoing consent of a broad swathe of Canadians across regions and generations, and taps the strengths of the private and public sectors. It must accommodate the needs of workers displaced by the transition and minimize those displacements by preserving, as much as possible, the concentration of well-paid, middle-class, urban and rural jobs emanating from a high-productivity, export-earning energy industry. We owe them nothing less. In holding a clean energy coalition together, it is critical to retain Canada's competitiveness through every stage of the transition to net zero while maintaining the security and affordability Canadians have come to expect from their energy supplies.

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## PART 1: THE ANALYSIS

### COMPETING VISIONS FOR THE SAME GOAL

Two overarching visions of the energy transition are competing for the hearts and minds of Canadians. Both embrace the necessity and inevitability of a cleaner energy future, and both intend to arrive at the same net-zero destination. But the routes they follow are significantly different and can cause greater or lesser disruption to Canadians at home and to Canada's international relations.

One vision focuses on bringing down fossil fuel production as a mainstay of emissions reductions. The other concentrates on removing carbon from oil and gas, thereby extending the natural lifecycle of these resources. Neither can be fully mapped out to

2050, given the number of winding secondary and tertiary roads along the way, some not yet under construction. Both require massive investments that need the availability of patient public and private capital given the vicissitudes of developing breakthrough technologies.

The Public Policy Forum has considered these two visions. We have concluded that one has a better chance of delivering on the Energy Future Forum's central tenets of a safe environment, a growing and inclusive economy, and strengthened unity within the federation and with Indigenous peoples.

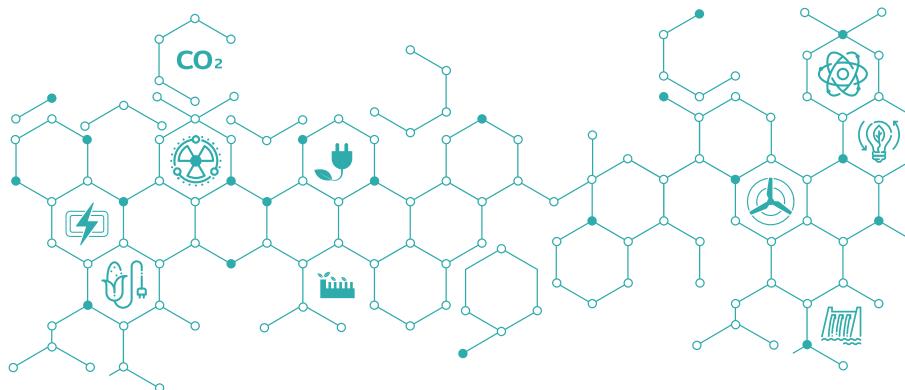
# VISION 1:

## Accelerated Phaseout

Proponents of an accelerated phaseout of fossil fuels believe that winding down oil and gas production will provide the greatest and most immediate and measurable impact on greenhouse gas (GHG) emissions.

At the same time, they call for major national investments in the expansion of clean electricity and the development of hydrogen as a source of non-emitting fuel. They favour direct and indirect measures aimed at steadily shutting in existing fossil fuel production: hiking emissions targets, excluding oil and gas from support programs for high-emitting industries, divesting from hydrocarbon companies and blocking pipelines. These actions would add up to far more than the collective impacts of millions of consumer choices on transportation, home heating and the like. Rather, public policy would be used to steepen the decline of fossil fuel production beyond what domestic and global demand would otherwise dictate.

Supporters of this vision believe renewables and other clean sources of electricity can be swiftly ramped up and that electrification will quickly supplant the much larger share of the energy pie derived from oil and gas. They argue that even if production of hydrocarbons was decarbonized, the burning of gasoline in cars and natural gas to heat homes would still result in so-called third-scope emissions. Often, they oppose exports for the same reason. They put great stock in Canada's carbon pricing plan spurring investment in energy alternatives that will fill gaps in jobs and economic output. For this accelerated phaseout school, increasingly visible manifestations of climate change justify an urgency to remove oil and gas (the source of 26 percent of Canada's emissions) from the energy mix.



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# VISION 2:

## Aggressive Decarbonization

Proponents of the competing vision favour encouraging major investments in decarbonization to remove emissions from oil and gas production, extending the life of these lucrative resources for as long as global demand exists and generating returns that could finance further stages of the transition. Government and industry would continue to promote renewables and clean consumer alternatives, such as electric vehicles (EVs), with a predictable schedule of carbon tax increases that paint a clear picture of where the future is headed. These policies would leave oil and gas companies to sink or swim based on their ability to get to net zero and to compete on carbon intensity and cost with rival national suppliers.

Supporters of this course believe in directing policy at reducing the output of GHG emissions (the true measure of climate risk) and not at hydrocarbon production per se. The continuation of fossil fuels

would be dependent both on demand and their ability to safely remove (or reuse) carbon without it accumulating in the atmosphere. Advocates call for an ambitious national investment project in such decarbonizing processes and technologies as carbon capture utilization and storage and direct air capture; clean electricity expansion, including small modular nuclear reactors; heightened development of hydrogen; and non-combustible use of commodities like carbon fibres. This vision calls on all parties and energy forms — new and legacy — to join forces on a decarbonization agenda for all. A full-on public-private partnership approach is required to create the necessary incentives for change, manage high upfront financial risks and reduce the cost of the considerable capital required. Collaboration must prevail over confrontation to pull off such a monumental energy transition in the relatively short time frames available.





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# The accelerated phaseout vision invites more downside hazards, while the aggressive decarbonization vision carries greater potential rewards by **building on established Canadian strengths.**

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Our deliberations suggest the accelerated phaseout vision invites more downside hazards, while the aggressive decarbonization vision carries greater potential rewards by building on established Canadian strengths.

While encouraging progress has been made on renewable technologies, they are not yet ready to provide dependable base power, nor the energy intensity required for such critical industries as steelmaking. An accelerated phaseout rests on the article of faith that replacement energy sources will be ready in time to fill policy-induced voids. But local opposition to wind and solar farms or transmission lines poses a similar problem to that of pipelines. Even on the consumer side, if timelines slip on switching to zero-emission vehicles (which still account for fewer than four percent of new car sales) or constructing new electricity generation and transmission stalls, energy security and affordability, as well as climate goals, could be put in jeopardy.

Suppressing supply beyond the natural attrition of demand holds out the danger of Canada inadvertently turning itself from net energy exporter to energy importer. This would put all Canadian energy consumers at the mercy of global supply chains, as the Line 5 pipeline issue illustrates, while weakening Canadian government influence over environmental, social and governance (ESG) behaviours. If Canada cedes markets to Saudi, Venezuelan and Russian producers, they are less likely than domestic companies to comply with Canadian environmental standards and values.

Europe, particularly Germany, provides a cautionary tale of what happens if existing energy systems are phased down before new ones are firmly established. Prices have spiked and supplies rendered insecure. Europe has been left more vulnerable to geo-economic gamesmanship by Russia. Canadians have historically embraced order and predictability in times of change, in keeping with the famous “peace, order and good government” dictum. Broad public support is the sine qua non of successful climate policy. A disorderly transition could needlessly jeopardize the support for climate actions necessary to stay the course over several decades.

Then there's the macroeconomic side — from jobs to government revenues to Canada's balance of payments with the rest of the world. Petroleum is the biggest single sector in the Canadian economy and our largest export. Canada has been running current-account deficits (essentially the sum of trade in goods and services and transfers of capital) for about a dozen years. Without oil and gas exports, which account for about 25 percent of Canada's exports, the current-account shortfall would deepen, putting downward pressure on the dollar and upward pressure on inflation and interest rates. In this eventuality, the economic shock from a poorly managed transition would not be limited to petroleum producing provinces and government revenues. Rather, it would hit the households of every Canadian who imports, travels or has incurred debt to finance a home, car or education.

Those export earnings are also needed to cover the import costs of the energy transition. Nearly all the goods Canada requires to expand wind or solar energy or build smart grids and battery storage must be purchased outside Canada. Withdrawing exports too quickly through an accelerated phaseout will damage the country's capacity to pay for the very items meant to take their place. The transition must be seen in two equal, unified and mutually supportive parts: growing our economy and achieving our net-zero future. The positive impacts of the technology leadership gained from a strong decarbonized oil and gas sector will ripple through the entire economy, helping to ensure a vibrant, low-carbon industrial and manufacturing base.

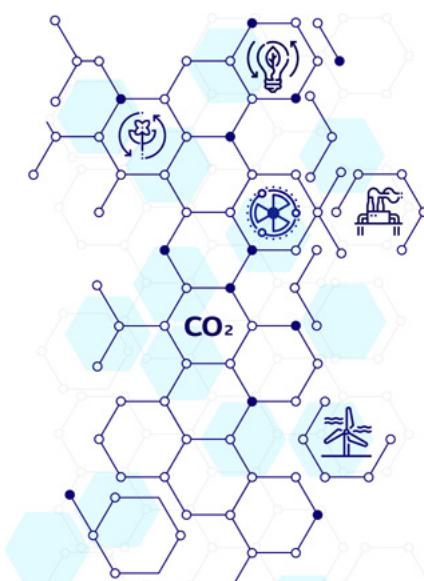
Norway offers something of a model for the aggressive decarbonization vision. It has invested heavily in the electrification of its offshore oil production and is heavily backing carbon capture and storage projects, which it views as merely another form of public infrastructure. At the same time, Norway has stimulated demand for EVs like no other nation. While pursuing a robust low-carbon approach at home, it intends to prolong the benefits to the Norwegian people of its oil and gas assets by competing for market share against OPEC and Russia for as long as global demand persists.

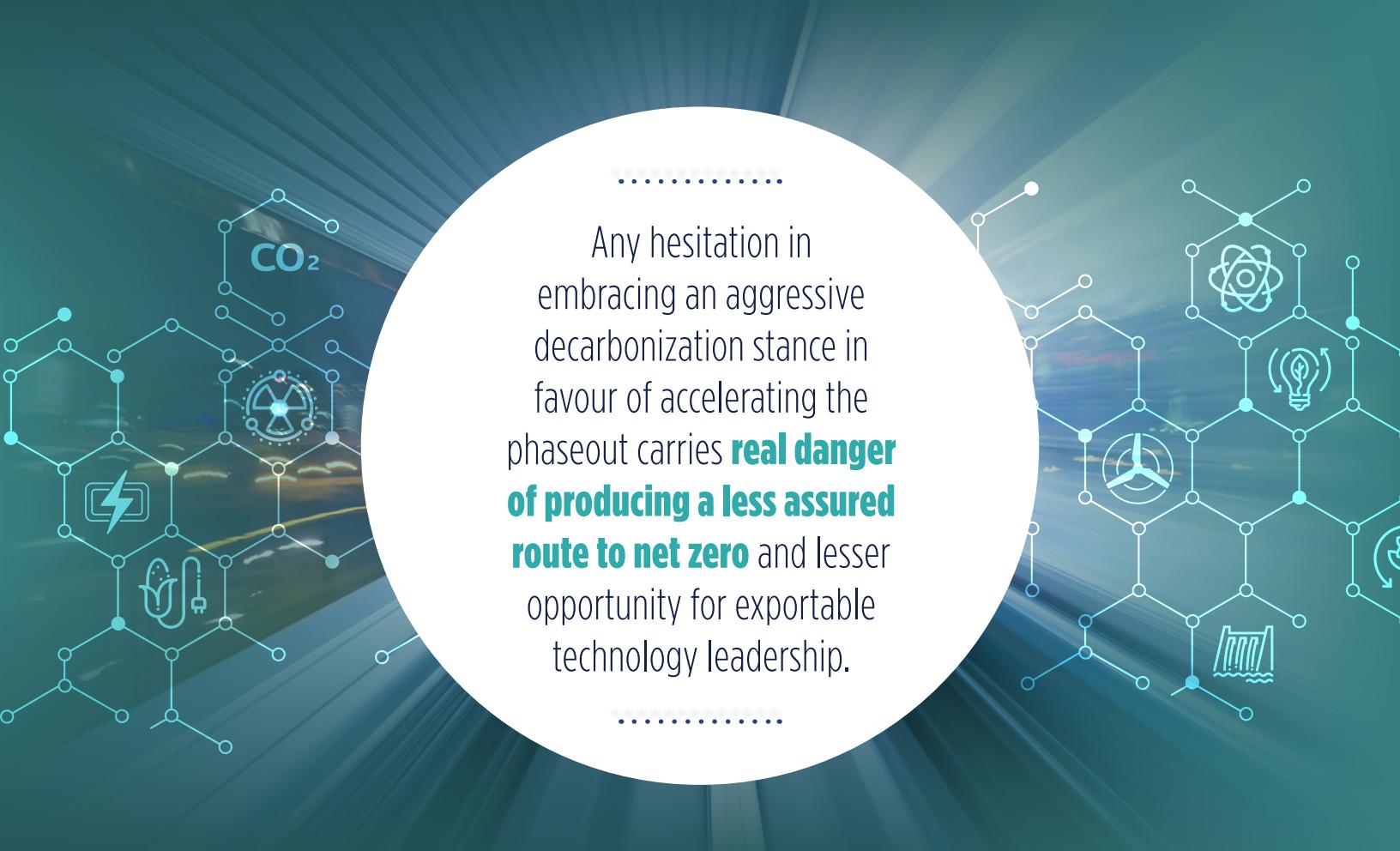


One way or another, investment is critical to drive the energy transition. RBC Economics has estimated reaching net zero will require

**\$2 trillion in Canadian investment over the next three decades.**

The scale and speed of what needs to be done necessitates as much policy predictability as possible.





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Any hesitation in embracing an aggressive decarbonization stance in favour of accelerating the phaseout carries **real danger of producing a less assured route to net zero** and lesser opportunity for exportable technology leadership.

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## INVESTING IN CANADA'S ENERGY STRENGTH

One way or another, investment is critical to drive the energy transition. RBC Economics has estimated reaching net zero will require \$2 trillion in Canadian investment over the next three decades. The scale and speed of what needs to be done necessitates as much policy predictability as possible. The political uncertainty that still revolves around the carbon tax, for example, blunts its influence on long-term corporate decisions. Moreover, capital is highly mobile. Investors will need confidence that Canada has designed a suite of transition policies that are attractive against contending jurisdictions, including the United States.

As was the case with past transformations of the Canadian economy, public-private partnerships will be essential in sharing the risks inherent in a muddy 30-year time horizon. With policy

predictability and easier access to capital, oil and gas firms and other large emitters will be more prepared to move ahead on “big bet” decarbonization projects and apply their engineering and management skills. These are exciting times for new energy systems and the reinvention of existing ones. Attractive conditions for public and private investment will spur the emergence of new global champions from Canada, akin to Canada’s outsized international role in 20th century mining and forestry.

If the transition is executed well, Canada will end up with a broader portfolio of energy sources and a new international brand as a low-carbon supplier. Any hesitation in embracing an aggressive decarbonization stance in favour of accelerating the phaseout carries real danger of producing a less assured route to net zero and lesser opportunity for exportable technology leadership.

The alternative to extending the life of Canada's energy resources through the transition is to concede markets to others. In some International Energy Agency (IEA) scenarios, oil production declines from about 100 million barrels a day to around 30-50 million barrels in 2050 (other scenarios are higher). Assuming demand shrinks but does not disappear and Canada remains fully committed to its emissions targets, the way forward is to produce the "best barrels" available in the diminishing but not disappearing marketplace. "Best" means competitive on cost, security of supply, carbon intensity and other ESG performance factors. The oil sands, according to the IEA, have already reduced their emissions per barrel by one-third since 1990. But production growth has outpaced those gains. The challenge now is to ensure intensity reductions produce net benefits. By excelling within the standards of a more discriminating global marketplace in which low-carbon intensity commands premium prices, Canada can differentiate itself positively with energy importing nations. The country can position itself to capture a growing share of the global oil and gas pie while contributing to the reduction of worldwide emissions through displacement of more carbon-intensive options. Having said that, we acknowledge the global need for low absolute emissions on a life-cycle basis.

Both the oil sands and Canadian gas enjoy inherent advantages in a changing marketplace: Western

gas and a proposed liquefied natural gas (LNG) facility in Newfoundland are considerably cleaner coming out of the ground than those of comparable competitors and can be processed using zero-emission hydroelectricity. The IEA recently observed that phase one of the LNG Canada project under construction in British Columbia "is expected to have the lowest carbon emissions intensity of any large LNG facility currently operating in the world, at 60 per cent lower than the global average," and that some Canadian future production could be even better.

Canada has the third largest gas reserves in the world. With roughly one-third of the world still powered by coal, Canadians must decide if our natural gas should contribute to major reductions in global emissions by other nations, even if it means higher numbers for Canada (at least until net zero is achieved). As for the oil sands, their cost structure consists of massive investments upfront and relatively low operating costs afterward. Once capital is in the ground — as it is — Canadian oil can compete with the lowest cost producers. Moreover, because oil sands deposits are so vast and their parameters known, Canadian operators are free of the endless cycle facing most global producers of continual reinvestment in new exploration and development to replace depleting wells.



## PART 2: CALLS TO ACTION

The energy transition has been characterized as being more like a dial that turns gradually than a switch that can be flipped on or off. Move the dial too slowly and miss carbon reduction targets. Move it too quickly and risk price shocks, supply disruptions and economic harm.

The following three sections, based on consultations with environmental, energy and Indigenous stakeholders among others, set out a leadership action plan for Canada in navigating the transition to a net-zero future. The following measures laid out to address each of the environment, the economy and Indigenous opportunity are essential to arriving at our national destination together.

# LEADING THROUGH LONG-TERM ENVIRONMENTAL UNDERTAKINGS

Climate change demands urgent actions. High-emitting industries have a large responsibility and strong capabilities to help realize significant emissions reductions as the energy transition picks up pace. To this end, the Public Policy Forum believes environmental aspects of the energy transition must involve:



1



2



3

Achieving net-zero emissions by 2050 through largely onsite reductions from process improvements, carbon capture and storage, and the use of alternative fuels and electrification as well as offsite measures such as nature-based solutions, carbon offset markets and direct air capture. Investing in these decarbonization measures must accelerate now if the transition is to be credible.

Putting absolute emissions on a clear and sustainable downward track in the 2020s in support of Canada's 2030 Paris objectives and in building momentum towards net zero by 2050. This means intensity reductions must outpace production gains over this decade and the next two. Although all solutions are not yet knowable, five-year targets and annual progress assessments from governments and operators will help bolster industry certainty and public confidence.

Building on recent international progress on sustainability standards so that Canadians can enjoy clarity and certainty on emissions levels and reductions from a proven and trusted informational institution. Suggestions include an independent, multi-stakeholder body (similar to the Canadian Institute for Health Information, which provides fact-based health care data) or a specialized arm of Statistics Canada. Good policy requires regular publication of a transparent arm's length emissions scorecard to keep customers, investors, industry, government, environmentalists, Indigenous people and all citizens reliably informed.

## 4

Entrenching a long-term schedule of carbon pricing that will provide greater certainty around investment decisions on solution-oriented actions and protect against carbon leakage. Policy consistency is vital. Triggering the necessary actions demands a long-term focus extending far beyond the normal lifespan of any governing party.

## 5

Being the best in the world in all aspects of ESG (Environment, Social and Governance), as per the call of the federal government's 2020 Industry Strategy Council. This country is already a leader in the "S" and the "G", and now has an opportunity through aggressive decarbonization investments and leveraging its world-leading clean electricity generation to reposition the Canada brand as the global ESG leader among energy-producing nations.

## 6

Augmenting geographic advantages that give Canada faster shipping times to Asia with a lower carbon footprint by supporting innovations to replace high-emitting bunker fuel with lower carbon LNG fuel and developing low-carbon ports of the future. By harnessing advanced technologies to enhance operational efficiency, energy efficiency and environmental sustainability, Canada can add to a low-carbon advantage in the Asia-Pacific market. It makes no sense to deny energy processing projects in Canada only to ship the raw product — and the value-added jobs — to the United States for export, especially since processing and shipping at home involve lower carbon intensity.

## 7

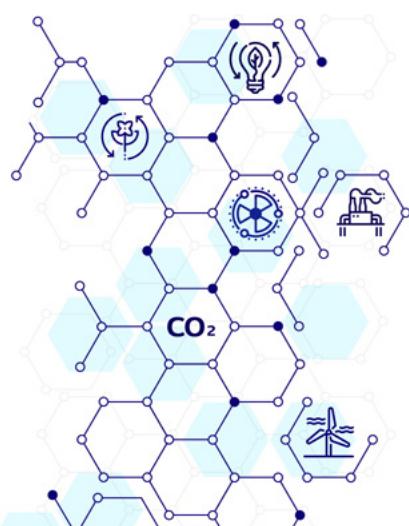
Seeking collaboration and coordination wherever possible with the United States in the capture, movement and storage of carbon and adoption of a continental approach to any future carbon border adjustments. Canada requires a cross-border decarbonization partnership every bit as robust as the energy supply partnership.

## 8

Applying government and industry R&D resources to secure a global leadership position in key emerging decarbonization solutions and markets, such as hydrogen, advanced materials, biofuels, renewable natural gas, direct air capture and new nuclear technologies.



**Good policy  
requires regular  
publication of a  
transparent arm's  
length emissions  
scorecard to  
keep customers,  
investors, industry,  
government,  
environmentalists,  
Indigenous people  
and all citizens  
reliably informed.**



## LEADING BY INVESTING IN A LOW-CARBON ENERGY FUTURE

Canada has an incredible opportunity to realize a net-zero energy transition that is consistent with energy security; affordability; continued export strength; the fostering of an innovative, inclusive and growing economy; and the advancement of reconciliation. Capturing the economic components of this opportunity must involve:



Creating private-public partnerships to unlock tens of billions of investment dollars in support of decarbonization projects. Only governments can lower the cost of capital and business risks associated with a gargantuan societal undertaking stretching over decades while only the private sector possesses the necessary engineering and managerial capabilities. Such partnerships for the public good are needed to make these projects “bankable” at a pace in line with climate change effects.



Positioning Canada through its investments as a leading low-carbon fossil fuel producer attractive around the world for carbon-competitive products, decarbonization services and clean tech intellectual property. Maintaining export capacity through the transition protects against macroeconomic shocks that would impact all Canadians and allows the offsetting of the importation costs of the goods necessary to mitigate GHG emissions, such as wind turbines, solar panels, smart grids and storage batteries, which are largely produced outside the country.



Recognizing that the energy transition is not only about the energy industry but also about all industries that rely on energy from mining to manufacturing. End users, such as steel plants and automakers, will not reach net zero themselves without decarbonization of intensive forms of energy and their own carbon decarbonization.



Making the necessary regulatory and inter-governmental coordination processes as efficient as possible given the huge volume of new energy infrastructure that must be built in a relatively short period of time to achieve net zero.

## 5

Designing and implementing an effective investment tax credit and project financing supports that, along with carbon pricing, will stimulate the speedy development of major GHG-mitigating initiatives, such as carbon capture and hydrogen development, that benefit all high-emitting sectors. Canada needs to be competitive with U.S. 45Q tax measures for carbon capture to keep investment capital and an impressive roster of global champion companies from migrating to more hospitable jurisdictions.



## 6

Applying the experience gained through development of breakthrough technologies, such as carbon capture and hydrogen, to gain knowledge and relentlessly drive down abatement costs. As with renewables, the true and tested formula of learning through doing will ease the burden for consumers and taxpayers.

## 7



Decarbonizing existing oil and gas processes and products while investing in the R&D of new non-combustible and value-added ones, including advanced materials such as carbon fibres. This will allow for a smoother transition by putting resources to further use in high value-added ways.

Canada has an incredible opportunity to realize a net-zero energy transition that is consistent with **energy security; affordability; continued export strength; the fostering of an innovative, inclusive and growing economy; and the advancement of reconciliation.**



**8**

Providing, through aggressive decarbonization, like-minded energy importing nations with a less energy-intensive and ESG-friendly Canadian alternative to reliance on suppliers with poor human rights, environmental and geopolitical track records. The IEA forecasts that, as things stand, OPEC countries are poised to increase their market share through the transition from 37 percent today to more than 50 percent in 2050. This does not serve the national security interests of Canada or its allies.

**9**

Encouraging collaborative clusters by bringing together networks of researchers, implementors and suppliers who can accelerate the process of reaching critical mass in new energy industries emerging out of decarbonization, such as non-combustible carbon utilization, direct air capture and hydrogen development. Government must get behind the acquisition, pooling and commercialization of knowledge, which will create a knowledge infrastructure network that will contribute to continuous invention and innovation.

**10**

Working to ensure the principles behind Article 6 of the Paris Agreement are embraced. Canada cannot be reasonably expected to bear the carbon burden alone of serving as a natural resources' storehouse for multiple nations, which then benefit in ESG terms from using its low-carbon inputs throughout their value chains. Where Canada is a high-carbon competitor, it needs to bring down intensities. Where Canada is a low-carbon competitor, it must ameliorate the effects of low-carbon exports counting against its nationally determined contribution totals even when they help bring down global emissions.

The IEA forecasts that, as things stand, OPEC countries are poised to increase their market share through the transition from **37% today** to **more than 50% in 2050**. This does not serve the national security interests of Canada or its allies.





## LEADING THROUGH ECONOMIC RECONCILIATION AND INDIGENOUS PARTNERSHIPS

Indigenous participation in sustainable resources development, including ownership, represents a necessary pre-condition to shared prosperity, social justice, economic reconciliation and getting things done. It is the logical step after years of litigation and the adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Realizing these goals must involve:

1

Increasing collaboration among industry, Indigenous representatives and governments in forging trusting partnerships of mutual benefit. This is a better path forward for all parties than confrontation and litigation. The earlier engagement occurs, the better. First Nations and other Indigenous landholders must come into the discussions in good time to help shape a given project.

2

Advancing economic reconciliation through equity ownership stakes, where desired, by Indigenous peoples. Such arrangements are just and provide the surest route to satisfying UNDRIP's new "free prior and informed consent" threshold. Many First Nations are becoming active proponents of resource developments. Shared ownership can help avoid confrontations and drawn-out litigation, as Indigenous communities and governments move to operationalize UNDRIP.

3

Incorporating traditional Indigenous knowledge with Western scientific and technical knowledge in resource development (e.g. environmental assessments, monitoring, project planning and implementation). This recognizes and respects the unique legal and constitutional rights of Indigenous peoples and seeks to understand and respect their history, customs, beliefs and traditions.

# Procurement is one of the best ways to partner with Indigenous communities, create jobs and business development, and satisfy supply chain needs.

4



Creating a one-stop source for information on the Indigenous land base, including species and cultural data, and using this common pool of facts as a foundation in the early stages of partnership discussions and in streamlining regulatory decision-making.

5



Supporting institutional arrangements along the lines of the Alberta Indigenous Opportunities Corporation and the First Nations Financial Management Board to improve access to capital for Indigenous economic development. Specifically, a capital pool must be sourced from Canada for First Nations to gain access to earlier-stage capital and for First Nations-owned corporations to finance infrastructure development with an emphasis on decarbonization.

6



Building on the energy industry's strong record on procurement from Indigenous-led companies, which in 2019 totalled \$2.4 billion in goods and services in the oil sands alone. Procurement is one of the best ways to partner with Indigenous communities, create jobs and business development, and satisfy supply chain needs.

\* The **Energy Future Forum** plans in its next phase of work to publish a **Part 2** on the leadership actions necessary to execute on electrification.



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