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Reimagining a sustainable future

Tackling climate change presents a big challenge and an even greater opportunity for Canada, one that will impact all of our lives, and those of generations to come. Our nation's plan to drastically reduce greenhouse gas emissions down to 'net-zero' by 2050 requires the largest change to our economy in our lifetime, and one that RBC is fully committed to supporting.

To reimagine our economy in ways that balance the needs of all regions and citizens, Canada's path to net-zero requires significant innovation and capital to succeed. How we get there is just as important as the destination itself. Traditional energy sources are important to support our daily lives as we change what energy we consume and how it is produced, and contain the terrible effects climate change is causing to our planet and communities. Canadian jobs and prosperity need to be preserved and enhanced while we build a more sustainable economy. Getting this transition right will not be easy, but we must move forward together with a sense of urgency and thoughtful action.

RBC is committed to playing our part, and it goes well beyond advancing net-zero leadership in our own operations, where we will reduce emissions by 70% by 2025. We will engage through our people and capabilities in every sector and community to enable the transition in three key ways:

Help clients as they transition to net-zero

We have committed \$500 billion in sustainable financing by 2025 and are well on our way to meeting this commitment. Through a wide range of products, services and advice, we will continue to help businesses and individuals across all sectors and regions establish and accelerate their climate plans, achieve their goals and adapt to net-zero.

Hold ourselves accountable

We will monitor, measure and report on our clients' efforts towards net-zero emissions. In early 2022, we will publicly share data on emissions produced by our clients that are associated with a large proportion of the loans and financial services we provide, sometimes referred to as "financed emissions". At the same time, we will set interim goals in support of achieving net-zero by 2050. This includes working with our clients in emitting sectors, whose innovation and reduction strategies are critical to reaching Canada's emissions targets.

Actively partner, inform and inspire Canada's sustainable future

We will help promote climate literacy and offer ideas that support a successful transition. Our latest report, "Canada's Road to Net-Zero", presents six pathways for changing how we live, travel, grow and power our lives – in ways that don't leave jobs, communities and businesses behind. And we will continue to fund, partner with, listen to, and bring together communities. This includes Indigenous leadership, technology experts, and public and private sectors to discover and innovate new climate solutions where it matters most.

Looking forward, Canada's drive to net-zero will strengthen existing industries and create new sustainable ones. Ownership in sustainable projects as well as broader actions to achieve net-zero will create meaningful pathways for reconciliation with Indigenous peoples. And we will provide our children with a healthier world in which to thrive and prosper. Our economy will be cleaner, our nation stronger and our planet healthier. Working together, we can do this.

This is Canada's most ambitious path, and we will be there every step of the way.





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Policy

Policy is published six times annually by LPAC Ltd. The contents are copyrighted, but may be reproduced with permission and attribution in print, and viewed free of charge at the Policy home page at policymagazine.ca.

Price: \$7.95 per issue Annual Subscription: \$45.95

PRINTED AND DISTRIBUTED BY St. Joseph Communications, 1165 Kenaston Street, Ottawa, Ontario, K1A 1A4

Available in Air Canada Maple Leaf Lounges across Canada, as well as VIA Rail Lounges in Montreal, Ottawa and Toronto.

Now available on PressReader.



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From the Editor / L. Ian MacDonald

Climate Change & Clean Energy

elcome to our special issue, Climate Change & Clean Energy, a timely update and look ahead following COP26. If there's one thing delegates and observers from nearly 200 countries agreed on at Glasgow, it was that global warming is no longer a hypothetical conversation about dire developments in the future.

Climate change is occurring in the here and now, and the question is how the world achieves "net zero" to mitigate the consequences for humanity, in economic and social terms, to say nothing of the costs of recovery.

First, we present analyses of the issues, from the urgency of climate change in global terms to some of the specifics such as the firestorms and floods that have devastated British Columbia and other regions of Canada. Then, on to clean energy, from renewables to innovations and technology upgrades, and the positive involvement of Canadian corporate, industrial and financial leaders.

One effect of climate change, forget about the FISC as we've known it, advises Kevin Page, President of the Institute for Fiscal Studies and Democracy at University of Ottawa. Page and economics student Alexandra Ducharme offer a sense, as he says, "of what the fiscal planning framework might look like in a net zero economy."

Climate change consultant Dan Woynillowicz notes "the 'new normal' is that there is no normal anymore." But he remains one of the "stubborn optimists" that Canada can make significant progress on meeting its new goals of emission reductions.

As former Privy Council Clerk Kevin Lynch and onetime White House aide Paul Deegan observe, "governments will need to provide the incentives and supportive regulatory environment to hasten the private sector's adjustment".

For our lead foreign affairs writer Jeremy Kinsman, Glasgow was an important wakeup call to the world. "It's the ultimate stress test," he writes, "of the abilities of the world's nations and peoples to work together in our collective defence and existential interest." Robin Sears writes of the politics of climate change in Canada, at both the federal and provincial levels. In coming elections, he predicts "the victors will be those who have delivered believable visions of a sustainable Canada."

Velma McColl was at COP and writes that, "we began to see the silhouette of collective leadership that would implement a shift toward the future." Elizabeth May was also in Glasgow, the 12th COP conference she's attended since the first one in Berlin in 1995. But the former Green leader also served in the Mulroney government's environment ministry at a time when Canada played a leading role, "from acid rain to the ozone layer, from the Montreal Protocol in 1987 to the Rio Summit in 1992," where Canada was an early advocate of sustainable development. The time for Canadian leadership is back, she concludes.

n a solutions agenda, RBC Senior VP John Stackhouse writes that "we need a new playbook, for finance, policy and regulation."

Former Calgary MP Lee Richardson, who previously was chief of staff to the legendary Premier Peter Lougheed, sees Alberta playing a positive role in the transition to a green energy economy. He writes: "Alberta may be Canada's largest generator of carbon emissions, but it may also be a key to Canada's net zero solution."

John Delacourt offers some thoughts on government and business engaging effectively in a post-Glasgow public policy environment. Canadian Nuclear Association President John Gorman attended COP and concludes: "Governments around the world must look beyond election cycles to the 30-year imperative of net zero."

Derek Nighbor and Kate Lindsay of the Forest Products Association of Canada, note that Canada, with only 0.5 percent of global population, is home to 9 percent of the world's forests. And forests absorb 2.6 billion tonnes of CO2 per year, one-third of all released annually from fossils fuels.

n Book Reviews, we're delighted to offer a variety of must-reads.

First, Anthony Wilson-Smith weighs in with a positive appraisal of former Chief Justice Beverley McLachlin's new novel, *Denial*, in a courthouse setting.

Then NDP rock critic Charlie Angus offers a compelling review of *The Lyrics*, Paul McCartney's account of how the Beatles got their start and why, all these years later, they're still the best, "fresh and ageless".

Colin Robertson looks at Chinese hostage diplomacy in *The Two Michaels*, an important analysis by Mike Blanchfield and Fen Osler Hampson of the three years Canadians Michael Kovrig and Michael Spavor spent imprisoned by the Beijing dictatorship.

And Habs fan Paul Deegan considers *Inexact Science*, by the father-son team of Evan and Bruce Dowbiggin, on how NHL general managers trade for draft picks.

Finally, columnist Don Newman looks at the first weeks of the new Parliament, and writes that a minority House raises the possibility of succession in the leadership of both the Liberal and Conservative parties.

Preparing the Fiscal Planet for a Net Zero Economy

The economic challenges of meeting the climate change commitments of the Paris Agreement and COP26 will require the greatest adjustment to our existing fiscal regimes in decades. That required shift in both spending and global accountability has already prompted action at the international level. Kevin Page and Alexandra Ducharme of the Institute of Fiscal Studies and Democracy look at how Canada should respond.

Kevin Page with Alexandra Ducharme

Do we have fiscal planning framework in Canada in place to credibly support the economic transformation consistent with the government's 2030 and 2050 greenhouse gas emissions (GHG) targets?

No.

Canada, like other advanced countries, will need to re-think how it plans, allocates and reports on the use of taxpayer resources in order to effectively de-carbonize our energy systems and economy.

The process of changing the way budgets look and operate is underway with the help of international leadership from the Paris-based Organisation for Economic Co-operation and Development (OECD). The budgetary work to address climate change is being complemented by efforts from international accounting standard boards on sustainability, from central banks on modeling economic impacts, from financial oversight organizations on risk exposure, and from private sector initiatives to promote corporate social responsibility.

In military parlance, this is the equivalent of a full-frontal attack. Can we implement? Can we transform the way political and business leaders make decisions and the way we live our lives given the scale and timelines of global warming as projected by scientists at the United Nations (UN) International Panel on Climate Change (IPCC)?

The global strategy is simple and potentially powerful. As articulated by Mark Carney, UN Special Envoy for Climate Action and Finance, we need to create a "virtuous circle of innovation and investment". Step one: countries turn Paris Climate Change

The global consortium of independent think tanks that produces the Climate Change Tracker rates Canadian plans and efforts as "highly insufficient". While the domestic targets are rated as average, we score low on domestic policies and actions and international climate finance support."

Agreement greenhouse gas emissions targets into legislative objectives and climate policies. These commitments and a vision for a new growth agenda increase certainty for investment. Step two: private finance helps businesses realign its business models for a net zero economy. Step three: public and private sectors work together and adjust plans as needed to smooth adjustment and minimize costs.

The scale and timelines of change associated with the new climate targets in Canada are ambitious:

- A reduction in GHG emissions by 40 to 45 percent by 2030 from 2005 levels. GHG emissions remained relatively flat from 2000 to 2020. The pain of adjustment lies in front of us (Chart 1);
- GHG emissions are heavily embedded in current infrastructure of most economic sectors transportation, oil and gas, electricity, heavy industry, buildings, agriculture, and waste. We do not have a pan-Canadian infrastructure needs assessment;
- A complete re-balancing of our energy sector from non-renewable to renewable supply is required. Energy's nominal GDP contribution is about \$200 billion a year. It employs about 300,000 people directly and 550,000 thousand people indirectly. Canada's primary energy production represents about four percent of global supply (more than 35,000 petajoules). Renewable energy sources (hydro, bioenergy, wind, solar, geothermal, oceans) account for just under 20 percent of energy supply. We need to plan for an 80-20 reversal;

Canada does not have a good track record when it comes to taking credible and sufficient measures to address climate change.

In recent years, Canada has introduced wide ranging policies to address climate change. Legislation was passed in 2021, the Canadian Net Zero Emissions Accountability Act, that enshrines a net zero GHG emissions target into law. Mandatory carbon pricing has been in effect across the country since 2019. The carbon price is planned to rise significantly (\$15 per tonne per year) from \$65 in 2023 to \$170 in 2030.

According to its 2020 plan, A Healthy Environment and a Healthy Economy, "the Government of Canada has invested over \$100 billion toward climate action and clean growth since 2015, with roughly \$60 billion from 2015 to 2019 and \$54 billion towards Canada's green recovery since October 2020." More

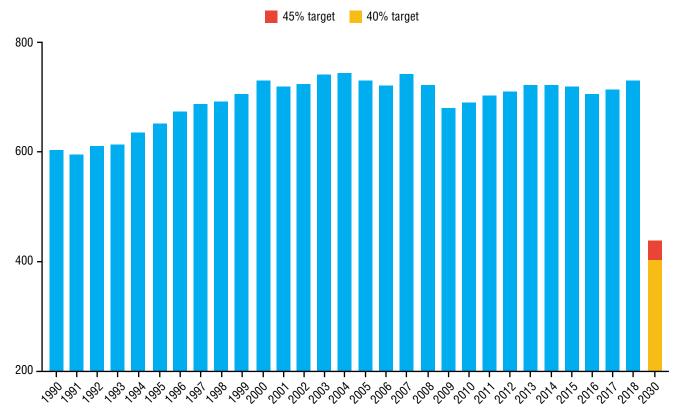
commitments were made in the 2021 election campaign. These resources are spread across all key sectors. There are monies to encourage innovation in clean technologies (e.g., Net Zero Accelerator Fund). There are numerous regulatory measures (e.g. Federal Greenhouse Gas Offset System, Clean Fuel Standards).

otwithstanding significant efforts, nobody really thinks we have done enough to put our economy on track to decarbonize and achieve the 2030 and 2050 targets. Even with better price signals and regulations, a \$100 billion dollar commitment over a decade to address mitigation and adaption is not going to be enough in a high-carbon per capita economy with a GDP approaching \$2.5 trillion a year and an energy sector (80 percent dependent on non-renewables) that generates \$200 billion per year.

The global consortium of independent think tanks that produces the Climate Change Tracker rates Canadian plans and efforts as "highly insufficient". While the domestic targets are rated as average, we score low on domestic policies and actions and international climate finance support.

fter spending some \$300 billion on direct fiscal supports and a similar additional amount allocated in liquidity measures to address a global health crisis in Canada over a few years, the scale of the effort required to address climate change remains largely un-costed. Analysis by the Canadian Institute for Climate Change Choices (Tip of the Iceberg, 2020) indicates the average cost of a weather-related disaster has gone up more than 1000-fold since the 1970s. Annual economic costs have gone from millions to billions of dollars. The trend line is well- established. The direction is up and steep.

CHART 1: Historical GHG Emissions and Emissions needed to reach COP26 goals



Source: Government of Canada

It is in this context that the OECD has started working with member countries to better incorporate climate policy into the budget process and reporting.

According to Robert Marleau and Camille Montpetit, two Canadian experts on parliamentary procedure and practice, budgets are first and foremost "a comprehensive assessment of the financial standing of the government and an overview of the nation's economic condition." In a world facing impending dangers from climate change and a global economy struggling to adapt, a nation's economic condition is tied to the environment. Financial standing includes both fiscal and environmental sustainability and resilience.

The OECD green budgeting framework has four building blocks.

One, a strategic framework:

The Global Commission on Climate and Economy has made the case that we need a new growth agenda for a climate economy that focuses on the interaction between technology innovation, sustainable infrastructure and resource productivity. Canada does not have a growth strategy. Canadian economists and former senior Finance Canada civil servants such as David Dodge and Don Drummond have called for an investment orientated growth strategy - missing from all party platforms in the 2021 federal election campaign.

Two, evidence generation and policy coherence:

Current public finance management frameworks need to systematically incorporate information on environmental and/or climate impacts. This includes green budget tagging where all new measures are assessed from an environmental perspective. France and Ireland have started this practice. Spending reviews should be conducted from a climate goal and efficiency/effectiveness perspective. US President

Climate policy must inform fiscal planning. Economic and fiscal planning outlooks need to be extended to deal with the longer-term horizons of climate impacts. Climate change impacts need to be embedded in baseline and scenario projections. ??

Joe Biden has recently announced a net zero federal government target for 2050 with interim goals for specific sectors (including buildings and vehicles).

The Liberal 2021 party platform highlighted the need for federal spending reviews. Budget 2021 highlighted a commitment to a national infrastructure needs assessment. The government should move forward with these initiatives in 2022. Green budgeting should complement the work of the government on gender budgeting.

Three, accountability and transparency:

Effective scrutiny both before authorities are provided by Parliament and after the money is spent through evaluation and audit are necessary for good fiscal management of taxpayer dollars. The OECD recommends the use of a Green Budgeting statement to inform Parliamentarians, stakeholders and citizens how fiscal policy is being used to support climate objectives.

The Liberal government has proposed the establishment of a net zero advisory committee to provide advice on pathways to achieve net zero. Consideration should be given to establishing an independent body reporting to Parliament on the efficacy of policies and progress towards emissions targets.

Four, budgetary governance:

A fiscal planning framework for green budgeting needs to include direct links between strategy and budget plans, department spending, performance reporting and citizen engagement.

Climate policy must inform fiscal planning. Economic and fiscal planning outlooks need to be extended to deal with the longer-term horizons of climate impacts. Climate change impacts need to be embedded in baseline and scenario projections. Independent fiscal institutions in the US (the Congressional Budget Office) and EU are making these adjustments. Canada should follow suit.

Green budget statements should make it easy for provinces and territories, cities, First Nations, and the private sector to know how budgets are evolving and their impacts on climate objectives from their perspectives.

Annual meetings of the Council of the Federation (premiers, territorial leaders and others) should include a standing agenda item on climate policy, mitigation and adaption progress.

The Chinese proverb says that a journey of a thousand miles begins with a single step. Canada has taken several steps to strengthen its climate policy. Putting those commitments into action through its fiscal planning framework would be a leap forward.

Contributing writer Kevin Page is President and CEO of the Institute of Fiscal Studies and Democracy at the University of Ottawa. He was previously Canada's first Parliamentary Budget Officer.

Alexandra Ducharme is a fourth-year economics undergraduate student at the University of Ottawa.



Prime Minister Justin Trudeau with US President Joe Biden and British PM Boris Johnson, host of COP26. "The science is clear," Trudeau told the Leaders' Summit in Glasgow. "We must do more, and faster." --Adam Scotti photo

A Prescription for Climate Progress: Stubborn Optimism, and More Stubborn Commitment

Between criticism from the left that the Trudeau government is doing too little on climate change and criticism from the right that it is doing too much, it can be hard to discern precisely what it has done and where climate policy expert Dan Woynillowicz provides a briefing.

Dan Woynillowicz

eat domes. Atmospheric rivers. In 2021, my vocabulary expanded in ways I hadn't anticipated. Living in British Columbia, I witnessed the cascading impacts to services and supply chains that accompanied the heatwaves,

wildfires and flooding, and felt the sense of helplessness shared by most British Columbians as the toll in lives and livelihoods ticked upwards with each disaster.

While some commentators characterize these catastrophic weather events as our "new normal," climate scientists

remind us that this would imply a new and static stability that simply doesn't exist. If anything, the "new normal" is that there is no normal anymore. The amount of carbon pollution we have and continue to pump into the atmosphere is changing our climate and the weather systems it fuels.

This isn't to suggest that efforts to cut carbon pollution and take climate action are futile. To the contrary, it simply reinforces the imperative to strengthen and accelerate efforts. As Prime Minister Justin Trudeau noted in his speech at the COP26 climate change negotiations in Glasgow, "The science is clear: we must do more, and faster."

To Canada's and the Prime Minister's credit, these words aren't simply good intentions, but are backed up by a track record of effort, accompanied by clear and specific commitments to do more. To some, this might seem a controversial statement. You don't have to look far to find criticism of the Canadian government's climate efforts - that it has been too slow, too weak, and simply hasn't reduced national carbon pollution (at least not yet). As leaders of the NDP and Green Party trumpeted in last fall's election, the Trudeau Liberals were more about pretty words than real action.

But as Charles Dickens wrote in *Great Expectations*, "Take nothing on its looks; take everything on evidence. There's no better rule." In this spirit, a brief recap is in order:

Following their 2015 election win, the Liberals brought Canada into the Paris Agreement and drew provinces together behind the Pan-Canadian Framework on Clean Growth and Climate Change. They introduced a national price on carbon pollution, defended it up to the Supreme Court of Canada, and have committed to a schedule of increases out to 2030. They have secured a phase-out of coalfired power at home and championed the Powering Past Coal Alliance internationally, advanced a Clean Fuel Standard to clean up fuel for gas vehicles, and made major strides to enable more Canadians to ditch their gas vehicles, buy electric replacements and keep them charged.

Their 2019 election platform promised even more, and they delivered. The Healthy Environment, Healthy Economy climate plan released in late 2020, and supported by new investments in the 2021 budget, put Canada on track to achieve a 36 percent reduction below 2005 levels by 2030 (beating the original Paris target of 30 percent). They could have coasted but understood more action is both needed and expected of Canada. So, in keeping with the Paris Agreement requirement to review and increase ambition on a five-year cycle, they filed a new target of a 40 to 45 percent pollution reduction by 2030.

The "new normal" is that there is no normal anymore. The amount of carbon pollution we have and continue to pump into the atmosphere ischanging our climate and the weather systems it fuels."

Yet despite all this effort, carbon pollution isn't yet falling in Canada. What gives?

Regrettably, what the federal government does (or doesn't do) is not the sole determinant of emissions in our federation. It's a shared responsibility with provinces, and during the Liberals' tenure, the provinces that contribute the most pollution — Alberta and Ontario — both saw changes in government that led to a rollback of provincial climate efforts and a deliberate effort to stymie federal efforts.

But equally significant is the reality that policies, programs, and regulations take time to design and, when implemented, don't create change overnight — there is an unavoidable lag. But consult experts, and they'll tell you that the policies now being advanced will begin to reduce pollution in short order, and those reductions will grow and accelerate as they take hold.

Fortunately, we don't just have to go on faith and expert analysis. The passage of the Canadian Net zero Emissions Accountability Act will provide Canadians with more clarity than we've ever had about what efforts the government is making, and of the expected results from those efforts. While most public and media attention to this legislation focused on its targets, its real value is in the obligation it creates for the government to establish and publish detailed plans, and to prepare progress reports for milestone years, with the first report due by no later than the end of 2023.

The first of these plans was intended to be due by the end of 2021 but considering the timing of the feder-

al election and COP26, the government exercised its right to a 90-day extension and so will deliver it by the end of March. The plan will not only incorporate all the policies and programs described above, it will also include the big promises made in the Liberals' 2021 election platform:

- Mandating the sale of zero-emission vehicles so that 100 percent of new light-duty vehicles (cars, pickups, etc.) sold in Canada are zero emission by 2035 and at least 50 percent by 2030;
- Developing emissions standards for heavy-duty vehicles that are aligned with the most ambitious standards in North America, and requiring that 100 percent of selected categories of medium- and heavy-duty vehicles be zero emission by 2040;
- Capping emissions from the oil and gas sector at current levels and requiring that they decline at the pace and scale needed to get to net zero by 2050;
- Developing a plan to reduce methane emissions across the broader Canadian economy in support of the Global Methane Pledge and the goals in Canada's climate plan, reducing oil and gas methane emissions by at least 75 percent below 2012 levels by 2030 through an approach that includes regulations, as well as regulating methane landfill emissions and reducing agricultural methane emissions; and
- Transitioning to a net zero emitting electricity grid by 2035.

hile many of these commitments include targets that extend beyond 2030, the plan is required to include projections of the annual greenhouse gas emission reductions resulting from those combined measures and strategies—including projections for each economic sector. For the first time, there will be clear and quantitative transparency around the scale and timing of emission reductions, which Canadians can use to both hold the

government accountable and to evaluate its progress. By the next election, whenever it may be, we should be able to see how big the gap is between ambition and action, words and results.

Finally, three decades after Canada ratified the United Nations Framework Convention on Climate Change (1992) and two decades after Canada ratified its first emission reduction commitment in the Kyoto Protocol (2002), we are beginning to get the institutional and administrative pieces in place to track federal climate action efforts. And I say "beginning" because the job isn't yet complete. As helpful as the Net Zero Emissions Accountability Act is in establishing plans and tracking performance against them, it doesn't explicitly require or drive the changes in governance—both the form and function of government-needed to execute these plans.

But on this front, there are some signs of progress nonetheless, from the establishment of a Cabinet Committee on Economy, Inclusion and Climate to a focus on climate action in the mandate letters of all ministers, including specific deliverables for some. Similarly, climate change is increasingly being considered in everything from government procurement to policy development, and the Healthy Environment, Healthy Economy plan pledged to "Apply a climate lens to integrate climate considerations throughout government decision-making" by ensuring government decisions "consider climate ambitions in a rigorous, consistent and measurable manner... that ensures that government spending and decisions support Canada's climate goals."

Pollowing the 2021 election, the decision to shift the former environment minister, Jonathan Wilkinson, to the Natural Resources portfolio, and Steven Guilbeault to Environment was broadly perceived as a strong signal that the government intends to move quickly on its campaign promises. Notably, the creation of a parliamentary secretary role, held by Julie Dabrusin, to work with both the natural resources and environment ministers creates a con-



Prime Minister Trudeau with new Environment Minister Steven Guilbeault at COP26, "a strong signal," writes Dan Woynillowicz, that Ottawa is serious about action on climate change.—Adam Scotti photo

nective tissue between these ministries that holds interesting potential for better political integration.

Meanwhile, in the public service, the government has established a climate secretariat within the Privy Council Office (PCO), though its mandate and influence aren't yet clear. Optimally, it should have a focus on policy integration and efficiency, with responsibility for navigating competing priorities, trade-offs, and synergies among federal departments, helping to develop climate plans and shepherding their implementation.

A recent report by the International Institute for Sustainable Development

For the first time, there will be clear and quantitative transparency around the scale and timing of emission reductions, which Canadians can use to both hold the government accountable and to evaluate its progress.

and the Canadian Institute for Climate Choices, Greater than the sum of its parts: How a whole-of-government approach to climate change can improve Canada's climate performance, quite rightly notes that achieving Canada's climate targets "will require the active involvement of departments as disparate as Finance, Infrastructure, Transport, Natural Resources, Environment and Climate Change, Agriculture and Agri-Food, Crown-Indigenous Relations and Northern Affairs, Public Safety and Emergency Preparedness, Employment and Social Development, and others, necessitating a coordinated approach to ensure coherent implementation of climate strategy." Informed by detailed case studies of whole-of-government efforts in the UK, US and B.C., it offers important recommendations for implementing a cohesive and effective whole-of-government approach to climate change, which the Prime Minister's Office and PCO would do well to follow:

1. The success of a whole-of-government climate initiative depends on sustained executive leadership directing departmental priorities and inter-departmental coordination.

- 2. An effective whole-of-government climate initiative requires adequate funding, a clear mandate, and capacity to enact change across departments.
- An effective whole-of-government climate initiative requires effective and empowered personnel acting in whole-of-government structures.
- 4. The mandates of participating departments must align, or be brought into alignment, with the mandate of the whole-of-government climate initiative.
- 5. A whole-of-government climate initiative should report publicly on its progress and be as transparent as possible about its deliberations, findings, and research.

Over the course of its first six years in office, the Liberal party effectively advanced numerous policies and programs that promise to deliver emission reductions in the coming years. Equally important, they created a system of transparency and accountability we have never previously had at the federal level. Hopefully, by the time the next election rolls around, Canadians will be able to get a clear view of what has been promised, what has been delivered, and whether the two line up.

The decision to shift the former environment minister, Jonathan Wilkinson, to the Natural Resources portfolio, and Steven Guilbeault to Environment was broadly perceived as a strong signal that the government intends to move quickly on its campaign promises.99

Much as we might hope that B.C's climate annus horribilis was an exception, years without climate-fuelled disasters somewhere in Canada are more likely to be the exception. Nonetheless, a Leger poll from November 2021 found that 75 percent of Canadians believe we still have time to put measures in place to stop climate change. They, like me, appear to be what Christiana Figueres, the diplomat who brokered the Paris Agreement, calls "stubborn optimists."

F. Scott Fitzgerald wrote that, "The test of a first-rate intelligence is the ability to hold two opposing ideas in mind at the same time and still retain the ability to function. One should, for example, be able to see that things are hopeless yet be determined to make them otherwise." In the era of climate disruption, these words ring true, although in my view it's less a measure of intelligence than emotional fortitude and resilience.

What all of this means for the federal government is that expectations are high for it to deliver on its climate action ambitions and commitments, and it has the public support it requires to move forward assertively. But adding to the challenge is the obvious imperative to not only try to cut pollution to prevent the worst impacts of climate change, but to prepare for and manage the impacts that climate change is already imposing. Consequently, in parallel to advancing an ambitious policy package to cut pollution, it will need to deliver reactive emergency support in response to floods and fire, while simultaneously making investments in climate-proofing infrastructure and delivering programs that will make Canadians safer and more resilient in the face of a changing climate.

It's no small task, but I remain stubbornly optimistic.

Contributing Writer Dan Woynillowicz is the Principal of Polaris Strategy + Insight, a public policy consulting firm focused on climate change and the energy transition.



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Parliament and the federal government will play an important role in coordinating the response of the provinces, and stakeholders including business and First Nations, to the global challenges of climate change. iStock photo

Toward a Cleaner, Greener Future

When it comes to climate change, Canada is in the delicate position of being both a fossil fuel exporter and environmental champion. At COP26, Prime Minister Justin Trudeau made clear that the political calculus on this issue has changed. Former Privy Council Clerk Kevin Lynch and former White House aide Paul Deegan provide the context for our current status quo.

Kevin Lynch and Paul Deegan

Since COP1 — the first United Nations Climate Change Conference in Berlin back in 1995 — the dialogue around our impact on the planet has gradually moved in

the right direction, but action hasn't followed suit. Carbon dioxide emissions released by global fossil fuel combustion and industrial processes have jumped from about 25 billion metric tonnes annually in 1995 to roughly 35 billion metric tonnes by the time of COP26 in Glasgow.

Since 1995, China has achieved the dubious honour of becoming the world's largest emitter, now accounting for more CO2 emissions than the four next offenders combined: the United States, India, Russia, and Japan. Together, these nations account for an eye-popping 60 per cent of all global emissions. And the trend is still upward for emissions from China, India and the developing world.

While the US, Russia, and Japan, Canada and most EU countries have managed to cut CO2 emissions modestly over the past decade, the reality of emissions math is that global emissions have to reach zero on a net basis by 2050 to arrest the upward march of global warming. That is the immensity of the challenge of climate

change. The immediacy of the challenge is equally daunting: this decade will decide whether we have bent the CO2 emissions curve enough to have a shot at net zero, or not.

Geopolitically, given the difficulties of getting nearly 200 countries to agree to anything, COP26 was a moderate aspirational success despite some last minute backsliding by China and India and unrealistic expectations by activists. Now comes the hard part – turning those aspirational goals and earnest pledges into effective actions across the 200 countries that signed on to saving the planet in Glasgow.

As Bill Gates summed up this challenge in his recent book, How to Avoid a Climate Disaster: "We need to accomplish something gigantic we have never done before, much faster than we have ever done anything similar. To do it, we need lots of breakthroughs in science and engineering. We need to build a consensus that doesn't exist and create public policies to push a transition that would not happen otherwise."

That does this all mean for Canada? When it comes to thinking about climate change in a Canadian context, it's important to consider who we are from geographic, social, economic, and political/diplomatic perspectives.

Geographically, Canadians are blessed far more than most around the planet. Our national motto, "A Mari Usque ad Mare" (from Sea to Sea) may have missed the Arctic Ocean, but it definitely captures the sheer vastness of our country. We are the second-largest country by geographic size, after only Russia. We have the world's longest coastline, at more than 200,000 kilometres. We share the world's longest international border, some 9,000 kilometers, with the United States. We are one of only eight Arctic nations. We are the third most-forested country in the world, with nearly 350 million hectares. We have the fourth largest supply of fresh water in the world, at more than 2,900 cubic kilometers. We've got towering mountain ranges and endless prairies, glaciers and tunThe reality of emissions math is that global emissions have to reach zero on a net basis by 2050 to arrest the upward march of global warming. That is the immensity of the challenge of climate change. **

dra, massive woodlands and mighty rivers, and pretty much everything in between. We are the stewards of all this, and it is in our own self interest to protect, at a minimum, our piece of the planet.

And climate change, and its consequences, are not only a reality today across Canada but will have an even bigger impact tomorrow.

The federal government's 2019 Canada's Changing Climate Report highlights some indisputable truths. Canada is warming at an alarming rate. Canada's annual average temperature over land has warmed by 1.7 degrees C since 1948. The change is most pronounced over the North, which has seen an increase of 2.3 degrees C over the same period. This warmer climate is producing more severe heatwaves, droughts, wildfires, and urban floods. All of this is taking a toll on our communities, our farmers, our infrastructure, and our resilience.

The Arctic is the proverbial canary in the climate-change coal mine. Snow and ice are disappearing. Most small ice caps and ice shelves in the Canadian Arctic will disappear by 2100. The Beaufort Sea and Baffin Bay are projected to have extensive ice-free periods during summer by mid-century. Glaciers across the mountains of western Canada could lose 75 percent to 95 percent of their volume by late century. Spring lake-ice breakup could be 10 to 25 days earlier by mid-century, and fall freeze-up five to 15 days later. There is a polar bear on the toonie to remind us we are an Arctic nation, and today both the Arctic and that polar bear are grievously endangered by climate change.

The 2019 federal report also highlights the risks climate change brings

to the availability of fresh water – something we have in abundance but take for granted at our peril. Smaller snowpacks and loss of glacier ice will produce lower summer flow, and warmer summers will increase evaporation of surface water. The even faster disappearance of freshwater supplies in the United States and elsewhere has the potential to stoke geopolitical tensions and transborder demands to "share" vital water resources.

Our three oceans are also changing, and sea levels are rising. Oceans are becoming less salty, which affects their ability to sequester greenhouse gases. Higher sea levels will give rise to more frequent and more extreme high water-level events. Hurricanes will become a more commonplace occurrence in warmer Canadian waters. Coastal remediation will be an imperative, not an option.

Socially, Canada's Indigenous peoples are on the frontline of the impacts of climate change. Remoteness in terms of foodstuffs, health care and emergency response; a lack of infrastructure; reliance on diesel; decreases in ice thickness which create dangers for those on foot and for vehicles; and changes in wildlife habitat – both in water and on land – make Indigenous communities particularly vulnerable. Yet, they can teach us and the world much about responsible stewardship of our land and resources.

Economically, climate change is the most daunting challenge of our time, but also a huge opportunity if we respond with innovative policies, embrace new technologies and don't lose sight of being competitive. For Canada, a nation equally rich in resources and in talent, we can be a leader in the

transition to a net zero future. Energy remains our biggest export earner, and fossil fuels are going to be needed for some time to come. We need a two-track approach that is both clear and innovative: to help our fossil fuel industry transition to a low-carbon future and to grow Canada's clean energy sector. The world will continue to need our natural resources but we have to transition to producing them in a climate-friendly way. It's about sustaining paychecks and sustaining the environment – two things that are increasingly intertwined and primary drivers of living standards.

As Jock Finlayson and David Williams of the Business Council of British Columbia wrote recently wrote in *The Globe and Mail:* "...policy makers must avoid undermining Canada's role as a trusted supplier of energy, minerals/metals, foodstuffs and other raw materials. The world consumes these products and will keep buying them – hopefully from us. Yes, it's a complex balancing act. But Canadian living standards depend on getting it right."

Thether it's solar, wind, electric vehicles, battery storage, geothermal, hydrogen, small modular nuclear reactors or carbon capture and storage, technology is rapidly becoming better and cheaper. Why can't we think of combining the low carbon footprint of small modular nuclear reactors and carbon capture and storage with the government's proposed policy of a cap on oil and gas sector emissions to create a win-win scenario? Can we become a leader in aspects of electric vehicle production, reducing transportation emissions through regulations and building an export industry at the same time? How do we turn our science strengths to re-imagine how we do mining, farming and fishing, all pillars of our economy?

On the clean energy side, we are most competitive globally at nuclear and hydroelectric power. At nearly 400 terawatt hours, we are the second largest hydroelectric power producer in the world. While that's impressive, China more than trebles us, and even more so for nucle-

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ar power capacity. Here, there is great room for cooperation among the federal government, provinces and First Nations to expand hydroelectric production and distribution, and to consider small modular nuclear reactors for the oil sands, major mining projects and power in the north.

To achieve these transitions and others at the scale and speed needed, governments will need to provide the incentives and supportive regulatory environment to hasten the private sector's adjustment, university researchers will have to become vital partners in finding technological solutions. And financial markets will have to support these transitions by adjusting their short-term return expectations and financing innovative technologies.

Politically, besides building a strong public consensus for change and the impacts of those changes, the biggest challenge for the federal government will be working effectively with the provinces. To state the obvious, this will not be easy, but it is absolutely necessary given the reality of our federation and it will require a degree of two-way engagement, common purpose, and flexibility. At the same time, getting the business sector on the same page is crucial, and this will take equal dollops of policy certainty, assistance and partnership.

presents more downsides than upside, which is why we have to invest heavily in our foreign poli-

cy capacity and mobilize like-minded friends in other countries. In particular, the developing world has to be part of the climate change solution, and the developed world has to help them financially and technologically in their transitions, first and foremost away from coal.

The American relationship on climate change holds both promise and risk. While Joe Biden is not Donald Trump, his trade policies have Trumpian echoes and there is a lack of coherence to his foreign policy. Protecting American jobs and local self interest will be powerful forces during the difficult adjustment to net zero, as can be seen by the Biden administration's proposal to exclude Canadian-made (and Mexican) EVs from purchase incentives offered to Americans. But Biden recognizes there is a climate crisis and it requires both domestic action and international cooperation.

The COP26 Summit in Glasgow presented an opportunity to reboot and reset the relationship, seeking alignment over an effective Canada-US climate plan, and in so doing demonstrate coordinated North American leadership to the world. We have done it before on the environment, and it is time for a repeat performance.

Glasgow achieved about as much as could have been realistically expected. It turned public attention around the world to the issue of climate change, its gravity and its urgency. The "why" is clear, the focus in every country has to be on the "how" of building a greener, cleaner and prosperous future. But climate change is an existential global threat and we can deal with it better, cheaper, and faster by doing it together.

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Contributing Writer Paul Deegan, a former BMO and CN executive, was Deputy Executive Director of the White House National Economic Council under President Clinton.

The Verdict on COP26: Keeping Hope Alive

After decades of incremental progress, intermittent two-steps-back and occasional triumphs, COP26 took its place in the history of COPs at a time when existential urgency has never been more acute. Veteran diplomat Jeremy Kinsman explores the twin challenges of COVID-19 and climate change, and what was revealed in Glasgow about our global coping mechanisms.

Jeremy Kinsman

The "aliens invade Earth" movie genre has plumbed a couple of themes over the last many years. The more thoughtful – Stanley Kubrick's 2001: A Space Odyssey and Steven Spielberg's Close Encounters of the Third Kind — offered evolved extraterrestrial civilizations with benevolent motives to save earthlings from our crude inclinations for self-destruction. More sensational blockbusters, though, depict aliens as malevolent attackers. In the box-office champ Independence Day, humanity unites to repel the invaders. Earth wins.

Which trope most accurately mirrors global reaction to the COVID-19 pandemic, and to global warming, stress tests of international cooperation in our collective self-defence?

Former British Prime Minister Gordon Brown called the competitive self-ishness of nations over COVID: "The greatest moral failure of our time." On global warming, United Nations Secretary-General António Guterres warns, "We are at the edge of the abyss."

Our need to be saved from our destructive nationalist and selfish inclinations is obvious, though salvation will have to be sourced here on Earth, not from aliens. Alas, unity in face of the threats has been absent.

The issue here is whether the world's multilateral and collective behavioural and institutional equipment is up to working in the collective self-interest of humanity. No doubt, competitive nationalism has been on the rise. But did COP26 show a slight turning of the tide toward cooperation?

The two intersecting crises are worth comparing. Time frames differ. Human pandemics come and go. COVID's costs are mostly immediate. But they have landed just when the costly challenge of weaning Earth from what Guterres called "life support" in the race to a survivable climate is at its most urgent.

The stark threat of COVID's latest variant surge was vividly depicted by German Health Minister Jens Spahn as he urged the unvaccinated to get jabbed,

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warning that, by the end of winter, "pretty much everyone in Germany will be vaccinated, cured, or dead."

In the global response to vaccine distribution, governments primarily took care of their own citizens. Donations to the Covax scheme improved somewhat as vaccine production and supply stabilized, but they are still inadequate and not assured.

Unless the developed world makes effective vaccines more globally available, deaths will scale way beyond the current and undoubtedly understated toll of five million, depending on the severity of the Omicron and no doubt subsequent COVID variants. Still, the pandemic is a "once in a century event" — tragic but transient. Climate change is unfortunately anything but.

Global warming is also a borderless adversary, but one for which there is no protective vaccine. Its full destructive effect will be decades hence, though loss and damage and costs of adaptation are already vast.

limate change impacts everything: growth, debt, weather, drought, health, migration, conflict, equity, communications, science, humanity's capacity for trust in one another, politics and geopolitics.

Is human governance up to it? Glasgow revealed a lot of what is wrong, but also showed glimmers of hope for enough political will to emerge to point to a way out.

Both crises reflect generational divides, but with inverse levels of concern. Those insistent on urgent and maximum protection from COVID are older, more vulnerable citizens, while the younger are less concerned, and resent the costs of immediate lockdown. Global warming's longer time frame means older people object most to carbon mitigation taxes and consumer costs now, preferring to kick costs down the road. Younger people want infrastructure costs more front-loaded, not landed on them a few decades hence. Increasingly, courts agree that climate change mitigation is a human rights issue, preventing re-election-driven governments from shifting economic and political burdens to the next generation.

The definitive judgments of objective science make virus and vaccine denial minority positions, but the minorities are large enough to stymie the remedy of near-universal immunity, animated by disinformation campaigns.

Evidence, and extreme weather events have undermined the credibility of climate change deniers, making climate change denial increasingly a fringe belief, much as happened with tobacco.

But it is useful to remind ourselves of how recent the scientific imperative really is.

The first concerted global focus on natural sustainability at the 1972 United Nations Conference on the Human Environment in Stockholm failed to acknowledge global warming as a dire threat. It was at the 1992 Rio de Janeiro Earth Summit that the link between burning fossil fuels and climate change moved firmly onto the international agenda, though strong resistance blocked naming the oil and gas industry as explicitly responsible.

Most significantly, the Rio Summit adopted the UN Framework Convention on Climate Change that committed the 154 signatories to reduce atmospheric concentrations of greenhouse gases to combat "dangerous human (anthropogenic) interference with the climate system." To monitor progress, it created annual Conferences of the Parties (COP). COP1 in 1995 led to the 1997 Kyoto Protocol, which established industrialized country targets for mitigation of greenhouse gas emissions, mainly focused on removing fossil fuels from transportation and industrial power generation.

After the disappointment of the 2009 COP15 conference in Copenha-



Former Bank of Canada and later Bank of England Governor Mark Carney, now UN Special Envoy on Climate Finance with Prime Minister Justin Trudeau at the COP26 session on financial institutions doing their part. --Adam Scotti photo

gen, which failed to widen common ground between the US and China, the US Congress did not ratify the Kyoto Protocol, the Harper government withdrew Canada in 2012, and other countries including Japan and Russia ducked targets.

However, the 2015 Paris Agreement (COP 21) revived a sense of global progress, bringing all nations into a common effort to limit global warming to "well below 2 degrees C, preferably to 1.5 degrees C, compared to pre-industrial levels." In order to reach the goal of a carbon-neutral world by mid-century, countries ("parties") agreed to submit "nationally determined contributions" (NDCs).

Though NDCs are voluntary and non-binding, the Paris conference was hailed as a landmark success. But the Trump administration infamously announced the withdrawal of the US in 2017. After Joe Biden's administration put the US back in, declaring climate change a national security threat, COP26 enabled the first major audit of performance. It confirmed that almost all state parties are behind in their commitments.

Closing the gap in warming is the central task facing the world community. Before the Paris Agreement, the world was on course for a catastrophic 4 degree C rise by 2100. Paris and Glasgow commitments reduced the rise to 2.4 degrees C.

The enduring political problem is that the biggest emitters of carbon have national mitigation targets that promise global failure:

China - 23.8 percent; meet net zero target by 2060

USA - 11.8 percent; by 2050

India - 6.8 percent; by 2070

Russia - 4.1 percent; by 2060

(Canada - 10th in 2018 - 1.5 percent, net zero by 2050)

Progress in the COP process is staggered.

Coal was a lightning rod at Glasgow. It is a reality that China and India account for 70 percent of coal burned globally today. They depend on cheap coal-fired energy to meet economic requirements for 1.4 billion citizens each.

China puts off reaching "peak coal production" until 2025. India rejects a carbon reduction obligation as historically injust, But they are also both alert to domestic needs to cut emissions. China has the world's biggest renewable energy replacement program, and ambitious adaptation defences to cope with much higher

monsoon rain volumes. Indian politicians confront grim data on smoke pollution's impact on life expectancy.

Almost universal disappointment was channeled by British conference chair Alok Sharma: "China and India should explain themselves." But their tactical move was nothing new for COP. Ever since Saudi Arabia insisted at COP's inception in 1972 that all decisions must be by consensus, the process has been hostage to those with national political interests at stake.

COP26 went along in knowledge that progress comes in incremental steps and because it was the only way to save the whole package.

Meanwhile the new German Government offered the world a more hopeful counter-example by pledging to end burning of coal for electric power eight years earlier than previously announced.

o, what's the verdict on the package?

Even before COP26 assembled, climate activists were calling it "dead on arrival;" at its end, many labelled COP26 a "cop-out." Professor of atmospheric science Michael Mann acknowledges "It isn't perfect, but COP26 is all we have. Climate change is a global problem that requires a global solution. Let's make it work."

Quite a lot did emerge.

COP26 brought the adaptation/finance issue to the fore, not to weaken the emphasis on mitigation of carbon emissions, but as a basic necessity for the most vulnerable countries.

Side-deals among groups of committed countries agreed to cut one-third of methane emissions by 2030 and halt deforestation and land degradation by 2030 while the conference as a whole agreed to aim for zero-emission-only car production by 2040.

The "Glasgow Alliance for Net Zero Private Investors" — 450 financial institutions (grouped under UN Special Envoy Mark Carney) - asserted belief it can influence more than \$5 trillion of investment toward green solutions for global private business (though distrust of corporate "greenwashing" lingers).

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Ultimately, Glasgow's main job was to point the way to close the fatal gap between 1.5 and 2.4 degrees of global warming given that national commitments still fall way short of the 1.5 degree C target, which Johan Rockstram of the Potsdam Institute for Climate Change specifies should not be viewed as a negotiable number, but rather as an absolute "planetary boundary."

COP26 was not meant to deliver a definitive solution. COP27 in Egypt will try to ratchet commitments upward, and every year thereafter until the gap in overall targets is closed.

Glasgow did turn up the pressure to get much more done by the end of this decade.

Parties were responding to heightened public opinion pressure in much of the world driven by the evidence of destructive weather events, against the growing influence of the environmental movement and especially its young "fighters for the future." Their case for action had been recognized by a growing number of high court decisions that termed climate protection a "human right" under UN and EU conventions.

Nonetheless, Greta Thunberg and her impatient young activist cohorts criticize the international process as just "blah-blah-blah".

Compromise is essential to reflect the reality that the world economy still runs on fuel. Recent energy supply bottlenecks resulting from drops in new oil and gas investment before alternative renewable energy sources are sufficiently scaled to replace them, have lifted energy costs and slowed growth, rattling confidence and political will.

Confidence in the multilateral system needs boosting. There will always be push-back from countries whose interests are threatened, oil and gas states, those still reliant on coal, who lack the confidence, political will, financing, or technical ability to reduce their dependencies on fossil fuel. They can't be allowed to hijack the system but the system has to come together to support their transition to more favourable global outcomes.

It's a slow process but COP26 bent its arc toward climate justice. To advance the process, experts from Germany and Canada who met before the conference urge the formation of smaller affinity groups to reach out to build support for higher ambition and confidence. They urge outreach especially to the UN's "silent majority" of low-income states, many of which are the most vulnerable to climate change whose leaders like Mia Mottley, prime minister of Barbados, inspired Glasgow.

Can political leadership emerge to make sustainability the theme of governance everywhere, for the sake of all?

Difficult issues, like the creation of a fair UN-sanctioned global carbon market with carbon border adjustments lie ahead. The new Omicron coronavirus variant will divert attention in the short term from the imperative to change our environmental ways.

But we must. Climate change is bigger than the environment. It's the ultimate stress test of the abilities of the world's nations and peoples to work together in our collective defence and existential interest.

COP26 has at least helped keep hope alive.

Contributing Writer Jeremy Kinsman is a former Canadian High Commissioner to London, and former Ambassador to Moscow, Italy and the EU. He is a Distinguished Fellow of the Canadian International Council.



Workers preparing for the floods in B.C.'s Okanagan Valley. --iStock photo

The Accelerated Evolution of Climate Change Politics

The alchemy of science, propaganda, lobbying, political will and anecdotal evidence that has propelled the global politics of climate change since the Rio Earth Summit in 1992 has entered a new stage. Climate-linked disasters and their toll in blood and treasure have all but silenced the climate 'denialism' that protected the energy status quo and hindered policy progress for so long. Veteran political strategist and policy master Robin Sears looks at the new state of climate politics.

Robin V. Sears

t was the fury of a young teenager that began the shift in the debate on the climate crisis, helping

to move it from a fear of a future disaster to a present nightmare. Greta Thunberg was mocked and dismissed by climate deniers as recently as three years ago. Her demand that the crisis be fought seriously — "Now! Today! Immediately!" — was sneered at by some as the naïve idealism of youth.

Three years of floods, fires, drought and savage hurricanes have seen the world turn. COP26 was the most successful — after a seemingly endless series of failures — global climate summit. It actually got members to agree to legal pledges of performance. But its success compared to its predecessors was to merely to rise above a very low bar. Incredibly, it was seen as a huge achievement to recognize that fossil fuels had to go, though the usual foot-draggers resisted even such an evident truth with great vigour.

In the jargon of the climate gurus, the work of the COP and nations around the world can be slotted into four or five buckets: "emission reduction", "mitigation", "adaptation", "loss and damage", and just transition. The implication is that there is a sequence moving from reduction to transition. There are problems with each.

Mitigation, meaning to reduce the severity of the impact of carbon emissions fueling global temperature rise, assumes we have taken the right steps to actually begin to reduce emission levels. We decidedly have not.

Adaptation implies that there is a wide range of policy changes, infrastructure improvements and areas to invest in 'adapting' to climate change. There is not much 'adaptation' a flat Pacific Island nation can do in the face of rising sea levels, except mass exodus.

"Loss and damage," focuses on the current suffering of the global South based on the changes already being wrought by climate change; drought and flooding at the top of the list. Northern developed nations clearly have their own loss and damage issues today, and — as the insurance industry can attest — they are accelerating. Finally, a "just transition" is a euphemism for not expecting the developing world to pay for the climate sins of the rich North. It is, after all, Canada and other developed countries that lit the fire of climate crisis with decades of excess in relentless rises in coal and fossil fuel consumption. But giving India a break on how quickly they must end their own coal addiction does no favours to their own citizens — today choking on the world's worst urban smog events — let alone to the health of the planet.

In other words, the categories are piling on top of each other, hitting faster and harder, and creating nightmarish challenges even in the richest nations in the world, today. What is the "just transition" for a British Columbia farmer who has just lost her house, her barns and hundreds of cattle to flooding? What

"mitigation" is available to the hundreds of families burned out of their homes from Northern B.C. to Southern California this year?

Events over recent months in the Fraser River Valley and across Atlantic Canada have been like a daily drumbeat of how present and real the climate crisis has become. This creates new and dangerous dilemmas for politicians everywhere. They must pivot from rhetorical future commitments to daily climate crisis management. But if that future has now moved much closer, we have yet to seriously work to a broad consensus on the societal changes and costs it will impose.

B.C. spent nearly a billion dollars fighting fires in 2021. It will spend tens of billions more recovering from flood devastation, and then head into coming fire disasters once more. Flood proofing buildings, highways, underground transit, pipelines and rail lines across Canada will cost billions more. These are costs most governments thought could be paced over a decade or more. Now they demand attention today and they are in no one's budgets; budgets already pushed more heavily into the red by pandemic spending than anyone could have predicted two years ago.

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Conservative climate deniers here and in the United States have slowly been morphing into 'climate delayers' — "Yes, we must make changes but slowly and not all right now." But many cling to their old prejudices and mythologies — the overwhelming abundance of them lubricated by a fossil fuel industry that has spent decades tilting climate policy outcomes — at the same time.

"The war on the car," is a silly American populist slogan, copied by Mike Harris's comms teams in Ontario in the 1990s, and then used by Canadian Conservative politicians from Andrew Scheer, to Doug Ford to Jason Kenney. It was hurled at those who fought to increase transit spending, used to defend new highways, and to resist bicycle lanes.

Premier Ford's late and somewhat dubious pivot from climate denial to electric car promoter is undermined by his determination to build a massive new superhighway through the farmlands north of Toronto. Not incidentally, it will reward half a dozen property development families, each massive donors of his, by opening some of the most valuable agricultural land in Canada to suburban development. It will save mere minutes of commuting time.

The highway is so widely at odds with today's climate crisis politics, it may contribute to his defeat in Ontario in a few months' time. Alberta Premier Kenney, not surprisingly Canada's last real climate equivocator in power, may face the same fate a year later for similar reasons. But here's the rub: Justin Trudeau may also face a similar defeat, not because he is not a great climate crisis rhetorician; he is. But because over six years he has missed every climate target he has set, making Canada the worst among the G7 at controlling emissions, according to his own environmental commissioner in late November 2021. It seems very unlikely that his record will improve unless he, too, pivots; in his case from repetitive promise to observable delivery.

new generation of voters will savage politicians with fake climate credentials — the Fords and Kenneys, among others — but it will also punish progressive politicians who fail to deliver on the climate crisis.

This is the nightmare political leaders in the developed world now share: do they tell the truth about the costs, the taxes, and the restrictions that a serious fight against climate change



Prime Minister Justin Trudeau checks in on November 26 with an Armed Forces member working on relief from the disastrous B.C. floods. --Adam Scotti photo

today will require — and face defeat from a terrified electorate. Or do they continue to fudge, deny, and delay, and then face defeat from an emerging voter majority who want the truth and action now? That is their binary choice as the political temperature on climate rises, along with the planet's, as a result of our dilatory record to date.

Gasoline may rise by as much as 50 cents a litre over the next decade, as will taxes on the use of coal and other fossil fuels, as the only effective mechanism we have found to reduce fossil fuel use — pollution pricing — kicks in. The resource sector and heavy industry will face massive internal costs attempting to clean up their dirty businesses. Steel, cement, shipping, airlines and trucking — each huge emitters today — will be stretched to financial breaking points trying to meet new and tougher sustainability targets.

At least in terms of political will, the climate crisis is delivering regular disaster headlines that provide cover for tougher action today. The pushback from some cynics is, "Why should Canada push harder on climate

when the big cheaters like China, India, and the OPEC+ nations won't." The answer from a chicken farmer in Abbotsford might well be, "Because if we don't, more Canadians will die." If hundreds of Toronto or Montreal subway riders get trapped in a flooded transit system, and many die—as almost happened recently in New York City—attention to India and China's failures to get a grip on their coal mania will fade instantly.

If the Liberals were to act with sincerity in attempting to reach a multiyear, cross-partisan non-aggression pact on a set of politically tough climate measures, they could win the

The next two years of the crisis will be critical for Canadian politicians and for the world. Here, we will have three powerful provinces — Ontario, Quebec and Alberta — going to the polls. The victors will be those who have delivered believable visions of a sustainable Canada.?

support of every Canadian political party, save one. They resisted any form of cross-partisan crisis cabinet at the beginning of the pandemic, opening them to unnecessary partisan blasts from all their opponents. Their refusal to seek wider counsel also led them into serious blunders, like trying to win the right to govern endlessly without Parliamentary approval. If they are now wiser about how to survive the intensifying climate crisis politics of today, they might re-think that hyper-partisan approach.

Two groups of senior advisors on climate might be useful. One would be composed of senior representatives of every party who would be provided with the latest data and analysis in return for their offering to work on a long-term cross-party climate strategy. The other, like the provinces' "science tables", could be made up of business, labour, academics and NGOs to provide feedback and counsel on the views of Canadian citizens. In late November, following the catastrophic floods in B.C., the Liberals announced a bipartisan crisis committee to be co-chaired by the two governments' public safety ministers. This might serve as a model for a similar body with a wider agenda at the national level.

Such a consultative framework would provide the ability to build a wider popular coalition for tougher climate action, and constrain the most unhelpful partisan games. There appears to be some willingness among Liberals outside the PMO to stick their toe in these waters. Trudeau and his inner team seem as blinkered as ever.

The role of the Conservatives will be crucial, however. If they continue to walk a tightrope between Alberta's angry demands for more fossil fuel and pipeline support, and the demands of a large majority of Canadians on climate, they will appear increasingly irrelevant and face certain failure as a potential party of government. The party may even once again divide. Along the way though, they could also do serious damage to a possible emerging Canadian political consensus on climate.

Erin O'Toole dangerously, but courageously, forced his caucus and party to drop their resistance to taxing pollution. The backlash he now faces on that issue and other policy reversals may yet end his leadership. If, however, he successfully faces down his internal opponents, and takes the next necessary steps on climate, he and his party will return to competitive status. Not without some possible defections and bloodshed along the way, admittedly, but emerging with a more electable party and vision.

While Kenney and Ford are likely losers because they cannot pivot to being seen as genuine climate crisis fighters, the federal Conservatives have more options and flexibility. There is a large potential audience, fed up with Trudeau's performative politics, who would be open to a more business-friendly, climate-serious option. The Tories might study the German conservatives' very successful record on climate, or even Boris Johnson's more recent efforts to claim the climate fighter crown in the UK.

The next two years of the crisis will be critical for Canadian politicians



Prime Minister Justin Trudeau and B.C. Premier John Horgan after meeting in Victoria to discuss federal-provincial relief efforts, in terms of both immediate costs and re-building. --Adam Scotti photo

and for the world. Here, we will have three powerful provinces — Ontario, Quebec and Alberta — going to the polls. The victors will be those who have delivered believable visions of a sustainable Canada, and how they intend to get there.

lobally, the COP gang will re-convene in Sharm El Sheikh, the Egyptian resort town on the Red Sea, this fall. Expectations of meeting a much higher bar of agreements and commitments will be hard to resist. It may be the last time for some years that an American administration can show the global leadership on climate, and lock in US climate commitments, that it did in Glasgow. The likelihood that the more climate-obstructionist GOP, will win back control of the House of Representatives and possibly the Senate in 2022 keeps rising.

A Canadian multi-party consensus on a national climate strategy with credible dates, targets, and policy tools, would mean our next election would turn more on who voters trust to deliver, than who can out-promise whom in another round of climate-promise posturing. Justin Trudeau will need to do a lot of real

climate delivery between now and then to win that trust competition. The New Democrats and the Greens — despite their recent woes — would seem to have the best starting positions in such an authenticity contest.

The most interesting player in such a contest would be the Conservatives. Failure to continue in the direction of climate integrity could reduce them to a rural and Prairie rump. Moving quickly to fashion a "Conservative climate strategy" whose emphasis is on protecting Canadian families and businesses from the losses and damages they now face, one that rewards sustainability-serious business and investor partners with financial and political support, and one that makes believable pledges to meet credible climate targets, could be transformative to their appeal as a revived party of government.

Erin O'Toole might, perhaps, place a small plaque above his desk declaring simply, "Carpe Diem!"

Contributing Writer Robin V. Sears, former national director of the NDP and later Ontario delegate general to Asia, is an independent communications consultant based in Ottawa.

Climate Policy Post-COP26: Finally Catching Up with the Future

As with prizefights and campaign debates, United Nations Conference of the Parties meetings, or COPs, are burdened by the weight of expectations before the gavel even goes down on the first plenary. Earnscliffe Principal and climate policy expert Velma McColl was in Glasgow during COP26, and outlines how the policy action produced during the conference lines up with where the world needs to be.

Velma McColl

ne purpose of leadership, exceptional leadership, is to represent the future to the present. This is as true in our roles as parents when we see the future sitting at our breakfast table each morning, as it is in our roles in our communities, in business, in the rest of our professional and personal lives. With climate change this year, understanding our future has moved from some distant concept to something more immediate, more urgent.

Around the world, changing weather systems have brought us face to face with the present-day consequences of accumulating greenhouse gas (GHG) emissions in the atmosphere. What has been predicted by scientists for many years is unfolding before us, impossible to ignore as, around the world, homes burn or flood, lives are lost and communities are disrupted. A once-distant future is now our present, so the call for that kind of leadership is loud. Not surprisingly, the most adamant voices are those of the young people — mostly protesting in the streets — who will live decades into that future.

This was the backdrop for the COP26 climate summit, a necessary moment to implement the 2015 Paris Agreement's successful global framework and ultimately limit global temperature rise to 1.5 degrees Celsius.

Leaders arrived in Scotland with an understanding that we must limit the future compounding impacts of what we are living today and create a net zero future by 2050 and feeling the urgency, based on the science, that if we want to achieve the 2050 goal, we have to hurry up and reach a 45 percent reduction by 2030. Otherwise, consequences will multiply, costing our economies more money – in mitigation, disaster relief, insurance and lost opportunity – that will be sacrificed by the home owners of today and the taxpayers of the future.

The refrain of "1.5 to stay alive" from many small island states and countries in the global South echoed through Glasgow halls in November. But by the end of the conference, the 1.5 target was on life support. After

But that's not the whole story. Two weeks in Glasgow aligned global actors – governments at all levels, finance, business, many industrial sectors, Indigenous representatives, civil society and youth – toward two future inflection points – 2030 and 2050.99

30 years of environmental and climate diplomacy, reaching back to the first Earth Summit in Rio in 1992 and the exceptional leadership of Gro Harlem Brundtland, we have made steady progress – but not at a pace that matches the weather impacts and not yet at a sufficient pace to transform the underlying energy, transportation, buildings and industrial systems that emit the GHGs we are trying to control. Not yet enough. Not enough action and not enough leadership.

But that's not the whole story. Two weeks in Glasgow aligned global actors – governments at all levels, finance, business, many industrial sectors, Indigenous representatives, civil society and youth – toward two future inflection points – 2030 and 2050.

In Glasgow, we began to see the silhouette of collective leadership that would implement a shift toward the future with a series of initiatives to accelerate transitions that have been largely pipe dreams until now. We have needed public understanding, political will, technology capacity and capital flows to intersect, unleashing the necessary momentum for change.

It's important to note a couple of important convergences in Glasgow. First, science got integrated with global reporting. After science guided us through a global pandemic, the majority of us now understand that climate science is not the terrain of political debate but a north star for action.

The 45 percent target by 2030 comes from the Intergovernmental Panel on Climate Change (IPCC) and is now what countries' emissions reductions targets (NDCs) will be measured against. And we will be able to transparently measure progress against these targets every year in a public accounting system that tells all of us the score on meeting our global targets. We didn't have

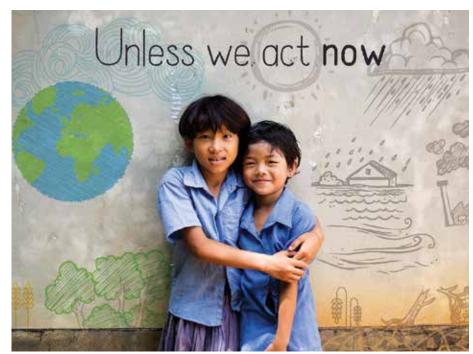
this in 2015 and we can objectively acknowledge that everything to date it is not enough and not fast enough. These kinds of tools tend to force accountability and will motivate businesses now embracing environmental, social, governance (ESG) goals, as well as community leaders, innovators and an increasingly concerned public.

A second area of impact and convergence is that private sector finance, government climate finance, and the Paris Rulebook all now align to move capital markets, investment and technology deployment toward these agreed 2030 and 2050 goals. Under the leadership of Mark Carney and Michael Bloomberg, dating back to before 2015, more than \$130 trillion in private finance is now aligning toward net zero by 2050, diverting capital toward renewable energy, batteries, critical minerals, electrification, clean technology, negative emissions, climate resilient buildings and more.

They are steadily moving away from what they see as riskier high-carbon investments such as fossil fuels – and in some ways, this move in capital markets is more significant than the brinksmanship that happened in Glasgow around "phase-down" versus "phase-out" of fossil fuels and coal. Banks and financiers will reflect these shifts every day, with boardrooms deciding what kind of projects and infrastructure get a green light and what gets rejected, a feedback loop that has far more bite for global and sectoral industry players than diplomatic language.

n the government side, greater certainty was provided by the global North (wealthier countries) to guarantee \$100 billion to the global South (developing and emerging countries) for investments in climate-friendly technology and infrastructure. There was a recognition that countries living on the frontlines of coastal flooding and climate impacts should be free to invest in adaptation to climate change, a somewhat obvious point but an important win.

And the last part of this trifecta to move resources and decision-making toward a low-carbon future is, finally, the de-



Unicef Photo

tails of the Paris Rulebook and Article 6, which establishes global standards and reporting for how carbon offsets will be defined. It also sets the architecture for a single, integrated carbon trading market, guiding actions by both government and the private sector.

Together, these areas accelerate the flow of capital away from status-quo systems and toward the development and deployment of net zero technologies, and speed changes in industrial processes and electrification and in nature-based solutions in forests, agriculture and food production. They also create a space to include nature fully in the climate debate as an end in itself, something that enhances our lives and the health of the planet, creating efficiencies by removing an arbitrary barrier to major solutions around where carbon is stored in our earth, land and ocean ecosystems.

The challenge in Canada, and in every other country in the world, is to now deliver, to show the leadership to our children and fellow citizens that we can do what we promised. There is no getting around the fact that young people are anxious and disillusioned about the world we are leaving them, particularly on climate.

As the mother of a university-aged daughter, it is uncomfortable and requires humility to justify 30 years of incremental progress. We can't deny the numbers, it's simply not enough. And politicians and governments are going to have to own that, too.

It's part of the reason why Prime Minister Justin Trudeau, on the hustings in the last campaign, was so surprised when the Liberals were judged to be failing on climate. They have implemented a carbon price, made the most detailed, complete promises and funding strategies of any government in Canadian history, but with atmospheric rivers, flooding and road closures in British Columbia, we can all see that targets and promises are not enough. Glasgow is over but we have regular reminders of the need to act, from weather changes, Fridays for the Future protests, and from our wise Governor General, Mary Simon, drawing on her lived experience in the Arctic, calling out that "our earth is in danger".

The world is at a moment of reckoning. Patience for excuses is running out. Matched with the Paris Agreement and in anticipation of the Glasgow summit, Parliament passed the Canadian Net Zero Emissions Accountability Act, requiring that a detailed 2030

emissions reduction plan be tabled by this March. Environment and Climate Change Minister Steven Guilbeault has just launched consultations on how to transition to a zero-emission electricity grid and 100 percent zero-emission passenger vehicles by 2035, electrify medium and heavy-duty vehicles by 2040, reduce methane by 75 percent by 2030 and, most pointedly, cap emissions from the oil and has sector to current levels and get to net zero by 2050.

In a mark of how much things have changed since 2015 when the Paris Agreement was signed, companies accounting for more than 85 percent of oilsands emissions have already committed to achieving this goal and hundreds more outside the energy sector have also jumped on board. Getting provinces, territories, cities and Indigenous leaders onside will be key. We will need to look to our business and finance community for leadership within our traditional and ermerging sectors and there is an opportunity agenda for deployment of a wide range of world-beating clean technolThere is no getting around the fact that young people are anxious and disillusioned about the world we are leaving them, particularly on climate. ?

ogies that Canadian innovators have developed here at home and can be exported to the world.

Looking decades ahead and taking the long view takes courage and leadership, putting the next generation's interests ahead of our immediate needs.

There are leaders in all walks of Canadian society who are wrestling with these challenges, who are managing at the intersection of these tradeoffs, being honest about the costs today and tomorrow. Decision-makers are starting to understand that the balance of consideration favours the future. Our politics needs to catch up with our increasing capacity for change and our policies must be more nimble, focused on quick wins and collaboration within the federation.

We've been making steady progress

these last 30 years, taking baby steps, learning how to walk in an integrated-global system. Glasgow marks a permanent shift in our planetary understanding and has proved that we have many of the fundamental building blocks to make generational change. Canada can look forward and not fall into historic squabbles or betray our natural assets and opportunities, we have the tools here at home to capitalize on the right, future-forward choices. It's time to be accountable, use every ounce of our collective ingenuity and run toward the changes across our economy that meet our 2030 goals – and on to net zero by 2050.

Contributing Writer Velma McColl, a Senior Principal of Earnscliffe Strategies, is a British Columbia native and environmental specialist who filed analysis for Policy from COP26 in Glasgow.



Policy Magazine presents *The Week in Policy*, our weekly look at developments in the world of policy and politics in Ottawa, Washington and points beyond. Written by *Policy* Associate Editor and veteran political columnist Lisa Van Dusen, *The Week in Policy* hits the screens of Canada's political and policy community every Friday afternoon.

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Prime Minister Justin Trudeau speaks to the Leaders' Summit at COP26 in Glasgow. --Adam Scotti photo

Patching the Leaky Boat of the COP Process

While COP26 could have been a diplomatic disaster and wasn't, the world is still not where it needs to be in emissions reductions to hold the planet to a temperature increase no greater than 1.5 C above pre-industrial levels. The major interlocutors in Glasgow argued that we will get there before the decade is out. Former Canadian Green Party Leader Elizabeth May expresses her impatience, and her belief that the COP process is still the best mechanism we have to get there.

Elizabeth May

The frenzied activity of COP26 ended with a whimper. There was no cheering; no sounds of champagne corks popping, unless it was in the suites where the 500 fossil fuel lobbyists were holed up.

The results were virtually universally acknowledged to be disappointing. We went in to the Conference of the Parties (COP26) knowing the com-

mitments – or NDCs (Nationally Determined Contributions) – from countries around the world, even if fully met, would shoot us well past the Paris Agreement goal of holding to less than 1.5 degrees C global average temperature increase.

To hold to 1.5 degrees, the Intergovernmental Panel on Climate Change (IPCC) has made it screamingly clear that carbon dioxide levels globally must be 45 percent reduced below 2010 levels

by 2030. For 1.5 to stay in reach, in the first few days of COP26 at the Leaders Summit, heads of government would have had to significantly improve their NDCs. When the high-flying speeches were over, and the leaders headed home leaving ministers and negotiators behind, it was clear that we were still nowhere near 1.5 degrees. The updated synthesis report from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) confirmed mid-week, that new promises, if met, would lead to 13.7 percent higher global emissions in 2030 than in 2010. Before COP26 opened, the projections showed a 16 percent increase. We have shaved a small amount from the deeply dangerous overshoot.

Still, COP26 may represent a turning point. The final plenary was nearly free of false celebrations and self-congratulatory adulation. If anything, I heard a resolve from many nations that the work must continue non-stop right up

to the next COP in Egypt to get the necessary commitments to hold to 1.5 degrees. The sense that hope is still alive must be nurtured. As UN Secretary General Antonio Guterres said: "1.5 degrees is on life-support." But that means it still lives – barely.

The final decision from COP26 includes many elements that have been absent in previous meetings. The language is far more imbued with urgency. Believe it or not, for the first time, the IPCC is invited to present at the next COP. It is also the first text to name fossil fuels as the culprit and to specifically call for phasing-down coal. Of course, based on pushback from China and India, that language was a climb down from the penultimate draft, which had called for coal to be "phased-out."

Still, we know that time is running out if we are to hang on to a livable climate. We do not have time for incremental improvements.

That point was underscored by the unfolding disasters in my home province of British Columbia even as the final COP text was in intense negotiation. Mudslides, flooding and tragedy were occurring in many of the same First Nations communities, same rural and remote areas of B.C. that had been hammered by the heat dome, wildfires and hellish conditions of an unprecedented summer.

A week after COP, Canada's Commissioner of Environment and Sustainable Development, Jerry DeMarco released a report detailing 30 years of failure in Canada's response to the climate crisis. All of our G7 partners and the nations of the European continent have far better records than does Canada. Yet, the world as a whole has not reduced emissions. The horror of it is that from the point when the world community first started to act on the climate issue, dating from 1990 and the launch of work to develop the United Nations Framework Convention on Climate Change (UNFCCC), until now, humanity has emitted more Greenhouse Gases (GHG) than we did between the beginning of the Industrial Revolution and 1990. It is not only a record of failure; it risks being a suicide pact.

In his report, DeMarco highlighted lessons learned from this record of failure. Top of the list was the need for leadership. That brought to mind the critical role of leadership when Canada succeeded in solving critical environmental threats- whether acid rain or the threat to the ozone layer.

I had the great good fortune of being in the office of the minister of Environment through those days of success after success. Key to getting the province of B.C. to arrest logging in the extraordinary wilderness that is now Gwaii Haanas National Park, key to getting the US to agree to curb its sulphur dioxide emissions causing acid rain, and key to getting the world to agree to eliminate chlorofluorocarbons that were destroying the ozone layer was leadership.

In all of those cases the leadership was that of the prime minister of the day, Brian Mulroney. From the top-down, the government, its civil servants and its parliamentarians understood that these were priorities that could and must be met. From acid rain to the ozone layer, from the Montreal Protocol in 1987 to the Earth Summit at Rio in 1992, Canada was a world leader on the environment. The Acid Rain Accord of 1991 was the result of seven years of bilateral talks and negotiations between Mulroney and US Presidents Ronald Reagan and George H.W. Bush. The Montreal Protocol, signed by every UN member, ended ozone depletion. In other words, the sky stopped falling. At Rio, led by Environment Minister Jean Charest, Canada was an early advocate of sustainable development.

In recent years on climate change, the same can be seen in the governments with spectacular records — whether the UK, Germany, France or Denmark. They have put in place long-term goals that transcend partisan whiplash. Leadership had continuity.

Now, I worry that the process of multilateral negotiations within the United Nations itself may be repudiated. That would be very convenient for the fossil fuel lobby. There is no doubt that Greta Thunberg's critique resonates. The speeches did have an overwhelming component of "blah, blah," But the truth is there is no other forum that could possibly engage the whole world in finding climate solutions.

Thile COPs disappoint, attacking the process itself is unhelpful. True, COPs may be a leaky boat in a storm. It is better to patch the boat and keep baling than to jump into the waves.

It is appropriate to ask how is it that this same UN process that succeeded in saving the ozone layer has stalled and sputtered in dealing with climate.

It is certainly true that the climate crisis engages virtually all human activities. So much economic activity involves fossil fuels or clearing forests. The chemicals destroying the ozone layer involved a broad range – from refrigeration, to propellants for consumer goods and medications to the manufacture of Styrofoam and other products. Still, those chemicals were less ubiquitous.

But I think there is another very significant difference into why one agreement, the 1987 Montreal Protocol on ozone, was effective, and another, the 1997 Kyoto Protocol on climate, was not. The Montreal Protocol included effective enforcement mechanisms in the form of trade sanctions. The Kyoto Protocol did not.

The end of the Uruguay round and the establishment of the World Trade Organization, even without a single decision being issued, led to climate negotiators being deprived of key tools.

So, as we face a vanishingly small window to hold to 1.5, we need to re-examine these global agreements, look at lessons learned and put climate at the top of global priorities. Just as in the ongoing COVID pandemic, we need global collaboration, relying on the science. Trade rules must be brought to heel to support global climate action.

And as in all things, all we lack is political will and leadership.

Contributing Writer Elizabeth May, Member of Parliament for Saanich-Gulf Islands, is the former Leader of the Green Party of Canada. With COP26 in Glasgow she has now attended 12 global conferences on climate change.



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Canada's Road to Net Zero--A \$2 Trillion Clean Energy Transition

Canada has a math problem. When it comes to green-house gases, our numbers don't add up. For 25 years, we've fallen short of major environmental goals, and stand to miss future climate commitments if we don't take a new approach to policy and finance. The climate crisis presents an opportunity for a generational shift in industrial policies, along with federal-provincial-Indigenous cooperation, to lay the course for investments and regulatory rules that can help a range of strategic projects and initiatives transcend political cycles over the next 25 years and encourage the mobilization of \$2 trillion, largely from private sources, to finance Canada's energy transition.

John Stackhouse

t the height of the Glasgow climate conference, Canada joined a coalition of countries, cities and corporations signing a declaration to end the sale of new internal combustion engine vehicles by 2035 in advanced economies and 2040 elsewhere. It was an important signal to the auto industry, as well as to government planners and consumers, and a critical milestone on our road to net zero.

Back home, in the birthplace of Canada's automotive industry, a different signal was rolling off the assembly line. On the same day as the Zero Emissions Vehicle Pledge was signed, GM Canada began producing a new line of Chevy Silverado, its best-selling pickup truck, at its retooled plant in Oshawa, Ontario. GM, which had joined Canada and others in signing the Glasgow EV pledge, said it was responding to consumer demand. With the support

of the federal and provincial governments, the company was also helping recharge Ontario's manufacturing sector, and position the province for the next generation of vehicles.

Was it a case of crossed wires, or a booster cable for the energy transition? Either way, the pick-up paradox is just one challenge awaiting the new federal government as it gets down to the tough work of planning and budgeting a more ambitious climate agenda.

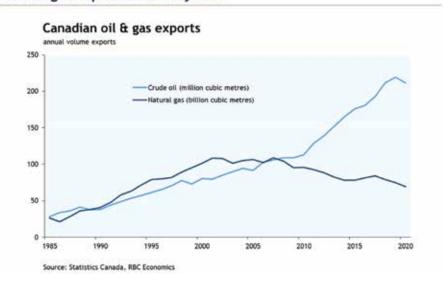
On current course, Canada will be challenged to meet our 2030 targets for greenhouse gas emissions. Some of the policies in place, including carbon pricing, methane regulations and an expected clean fuel standard, will help close the gap. But across pretty much every sector, we're not on pace to get to net zero, and need to rapidly shift capital spending to transformative technologies and scale them for consumer use.

The shift is about more than waiting for the arrival of a Silverado EV, which is indeed in the works and slated for production in 2023. It's about a massive shift in capital flows for companies that can power the transition much faster than government policy can on its own.

Research by RBC Economics and Thought Leadership estimates Canada will need to mobilize \$60-80 billion a year, mostly from private sources, to get the economy to carbon neutrality. That's roughly four times what we spend now on climate action — and even that won't be enough to get us all the way to net zero by 2050. We'll have to rely on technologies that have yet to be proven, and nudge more consumer behaviour change than we've seen to date.

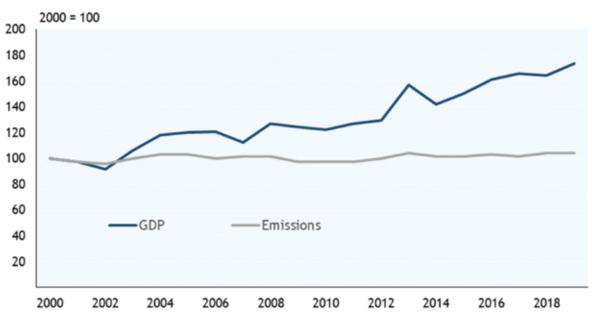
Critically, Canada will require a more coherent and cohesive national plan. RBC's \$2 Trillion Transition report lays out six pathways to deploy climate cap-

Oil and gas exports over 20 years



Agriculture production and emissions growth

Efficiency has kept ag emissions down despite rapid production growth, but overall reductions are hard



Source: Haver, Environment and Climate Change Canada, RBC Economics

ital over the next 25 years — in electricity, oil and gas, heavy industry, buildings, transportation and agriculture. This includes tens of billions of dollars for abatement technologies, such as carbon capture and sequestration, to capture emissions from our heaviest emitters at source, before they enter the atmosphere. We'll need even more capital to double electricity production including more hydro and nuclear power — for a rewired economy. And Canada's farmers, tens of thousands of them, will need to invest in regenerative processes and methane capture technologies to cut their net emissions and place Canada among the leading sources of sustainably produced food.

Properly planned and deployed, this new approach to sustainable capital could lift Canada above our decades-long trend of low economic growth, and help businesses become more competitive globally. Placed in the hands of climate entrepreneurs and business innovators, it could attract and retain a generation of talent to Canada, too, through immigration, higher education and skills training.

The technologies and capital for much of this transition are already available. But they're not in place for two key reasons: market failure and policy failure.

First, the market failure. As vehicles have become more fuel efficient, we've bought more and driven more, which has pushed overall vehicle emissions up rather than down. In Ontario, ve-

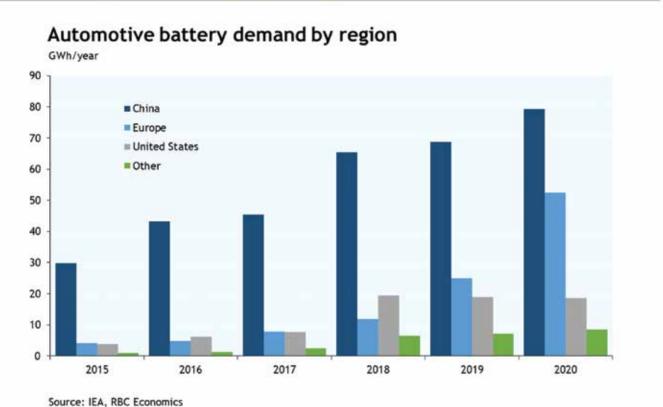
Across pretty much every sector, we're not on pace to get to net zero, and need to rapidly shift capital spending to transformative technologies and scale them for consumer use.?

hicle emissions are 50 percent above 1990 levels, and may soon overtake the oil sands as a source of greenhouse gases, given the province's population growth and urban design.

Similar consequences of population and economic growth can be found in the housing sector. We're not only building more houses as a country, for good reason. As those homes become more fuel efficient, we're building larger ones, without enough focus on regional and local energy systems. The market is not allocating resources efficiently.

As for policy failure, we're falling short of our climate goals because they've not been accompanied by roadmaps or accountabilities. The COP26 Glasgow conference generated several important commitments, including on methane, coal, forests and vehicles, but as is often the case with summits, delegates went home with more promises than plans.

Canadian v global battery spending over time



If we're to get a different result, we need a plan and a playbook to blend public, private and Indigenous capital, and create more harmony in federal, provincial and local policies.

The capital is largely there. Glasgow included historic commitments from the world's financial sector, including Canada's major banks, insurance companies and pension plans that collectively have the balance sheets to get Canada to net zero — and improve Canada's economic performance. The conference also strengthened our collective approach to sustainable finance, through tools such as emissions trading, emissions disclosure and taxonomies (or classification systems) that give lenders and investors the ability to move capital, efficiently and transparently, to transition activities.

In Canada's case, we'll need to invest at least \$500 billion by the end of the decade in carbon capture pipelines, hydrogen hubs, electricity grids, neighbourhood heating systems and charging networks, among other needs. And that The technologies and capital for much of this transition are already available. But they're not in place for two key reasons: market failure and policy failure. ??

means developing project plans and regulatory frameworks, and strengthening our approach to sustainable finance, within the next 36 months.

Bottom line: If capital is not allocated to these initiatives by 2025, they won't be working by 2030.

Fortunately, Canadians have amassed enormous savings through the pandemic, and for much longer through world-class pension systems. As we look for a more economically sustainable recovery, with much less government debt, we can harness those savings (as well as global capital) to help finance the transition, and finance Canadian retirements.

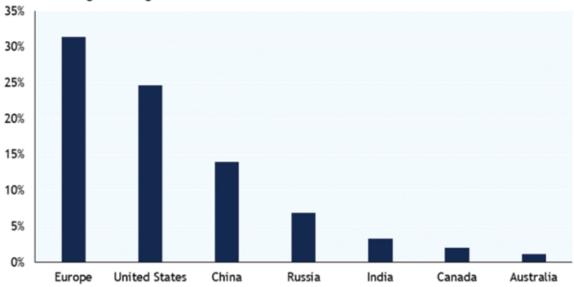
New financing frameworks developed around Glasgow, including the Net Zero Banking Alliance, will enable banks, pension funds and insurers, among others, to better track and report on the emissions related to financing activities, and to demonstrate progress. It would be dangerous, and even undemocratic, to expect the financial sector to dictate or regulate the path to net zero. But financial flows and returns can be a useful barometer for the country to measure and monitor progress, and continue to look for ways to optimize the allocation of capital.

The money, though, won't flow on its own. Canadians need to compete for the trillions of dollars that Mark Carney spoke about in Glasgow, and that will require a much greater focus on economic returns as well as climate impact. They can co-exist, which is why green capital is flowing to Europe, the United States and China.

Attribution of historical GHG emissions

The West dominates historical emissions, but Asia's emissions are growing rapidly





Source: Our World in Data, Global Carbon Project, RBC Economics

To catch up, we need far more investable projects, with market rates of return, than we're currently developing. That will require a transformation of project planning, approval and execution, which may not be easy for a pandemic-weary public. Energy shocks this fall have rattled political confidence in Europe and North America, and will be tested anew in elections in 2022 in France, the United States and elsewhere.

If others struggle to find their climate balance, Canada may have a competitive moment to gain a capital advantage, and fund breakthrough investments. But to do that, we need to consider a new playbook, including:

- a national declaration of strategic priorities like carbon capture and sequestration;
- fast-track approvals and regulatory certainty for projects deemed to be essential to net zero goals;
- · sector goals for emissions, with

responsibility for industry to reach them;

- new platforms and regulations for blended, long-term capital from federal, provincial, Indigenous and private sources;
- revenue models, including carbon pricing, to secure longterm cash flow for projects;
- clear emissions mandates, and deadlines, for vehicles and buildings;
- a national policy, and investment framework, to double electricity generation and distribution;
- a Canada-US policy framework for energy production and distribution, including oil and gas emissions, cross-border electricity sales and supply chains for renewable energy equipment.

Critical to Canada's evolving climate plan will be a more disciplined approach to staging and sequencing these policies and projects. All of the above can't be done at the same time, and none of it can be done by markets or governments on their own. We can't do this in isolation, either, especially from the United States.

The road to net zero will not be straight or smooth. But with a reliable roadmap and a good route plan, we can still control our destination, if we get moving now.

John Stackhouse is Senior Vice President in the Office of the CEO, Royal Bank of Canada. He oversees RBC's Economics and Thought Leadership group, co-chairs the bank's Climate Strategy Steering Committee and is a member of the federal Sustainable Finance Action Council. He was previously editor in chief of The Globe and Mail, and editor of Report on Business, and is the author of four books, including Planet Canada: How Our Expats are Shaping the Future.

How Alberta is Doing its Part on Climate Change and the New Economy

Oil has been as emblematic of Alberta as the cowboy hat for generations; not just as the driver of the province's economy, but as an integral part of its culture. Which makes the necessary transition to net zero by Canada's oil patch not just an economic issue and a political issue, but an emotional one. Former Calgary MP Lee Richardson takes a dispassionate, optimistic look at how the province is evolving toward a new reality.

Lee Richardson

Then international delegates at COP26 demanded an end of fossil fuel production, Albertans may have asked what the world would look like tomorrow if we suddenly ceased our oil and gas activities. That same question might have crossed the minds of British Columbia climate activists when just two weeks later, climate events caused the closure of the Trans Mountain pipeline carrying oil and gas to refineries in the Lower Mainland, disrupting daily lives.

Somewhere between the howls of "End oil production now!" and "Let them freeze in the dark", moderates from each side are listening, finding middle ground. Alberta may be Canada's largest generator of carbon emissions, but it may also be a key to Canada's net zero solution.

Canada's low population, harsh climate, and huge geography contribute to per capita carbon emissions six times those of India, and 10 times per capita those of China as we argue the benefits of production and the growing demand for energy. Oil and gas still supply 80 percent of the world's energy requirements for everything from transportation to food production, heating and cooling.

While we have the luxury of considering how we could and should supply our energy needs, the developing world is captive to the existing energy sources, and justifiably feels that their economies should be able to grow, and their populations flourish, even as the goal posts of sustainable energy are moving. Demand for energy will persist, and it has to come from somewhere.

In October 2021, crude oil production in Alberta reached its highest level on record – 3.84 million barrels per day. Production is up 200 percent in the past 20 years, while in that same period, emissions have increased by 50 percent. The trend is going the right way on an emissions-per-barrel basis, despite the absolute increase in our emissions. The issue is not production, but emissions. The goal of getting to net zero emissions has become an imperative, and must be pursued with the same entrepreneurial drive that created the industry in the late 1950s.

hile industry has generally embraced this challenge, the current populist government in Alberta has erected barri-

Somewhere between the howls of "End oil production now!" and "Let them freeze in the dark", moderates from each side are listening, finding middle ground." ers to positive action. Old paradigms die hard. Having long touted the "Alberta advantage", predicated on cheap energy, the present government went all-in on a traditional economy denominated by oil and gas (and even coal, briefly), and promoted a narrative at odds with the undeniable move toward the low-carbon solution the world is seeking.

A recurrent theme is the futility of Alberta reducing our emissions while other global producers do not take action. Suspicion and cynicism of our national government endure and provide an easy target. The outsized contribution of the fossil fuel industry to the Canadian economy is undeniable, and often used as the de facto reason to preserve the status quo. But strident views are being questioned and reconsidered. Provincial challenges to federal legislation have been muted by the Supreme Court ruling last March 25 that Justin Trudeau's carbon tax is constitutional.

Even as there are ideological undercurrents that shape a part of the provincial story, and in spite of sometimes petty political squabbles, successive Alberta administrations have taken practical and concrete steps to incentivize clean-energy initiatives.

From the vision of the Lougheed government with the creation of AOSTRA (Alberta Oilsands Technology and Research Authority) and the Alberta Heritage Fund to current Carbon Capture Utilization and Storage policies, the IEE (Industrial Energy Efficiency) grant program, TEIR (Technology Innovation and Emissions Reduction) fund and others, government programs have stimulated industry in reducing carbon emissions.

Industry too, has forged ahead with innovation to reduce emissions and transformative technology in oil and gas exploration and pro-

duction, low emitting electricity systems, low carbon industrial processes and products to reduce greenhouse gas (GHG) emissions in food, farming and forestry. Because of the new prominence of ESG targets on corporate scorecards, the finance industry has embraced investment in the green economy and provided the capital to spur more creative solutions.

The focus on ESG has also resulted in more inclusive resource development, particularly with First Nations. True partnerships among industry, governments and First Nations from the outset of projects have provided opportunities for consultation, employment, and equity. Meaningful negotiations on the Trans Mountain pipeline led to the signing of comprehensive mutual benefit agreements with 10 Alberta First Nation communities and 41 in B.C. – including every First Nation on land the pipeline crosses.

The approved route of the Coastal Gaslink pipeline in northern B.C. was determined after similar engagement and consultation with Indigenous, landowner and stakeholder input. Coastalgaslink.com noted, "After extensive consultation with First Nations people from various groups through that program, Coastal Gaslink initiated additional studies and engineering work to create the South of Houston alternate option to help further reduce of effects on traditional and cultural land." That pipeline, connected to the TC Energy network, will transport natural gas from Alberta and northern B.C. to LNG Canada at Kitimat on the west coast, where it will be converted to liquified natural gas for export to Asian markets. This Canadian natural gas will contribute to reduced GHG emissions there by replacing higher carbon-emitting fuels such as coal.

In June 2021, Suncor, with other partners, announced the Oil Sands Pathways to Net Zero Initiative, a commitment to produce no net GHG emissions in their oilsands operations. They stated: "'Net Zero' is another way of saying we will either produce no GHG emissions or reduce or offset the emissions we put in the



Calgary Conservative MP Michelle Rempel Garner: "Young Canadians," she says, "prefer a robust plan for net zero." -- Alamy photo

atmosphere." For a sector that has been vilified for its environmental footprint and performance for years, this represents a stunning trajectory towards the new green economy in a very short period of time.

In October, Dow Chemicals announced plans to triple the size of its Alberta petrochemical plant and transition the facility to net zero emissions. The significance of this cannot be overstated: Dow can choose to invest anywhere in the world, and the fact that they have decided to make the biggest investment in Alberta in the last 15 years is a signal that there is reason for optimism. This \$10 billion investment will have been considered in the context of Alberta's ample and relatively cheap feedstock, and highly trained workforce but as importantly, it is a vote of confidence in our ability to deliver the technology to get to net zero in a sector that will break new ground.

overnment and industry cooperation, policies and programs have reduced emissions, increased competitiveness, lowered compliance costs and improved energy efficiency. There is reason for hope. Old arguments are failing, differences are fewer, new voices are being heard and views are changing. Perhaps a new consensus is forming. The problem is not carbon production but carbon emissions and how to reduce them.

Industry has grasped the concept. Are the public and the politicians moving to a consensus on carbon reduction strategies?

In the last election campaign, Conservative leader Erin O'Toole surprised anti-carbon tax hardliners with his shift to a "pricing mechanism for consumers" – a "low carbon savings account". In December, his caucus shadow minister for Natural Resources, Calgary MP Michelle Rempel Garner suggested: "Young Canadians – particularly those that want to see climate action and also want to see jobs and have some security – prefer an approach with a robust plan for net zero. I think you're going to see opposition parties work together on a plan for net zero in the Parliament..." (she did add, on a less conciliatory note) "to show the government's lack of competency at a time when we need leadership."

As I write in early December, newly appointed Environment and Climate Change Minister Steven Guilbeault is in Calgary sitting down with the heads of the major oilsands producers. He also met with senior executives from petroleum producers, pipeline companies and power utilities, as well as Alberta business groups. Will reports of understanding, conciliation and consensus on reaching carbon emission targets while supplying Canada's energy needs emerge from those meetings?

We can only hope so, with Alberta as part of the solution in building the Green Economy.

Contributing Writer Lee Richardson, a former Conservative MP from Calgary under the Mulroney and Harper governments, was previously chief of staff to Alberta Premier Peter Lougheed and, later, Premier Allison Redford.

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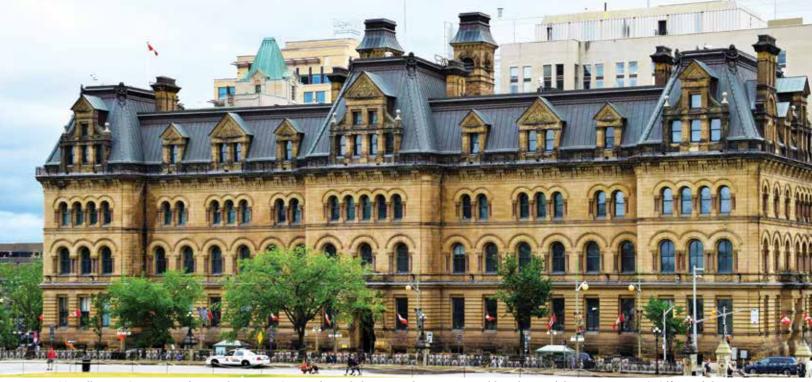
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80 Wellington Street across from Parliament in Ottawa, formerly known as the Langevin Building, home of the Prime Minister's Office and the Privy Council Office, the two central agencies of decision-making for engaging on clean energy solutions to the climate change crisis. --Flickr photo

Navigating the Politics of Crisis: Engaging with Government in Extraordinary Times

At its most impersonal, the culture of government relations involves a perpetual gavotte of titles whose paths cross where issues and vested interests – political, sectoral and financial – intersect in a calculated fashion. In a crisis, especially an existential one involving a daily catalogue of loss, that culture takes a lurch toward the personal. Longtime political strategist and veteran consultant John Delacourt describes how the crises of COVID and climate change have affected the way Ottawa moves policy.

John Delacourt

If you were to attempt something so unfashionable as to write a book about how the pandemic has changed the way things get done in Ottawa since we first locked down in 2020, an apt title might be *The Politics of Crisis*.

Crisis management, crisis communications and, when possible, crisis preparedness have replaced the more provisional term of "emergency" to reflect our chronic damage control mode. The crucial distinction might be in scale and duration. No previous peacetime event has demanded this level of constant contingency planning and rapid response.

The politics of crisis has dominated and dramatically reshaped policy making across government to such a degree that any new normal, should it ever be established, will be defined by its legacy – from how we will talk to each other (virtually), how government will deliver services (digitally) to the very role (larger) that government will play in people's lives.

Such a second draft of history would have to put the successive waves of the pandemic in the foreground, of course, but the crucial subplot in this crisis narrative is the threat with the longer tail: the existential threat of climate and ecological breakdown. As Mark Carney remarked earlier this year, soon after he was named UN Special Envoy for Climate Action and Finance, "from a human mortality perspective, (climate change) will be the equivalent of a coronavirus crisis every year from the middle of this century."

That was in February 2021, and by early fall, the devastation of the "heat dome" and forest fires in British Columbia and the subsequent, unprecedented rainfall prompted Natural Resources Minister Jonathan Wilkinson to state, in case anyone had a shadow of a doubt, that we were in the middle of a climate crisis.

Even more telling a signal, for those businesses who require a sustained, working rapport with Ottawa on the legislative and regulatory implications of the Liberals' efforts to address this crisis, was a tweet sent out by PMO advisor Sarah Goodman in mid-November, as the situation was worsening in B.C.:

"How I'm feeling in B.C. today: Dear Lobbyists, Don't contact me if you want to dilute or slow climate action. Just don't. None of us are going fast enough. We can't negotiate with science. The costs of inaction are here and huge. Instead, let's do more, faster, together."

You could say that such a message was provocative, for what business, even focused on the production of oil and gas, still views its prime motivation as the slowing and dilution of climate action? Providing good jobs and keeping communities thriving, aside from keeping shareholders happy, are more than collateral effects or incidental considerations around a boardroom table, nor should they be diminished as such in a Zoom meeting with a staffer two degrees of separation – and usually two decades of professional experience – away from a cabinet minister.

However, context is important. Goodman's tweet was also sent out in the midst of the worst reports Canadians were getting on the impact of the devastation in B.C. Images of farmland submerged, livestock starved or drowned, roads washed out and beyond repair for what could be months. Or years. If you are in the Prime Minister's Office, you are on the front line of these reports.

And if you have been doing your job for a few years – Goodman has, and well, I'd add – you've also been looking at the data. You've had to justify your counsel with the hardest evidence, and the strongest counter arguments about economic impact, to the toughest room in the country: there's the PM, his chief of staff and the environment minister, on Zoom. From the Stern Review on the economics of climate change, first published 15 years ago, to the latest numbers on capital expenditures and investment flows in the oil and gas sector, you've got to know what you're talking about, and why legislation has to be crafted to address it.

Then there is the additional consideration of what happens in a crisis. The familiar rhetoric about government as a partner with the private sector – or for that matter the provinces – is forgotten when there are urgent calls for action. All eyes look to Ottawa.

Think of the crises in long-term care or affordable housing that came to the forefront in the first wave of the pandemic. Be the minister who takes "breaking news" questions on these fronts, who calmly and forthrightly explains that these policy areas are not really the domain of the federal government, that there is a historical context as to why ... be that minister and put your mind to what life after politics might be like. Who knows, there might be a book in that story. Call it *How I Dropped the Ball*.

There is also the not-incidental consideration of how most Canadians have polled on the importance of addressing climate change, literally for years now, well before our current crisis. One of the big changes I witnessed in my time working inside of this government was the rigour and the cadence of that data. It confirmed, time and again, that citizens across the country wanted action, not fine words about the importance of action, and that they recognized the seriousness of climate change and its impact. This was not an abiding concern of Gen Z or millennials. Nope, it spanned three generations, from coast-to-coast-to-coast.

To the fundamental question of how policy can be crafted through a crisis, how businesses can come to the virtual table, these are the terms of engagement.

Some of the advice could be considered evergreen: don't "reach out" simply for the sake of exchanging business

cards and providing anyone with yet another power point presentation ("is it still loading?") larded with information the government could get from your website. Don't speak of any winwin proposition that runs counter to the fundamental tenets of carbon deintensification and making the fastest transition to clean technology that we can collectively make. Don't attempt to wield the leverage of a provincial environment minister and make veiled threats about the electoral implications of tabling the kind of legislation this government has thought long and hard about before a memorandum to cabinet was drafted. And don't bring any new data to the meeting that's even slightly overcooked. That young person in the meeting, on that screen, who looks a little like your niece? She's seen the latest data, and she's likely had a department brief her on the granular details.

Pet the most important consideration is, unfortunately, of this moment. This is a government slowly and incrementally trying to emerge out of crisis mode. Many are ridiculously overworked and under-slept. They might be a little snippy or may not immediately get your dad joke – or unfortunately they did immediately get it. And they, too, have probably been suffering anxiety attacks, reduced to tears at inopportune moments ... much like those people we've all been working with and hope are okay when we leave the Teams calls. Or much like yourself.

It is now a shopworn cliché to say these are unprecedented times. It should be equally a given that these times call for unprecedented action, and that's a huge lift right now for any government.

But I'd argue especially for this one. Come to the table with the best understanding, and the best constructive arguments you can, for how you can get us out of this crisis to a better place.

Contributing Writer John Delacourt, Vice President and Group Leader of Hill and Knowlton Public Affairs in Ottawa, is a former director of the Liberal research bureau. He is also the author of three novels.



Ontario Power Generation's Darlington Nuclear Generating Station (NGS), located in the Municipality of Clarington in Durham Region. Darlington NGS is responsible for generating over 20 percent of Ontario's electricity needs, which is enough energy to power two million homes. --CNA photo

A Path to Net Zero with Nuclear in the Mix

John Gorman

The United Nations recently declared climate change a "code red" crisis, emphasizing the urgency in acting decisively to avert climate catastrophe.

While climate change must be addressed through a global approach, Canada needs to act now if it has a chance of reaching its goals of net zero by 2050, and the reality is that we have our own set of challenges and opportunities we must navigate to get there.

Canada faces unique challenges on its path to net zero.

We have one of the highest energy consumption rates per capita in the world – and are warming at twice the average global rate.

The backbone of our economy is built on natural resources, with fossil fuels currently serving 80 percent of all energy needs in Canada. Oil and gas represented around \$105 billion in GDP in 2020, but they also account for a large share of Canada's emissions. Meanwhile, according to analysis by Royal Dutch Shell, global energy demand is projected to triple by 2050.

And we still face significant challenges, including many remote and Indigenous communities being "off the grid" and forced to rely on costly and high-emitting diesel.

There is no doubt we have a monumental task ahead — one that requires a massive energy system transition leveraging the full mix of low-emitting energy sources if we are to be successful.

There is no perfect – or easy – solution. But there is a proven, viable path.

And the reality is that we have no choice but to pursue that path to have a chance of mitigating climate catastrophe.

That path must include all viable clean energy technologies – renewables working together with nuclear.

Having attended COP26, I feel very encouraged by a renewed commitment to addressing climate change. A key topic was around the integral role of clean nuclear energy working in partnership with renewables and other low-emitting energy sources.

While we may hear rumblings about not needing or wanting nuclear as part of the solution to fighting climate change – often fuelled by myths and lack of understanding – the reality is that no viable model exists without the inclusion of nuclear.

It's hard to fathom the extent of global scientific research that has gone into helping understand the path to fight climate change – and scientists, governments, environmentalists, and climate change experts across the world have concluded over and over that it is just not possible to get to net zero without nuclear in the mix. This is a fact, not an opinion.

Nuclear energy is a clean, energy-dense, carbon-free, reliable energy available around the clock.

uclear power produces fewer CO2 emissions over its lifecycle than any other electricity source, according to a recent report by the United Nations Economic Commission for Europe (UNECE). The commission found that nuclear power has the lowest carbon footprint measured in grams of CO2 per kilowatt-hour (kWh), compared to any other electricity sources – including wind and solar.

It is also the most land-efficient means of producing clean energy – at least 15 times more efficient than renewable sources like wind and solar. And it serves as one of the most affordable electricity sources worldwide.

Nuclear is the only technology that has achieved deep decarbonization of entire economies in adequate timeframes. Places such as France, Sweden, and the province of Ontario have been able to effectively decarbonize their electricity grids and limit or phase out coal generation thanks to nuclear. In fact, since 1970, nuclear reactors have avoided the emission of 72 billion tonnes of carbon dioxide compared to the emissions that would have arisen had coal-fired generation been used instead. But it has the potential to do so much more.

The nuclear industry currently contributes over \$6 billion in revenue

Nuclear power produces fewer CO2 emissions over its lifecycle than any other electricity source, according to a recent report by the United Nations Economic Commission for Europe (UNECE). **

annually in Canada and represents 76,000 jobs. The projected growth of the nuclear industry means an early leadership position for Canada in small modular reactors (SMRs). According to the SMR Roadmap, the estimated total global export potential of SMRs is approximately \$150 billion per year for 2030 to 2040.

As part of COP26, many countries spoke to their renewed commitment to new nuclear technology, including through SMRs. A group of 12 union chiefs from across Europe reinforced to global leaders the urgency of nuclear as a key practical and proven means to get to net zero, stating, "every serious expert analysis confirms that we need nuclear to hit net zero", a sentiment echoed by Mark Carney in his role as the United Nations Special Envoy on Climate Action and Finance.

Just since Glasgow, we have seen several countries announce significant investments in nuclear technology as part of their net zero path, including \$200 million in SMR investments in the UK, \$1 billion in France, and \$2 billion in the US. This is on top of \$6 billion the US has committed to reinvest in existing reactors and the billions more that will be invested in France's plans to build new large reactors. Meanwhile in Canada, Ontario Power Generation (OPG) recently announced it will work together with GE Hitachi Nuclear Energy to deploy a small modular reactor at the Darlington new nuclear site, with completion as early as 2028.

As someone who spent much of my career in renewables, I am a true proponent of maximizing the full potential of solar, wind, hydro and other re-

newables. But the fact is that 20 years ago, when I started in the renewables sector, 36 percent of the world's electricity supply was non-emitting. Today – two decades later and following huge investments ramping up wind and solar – we're still at 36 per cent non-emitting electricity on the world's grids. We just cannot get to net zero through renewables alone.

There is significant focus on the role SMRs must play, leveraging innovative technology for safe, cost-effective small-scale fission reactors that can be built in factories and are easily transported on-site. Not only do they provide clean electricity, they can also play an integral role in decarbonizing Canada's heavy industry, including the oil and gas sector that represents such a significant part of our economy. They can also serve small or remote communities, including the many Indigenous communities that currently rely on diesel. And unlike most renewable energy sources, they can provide high density, zero-emission energy around the clock.

reating clean electricity will be a key component of Can-✓ada's path to net zero. The International Energy Agency (IEA) projects that electricity generation will be about 2.5 times higher in 2050, stating that, "Spreading the use of electricity into more parts of the economy is the single largest contributor to reaching net zero emissions." Nuclear is one of the largest producers of clean electricity around the world and in Canada, and already accounts for about 15 percent of Canada's electricity. But we have only scratched the surface of its potential. SMRs are designed to provide reliable, carbon-free electricity with a much smaller land footprint than current reactors.

There is increasing focus on how the hydrogen economy will be a critical part of our clean energy future. When hydrogen gas reacts with oxygen it releases clean energy, and the only by-product is pure water. Like SMRs, hydrogen has the potential to help Canada transition remote communities away from high-emitting diesel

and to decarbonize heavy-industry operations, transport, and community infrastructure. Today, almost all hydrogen comes from high-emitting fossil fuels. However, nuclear technologies make hydrogen gas a more practical fuel for a carbon-free energy system. Economical production of hydrogen would usher in a new era of hydrogen-powered vehicles, which would create no more emissions than walking or cycling.

Canada is uniquely positioned to take a global leadership role in creating a clean energy economy.

Our country can drive environmental, social, and economic advantage on the clean nuclear stage. For many years, Canada has been a leader in nuclear technology, exporting reactor systems developed in Canada as well as supplying a high proportion of the world's radio isotopes used in medical diagnosis and cancer therapy. We also have the largest reserves of high-quality uranium in the world and are the second largest producer and fourth

largest exporter of uranium. We have an exceptional safety record within nuclear innovation spanning 65 years and are proud to have world-class regulatory oversight.

We are at a pivotal moment, at which Canada needs to not only take decisive action to mitigate catastrophe, but to avoid falling behind other countries who are accelerating their path to net zero through clean nuclear technology.

Having targets is important, but we need tangible plans and actions that acknowledge the need for real infra-

Places such as
France, Sweden,
and the province of Ontario
have been able to effectively
decarbonize their electricity
grids and limit or phase
out coal generation thanks
to nuclear. 99

structure, policy, and regulatory oversight. Governments around the world must look beyond election cycles to the 30-year imperative of net zero. They must work together on a concrete and ambitious plan to incent fuel-switching and to signal to the clean energy sector what's required.

Canada is no exception. The government has done a great deal to support the nuclear industry, but we cannot afford to take our foot off the pedal. We must take an "all-in" approach to tackling climate change, with industry and governments working in partnership.

Now is the time for the government to leverage Canada's world class leadership role in clean nuclear technology innovation to help fight climate change. We cannot afford to lose momentum and fall behind. Net zero needs nuclear.

There is an opportunity to get to a better future.

John Gorman is President and CEO of the Canadian Nuclear Association.



Net Zero Needs Nuclear

- Canada will need to triple the amount of electricity it produces over the next thirty years to meet net-zero emissions targets.
- This means we need all available sources of clean energy working together to address the climate emergency, including nuclear energy.
- © Canada is a world leader in nuclear a clean, scalable, deployable energy source that works around the clock.
- Canada is positioned to be a world leader in small modular reactors (SMRs), which can help decarbonize heavy industry, provide clean energy to remote communities, and work in tandem with intermittent renewables.
- Nuclear energy is the most land-efficient means of clean energy production and produces less CO2 emissions over its lifecycle than any other electricity source.
- Every serious expert analysis confirms that we need nuclear to reach net zero.







Companies operating in Canada's publicly held forests are required to harvest at sustainable rates. Canada loses 25 times more trees annually to drought, pests, and wildfires than to harvesting. --FPAC photo

Seeing the Forest for the Trees: Forestry Solutions for Canada's Climate Targets

Canada's forests, nine percent of all the forestry in the world, have a critical role to play in the fight against climate change. Now is the time for Canada to leverage the power of sustainable forest management to grow our forest-based economy. The industry's senior representatives make the case.

Derek Nighbor and Kate Lindsay

t is a common and often derogatory refrain to refer to Canada's labour force as "hewers of wood and drawers of water" where we provide the raw materials that other nations turn into high value goods. It is ironic then, that the two sectors this cliché engenders – forestry and hydropower – will be essential compo-

nents of any successful decarbonization plan and clean energy transition in Canada.

The important role of low emissions hydro power is well known, but what is less recognized in this country is the larger role forestry and forest products can – and must – play in reducing consumption of fossil fuels, adapting to a changing climate, and meeting Canada's climate goal of a 40-45 percent reduction in greenhouse gas (GHG) emissions by 2030.

The magnitude of the challenge to achieve a 40-45 percent reduction, 296 to 333 million tonnes of carbon dioxide (CO2) equivalent per year, in nine years is mindboggling. This reduction is more than the total GHG emissions of Ukraine or Egypt. We could eliminate every stationary combustion source - all natural gas furnaces and boilers, all oil sands projects, all industrial energy emissions, all thermal electricity generation - and still not reach a 45 percent reduction. To have any chance of delivering on its Paris commitment, Canada needs large projects and it needs them fast. The forest products sector can deliver.

As a starting point, it is important to understand the scale of Canada's forests and energy consumption. The turnover – that is the carbon uptake and release of Canada's forests – is approximately 3,700 million tonnes of CO2 per year. This is five times national anthropogenic GHG emissions.

istorically, Canada's forests were a net sink that absorbed more carbon than was released. Over the past two decades, the balance has shifted, and Canada's forests have become a net source of GHG emissions.

Is increased harvest driving this trend? No. Timber harvest in Canada has dropped by 25 percent since 2004, driven largely by a decline in pulp and paper production. Harvest in Ontario, Quebec, and Nova Scotia is down 40 to 60 percent.



The 18-storey Brock Commons Tallwood House is one of the tallest mass timber buildings in the world and houses over 400 students at the University of British Columbia. *Image: University of British Columbia, Brock Commons – Tallwood House.*

Will reducing timber harvest reverse the trend? Absolutely not. In fact, it could make it worse. "Protecting" forests from timber harvest does not protect them from a warming climate and its impacts. The largest driver in the shift from forest sink to source has been disturbance in the form of insect infestations and wildfires.

Recent research shows that Canada's national parks – the epitome of protection – have become a net source of

The magnitude of the challenge to achieve a 40-45 percent reduction, 296 to 333 million tonnes of carbon dioxide (CO2) equivalent per year, in nine years is mindboggling. This reduction is more than the total GHG emissions of Ukraine or Egypt. 99

GHG emissions over the past two decades. In 2018, the largest source of GHG emissions in the country was not oil and gas or transportation, it was forest disturbance in the form of pests and fires. If we do not take action and current trends continue, GHG emissions from Canada's forests could exceed those from anthropogenic sources by 2035.

When we discuss renewables in Canada, there is almost always a fixation on electricity, but it currently accounts for about 16 percent of national energy consumption. The reality is that almost two-thirds of Canada's energy consumption is thermal energy – heat – for industry and buildings. While electrification is undoubtedly central to decarbonization of transportation, Canada's thermal energy demand is simply too large to electrify.

he forest products sector is the country's second largest industrial heat consumer, after the oil sands but ahead of oil refining, steel, and cement. That said, the vast majority of our thermal energy generation is low carbon. Over

the past three decades, the carbon intensity of the forest products energy consumption has decreased by 60 percent, largely by fuel switching from natural gas to sustainable forest bioenergy.

Bioenergy is already Canada's second largest source of renewable energy – providing five times the energy of wind and solar combined – and the largest source of renewable energy in half the provinces. In Alberta, New Brunswick, and Nova Scotia, bioenergy represents approximately ³4 of all renewable energy production, with most of this in the form of heat.

The fact that bioenergy is not the largest source of renewable energy in Canada is surprising, given that it's the largest source of renewable energy in the United States, and it rep-

The reality is that almost two-thirds of Canada's energy consumption is thermal energy – heat – for industry and buildings. While electrification is undoubtedly central to decarbonization of transportation, Canada's thermal energy demand is simply too large to electrify. ?9

resents 60 percent of renewable energy supply in the EU.

So how can Canada's forest products sector address climate-induced forest disturbance while realizing large GHG reductions? First, we must continue our leadership in providing renewable, low carbon building materials to the world. A cubic metre of wood stores approximately one tonne of CO2. In 2019, Canada produced approximately 70 million

cubic metres of lumber and board. That is 70 million tonnes of CO2 locked away every year, most of it for decades or centuries. Improved domestic markets for mass timber, such as cross laminated timber, will reduce Canada's GHG emissions while avoiding harmful US lumber tariffs.

Second, we must make Climate Smart Forestry, including a rapid increase in active forest manage-



Using carbon capture technology, Toundra Greenhouse in Saint-Félicien, Quebec collects up to 30 tonnes of CO2 per day to use for controlled injection into the greenhouse to enhance photosynthesis and optimize cucumber production. --Resolute Forest Products photo

ment, central to Canada's climate mitigation and adaptation effort. This means thinning fire-prone stands, removing high-risk material, and using prescribed burning to avoid megafires that burn both trees and organic soil. Where pest infestations occur, we must move rapidly to contain the outbreak. We can also restore forest lands that have low productivity or poor biodiversity by thinning and removing low-vigour and deteriorating trees, thus providing the light and space required to grow larger, healthier trees. The overarching goal must be to maximize forest productivity and stored carbon in the forest over time. These activities will not yield instant results but have the potential to reduce GHG emissions relative to baseline by 100-200 Mt CO2 per year by 2050. Indigenous economic participation in this effort is not only desirable, it is required.

Third, we need a market for all this low-grade wood. Much of the timber and material harvested for Climate Smart Forestry will be of insufficient quality for milling into lumber or other longlived solid wood products. Historically, there was significant demand for low-grade timber and residues from lumber milling for pulp and paper production. Canada was the undisputed global leader in newsprint exports. However, digitization and a challenging investment environment have led to significant reductions in Canada's pulp and paper production.

In the absence of a local pulp mill market, the only proven large-scale market for this low-grade wood is energy and heat generation is the most efficient use of this material. This means we can displace fossil fuels in industrial and building heat markets while improving the resiliency and productivity of our forests via Climate Smart management.

Look at evidence from a country like Sweden, which harvests ten times the timber volume per forested acre as Canada and where bioenA cubic metre of wood stores approximately one tonne of CO2. In 2019, Canada produced approximately 70 million cubic metres of lumber and board. That is 70 million tonnes of CO2 locked away every year, most of it for decades or centuries. 99

ergy provides 37 percent of national energy supply. Sweden's bioenergy consumption has increased by 200 percent since 1980 but over the same time period, the timber stocks – stored carbon – in Sweden's forests have increased by 44 percent. In fact, the annual net increase in stored carbon is so large, it reduces national GHG emissions by over 70 percent.

How is this possible? By active forest management, with an emphasis on Climate Smart Forestry. Sweden simply allows fewer trees to die in the forest without any energy or material benefit. The results of this approach are clear: Sweden's per capita GHG emissions are 1.5 tonnes of CO2 emissions while Canada's are 13 times higher at 19 tonnes.

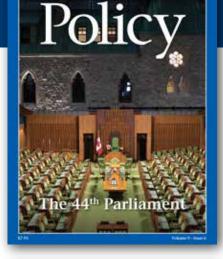
Thile heating our cities and towns with forest biomass might sound far-fetched to Canadians, most cities in Sweden and Finland - other northern countries with significant forest resources - are heated using wood fuels or pulp mill excess heat. Large biomass combined heat and power plants are located in the downtowns of Stockholm and Copenhagen, with the heat distributed to over 95 percent of buildings in these cities using hot water district energy systems. Bioenergy combined with district energy is the proven approach to urban decarbonization of northern cities, with the two cities consistently competing for the title of world's greenest city.

Finally, Canada has no chance of meeting its Paris commitment without rapid development of BioEnergy + Carbon Capture and Storage (BEC-CS) projects, with a focus on the Western Canada Sedimentary Basin for storage. As trees remove CO2 from the air when they grow, storing CO2 generated during bioenergy production underground results in a permanent removal from the atmosphere. "Negative emissions" from BECCS have been identified by the UN and the International Energy Agency as essential for reaching climate targets. We estimate that with a concerted effort, Canada could realize 50 million tonnes of negative emissions from BECCS projects at existing industrial facilities and greenfield plants by 2030.

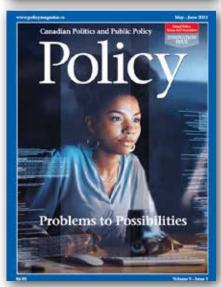
It is time to take action. It is time to stop believing that separating ourselves from nature is possible or even desirable. It is time for us to leverage the power of sustainable forest management as a nature-based climate solution to deliver on our international commitments, grow our forest-based economy, and help our forests adapt to a changing climate.

Derek Nighbor hails from Pembroke, Ontario and is President and CEO at Forest Products Association of Canada (FPAC). He is also the acting President of the International Council of Forest & Paper Associations (ICFPA), and represents Canada's forest products sector on the Food & Agriculture Organization of the United Nations' Advisory Committee on Sustainable Forest-based Industries (ACSFI).

Kate Lindsay is Forest Products Association of Canada's (FPAC) Senior Vice President. She is a Registered Professional Biologist (R.P.Bio) and co-leads the Species at Risk Advisory Committee (SARAC) and is a member of the Pathway to Target 1, National Advisory Panel (NAP).









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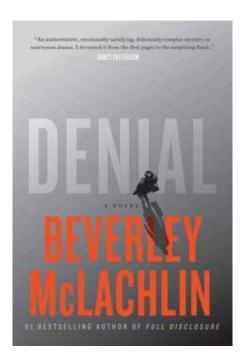
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BOOK REVIEWS



A Novel Approach To Justice Denial

DenialBy Beverley McLachlin
Simon & Schuster, 2021

Review by Anthony Wilson-Smith

smart, no-nonsense woman with an abiding love of law – and a level of knowledge to match that passion. An exploration of a contemporary issue with far-reaching consequences. A backdrop of one of Canada's great cities limned with elegance, deep familiarity and obvious affection.

Add up those elements, and friends and acquaintances will quickly identify the subject as Beverley McLachlin, and the location as her beloved Vancouver. But in this case, the protagonist of *Denial* is not the former Chief Justice of the Supreme Court herself, or a specific case over which she presided in her years on the

bench. Instead, it's her literary creation, Jilly Truitt, the crime-solving defence lawyer we first met in Mc-Lachlin's previous novel, 2019's *Full Disclosure*. The result of this second outing is another briskly-paced, neatly-plotted read that provides a cleareyed view of the complex machinations of our legal system – for better and sometimes worse.

This time out, the story revolves around what's known as MAID, short for Medical Assistance in Dying. Against her best instincts, Truitt is persuaded to represent the wife of a prominent fellow lawyer who is accused of killing her terminally ill mother. Even though she appears to have done so out of love and in conjunction with her parent's often-expressed wishes, the killing violated the very specific conditions in which euthanasia is legally acceptable.

There's also the not-insignificant fact that the accused vehemently denies having done so; she refuses pressure from all sides to plead guilty to a reduced charge in return for a relatively minor sentence. Add in a significant bequest at risk, a family life not quite as advertised, and the defendant's mental health challenges, and a ground-breaking case takes on additional shades of grey.

McLachlin's first novel leapt smartly up to the top of bestseller lists in Canada. The publishers clearly think this new offering can pull in an international audience. It comes replete with blurbs from mega-selling crime authors James Patterson and Kathy Reichs as well as fellow Canadian Robert Rotenberg. There's a very engaging exchange at the back of the book with the ubiquitous John Grisham (that first ran in the Globe and Mail) in which he and Mc-Lachlin swap thoughts about how and why they write books in which much of the drama is based in courtrooms. (One of a number of shared

conclusions: neither ever watch legal dramas on television: the "legal stuff", notes Grisham, "is not always plausible".)

An obvious question with McLachlin's books is the degree to which her protagonist, Truitt, is a reflection of herself. The answer, in essence, is that there are obvious similarities – but others in which author and character have little or nothing in common.

In person, Beverley (a member of the Board of Historica Canada, the non-profit organization where I am president) is crisp and focused; one of those people who command attention and inspire confidence without apparent effort. Those qualities belie – or perhaps reflect – her remarkable rise from her beginnings as the child of a family of very modest means in Pincher Creek, Alberta, to her present status as one of the most revered jurists in the country's history – and held in similar regard beyond.

¬hose who have lived in Ottawa for any period of time may be familiar with the bubble in which Supreme Court judges have traditionally been expected to confine themselves. Through much of the country's history, they had to be wary of almost any social contact outside their immediate circle for fear of being accused of favouritism in their rulings. In my Ottawa days, I recall several times when cars pulled up outside a restaurant where I was having dinner and decanted judges who then headed immediately into private rooms booked for them to dine together.

Those strictures make sense at one level, but at another, they can be smothering. Before McLachlin's ascension, a popular story in Montreal legal circles concerned a judge who stepped down from the court well before retirement, telling associates the reason was that "I only ever got two calls a day; one from the Chief Justice and one from



Beverley McLachlin at the end of her tenure as Chief Justice of the Supreme Court in 2017. A beloved figure at home, respected worldwide. -Chris Waite via Alamy

(their life partner) – and I didn't want to talk to either of them." To her credit, Beverley – whose rise took place in a legal world still heavily weighted against women – encouraged judges to break out of that bubble and, most importantly, to consider the real-world effect of the decisions alongside legal precedents and other factors in front of them.

She became one of the leading proponents of the "living tree" doctrine, which essentially holds that the law should evolve to reflect changing societal norms. Among others, she presided over ground-breaking decisions on safe injection sites for drugs users, greater acknowledgement of aboriginal rights and title, and assisted suicide legislation, the premise of *Denial*.

In fact, McLachlin has a personal stake in MAID. Her first husband, Rory McLachlin, died of cancer in 1988 after the couple had been married 21 years. Near the end, in pain and with the outcome clear, he expressed his wish that it be made possible for people in his situation to have an assisted end.

McLachlin, in her 2019 memoir, Truth be Told: *My Journey through Life and Law*, acknowledged that experience helped guide her thinking when the issue later came before the court. (She has been married since 1992 to Frank McArdle, who she thanks on the title page for "his love and unfailing support that makes everything possible.")

For the rest, only McLachlin can know whether she has experienced the doubts, anguish and uncertainties that plague Jilly Truitt behind her outward aura of confidence. Whatever the case, with the freedom every author has, Beverley has built a life for her character that she might well have enjoyed herself had she followed a different path within the law.

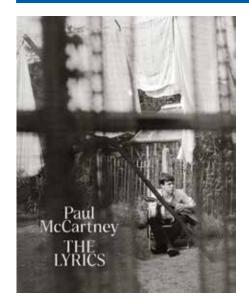
She has acknowledged that, while on the bench, she found criminal cases particularly compelling because of the wide range of issues and human drama involved, so the jump to a novel based on those elements is a relatively short one. Then, the setting in Vancouver, a city she adores and where she spent her early academic and judicial career, functions as a sort of character on its own in the book. It opens, in fact, with lunch at Cardero's Restaurant, the waterfront seafood joint that has been an institution for decades.

Tith all of those elements – as well as some impossible-to-anticipate plot twists, Denial neatly manages the difficult trick of being both entertaining and educational. As a measure of her expertise in reflecting real life in fiction, the courtroom scenes in *Full Disclosure* are now used by some Canadian law professors to show their students how trials work, and some of the ethical issues that come into play. Denial may well be used in the same way.

At 78, Beverley, now four years removed from her position on the country's highest court, seems to revel in looking at her former world with an outsider's – but still expert – eye. On the one hand, her shift from a life as one of our greatest jurists to a career as a novelist is not an outcome that many might have seen coming. On the other, the confounding of expectations and overcoming of long odds has been pretty much the story of her remarkable life.

We can be grateful for that, both as readers and as Canadians.

Contributing Writer Anthony Wilson-Smith, President and CEO of Historica Canada, is a former Editor of Maclean's Magazine.



McCartney's The Lyrics: Still the Beatles' World, We Just Live in It

The Lyrics: 1956 to the Present By Paul McCartney Liveright Publishing November 2021

Review by Charlie Angus

book on the lyrics of Paul Mc-Cartney? I gotta say, I like Sir Paul, but when I first heard of his new project, I was planning to take a pass. Did I really want to read a poetic analysis of Ebony and Ivory? But from the first page, I was hooked.

Paul sets the stage as a young teen in blasted-out, post-war Liverpool growing up in a loving, working-class family. He learned how to harmonize singing dance hall songs around the piano and how to rhyme playing word games with his dad. Ah, so that's where he came up with killer lines like "Maxwell Edison majoring in medicine"? At 14, Paul got a guitar, learned Eddie Cochran, and the rest is history.

The Lyrics isn't the memoir of an old geezer reliving glory days. In telling the backstory to so many indelible songs, McCartney remains the king of phrasing, the crystal-clear image and the hook that never lets you go.

I've always been torn about the Beatles. Blame it on the chip on the shoulder of a generation growing up in the shadow of the Baby Boom. When I was a teenager, I didn't rebel against my parents, I rebelled against the Beatles. I was thrilled by the Clash call to arms when they declared, "Phony Beatlemania has bitten the dust." Dissing the Beatles was how punk kids tried

to define our place in the world, and how punk musicians insurrected.

But in my heart, I really couldn't hate them. When I was a toddler, my teddy bear was named Ringo. When a Beatles song came on, my widowed Scottish grandmother would gather us around the radio so we could hold hands and sing along. She taught us all the Beatles hits.

And in my teens, the murder of John Lennon was a tragic rite of passage into a darker adult world. I mourned the loss even as we railed against the maudlin desire to turn the troubled and turbulent Lennon into a plastic saint. That moment has always stayed with me which is why, decades later, I wrote the song The Day John Lennon Died with my band, Grievous Angels.

With Lyrics, Paul provides a backstage pass to him and Lennon composing the new western canon of song — a process also immortalized in Peter Jackson's new epic documentary The Beatles: Get Back, but without the same personal focus, context and perspective from McCartney. We learn that John was imitating Dylan when he sang Hide Your Love Away and that the Beach Boys Pet Sounds hit the Beatles as "serious competition." They responded with the hilariously subversive Back in the USSR.



NDP MP Charlie Angus, centre, with former MP Andrew Cash, right, with the Juno nominated band, Grievous Angels.

At one point in the book, McCartney likens the pressure on him to write a hit song to the pressures faced by Dickens or Shakespeare as they wrote for the fickle London audience. Dickens and Shakespeare? Seriously? But then Paul proceeds to describe getting up in the middle of the night to write Come and Get It as a first single for the Welsh band Badfinger. The next morning, he went into Abbey Road and laid down all the instruments for the demo in 20 minutes (that demo gave Badfinger a massive, worldwide hit). With the demo complete, McCartney spent the rest of the day writing tracks for the monumental work Abbey Road. Not bad for day's work. I bet Shakespeare and Dickens couldn't beat that.

That's fascinating about the Beatles is that their work still sounds fresh and ageless. Elvis died in 1977, but over the decades his sound and image have receded into sepia. The aging Stones are still chugging along, their bad-boy catalogue navigating a #MeToo world. But when it comes to John, Paul, George and Ringo young people are continually redis-

What's fascinating about the Beatles is that their work still sounds fresh and ageless. Elvis died in 1977, but over the decades his sound and image have receded into sepia.

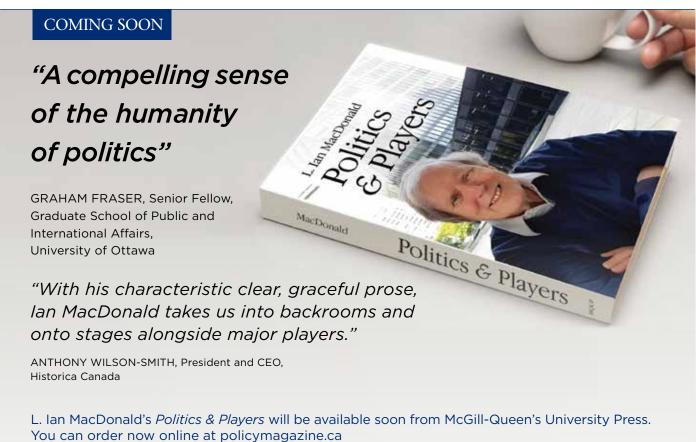
covering them. Recently I watched the film Hard Days Night with a young Gen Zed. She said she loved the movie because it showed the Beatles "standing up to the boomers."

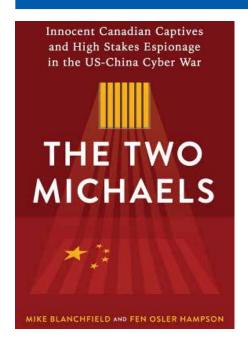
Boomers? Wait a minute. The Beatles were the soundtrack for the boomer generation. But my attempt to explain this to Gen Zed went nowhere. To Gen Zed, the boomers are stuffy older people, resisting change. Not only do the Beatles get exempted from the fault lines of a new generational war but they are welcomed as allies by kids who see them the way we did – as the perpetually young and brilliantly charismatic lads from Liverpool.

The downside of the book is, of course, the reminiscences about the decades of solo songs after the Beatles. McCartney has written some great songs in the half-century since the Beatles' break-up, but the stories with Wings just don't convey nearly the magic of stories about Eleanor Rigby or Sgt. Pepper. But then, how could they? Nonetheless, the photos and notes make up for any shortfall.

The Lyrics lands as the world is going gaga over all eight hours of practicing and bickering in Get Back. We are enthralled by the forensic tedium of the film because we want answers: what was the secret magic that made these four musicians so Goddarned brilliant? It's the same thing with Lyrics. Sometimes it still feels — to paraphrase Dean Martin on a different musical deity — like it's the Beatles' world and we just live in it.

Charlie Angus is the co-founder of the punk band L'Étranger and longtime front man for the Grievous Angels. He is the New Democratic Party member of Parliament for Timmins-James Bay.





The Two Michaels: Dissecting a Diplomatic Drama

The Two Michaels: Innocent Canadian Captives and High Stakes Espionage in the US-China Cyber War By Mike Blanchard and Fen Osler Hampson Sutherland House, 2021

Review by Colin Robertson

ver their thousand days in captivity, the plight of the Canadian hostages known as "The Two Michaels" increasingly dominated public Canadian conversations about China. Now, we have a telling of the concurrent story that was unfolding behind the headlines in The Two Michaels: Innocent Canadian Captives and High Stakes Espionage in the US-China Cyber War.

For authors Mike Blanchfield and Fen Hampson, the book is their "letter" to Michael Kovrig and Michael Spavor. Blanchfield and Hampson have succeeded in their joint effort to "gain some insight into the broad geopolitical reason behind their imprisonment" and "what so many were doing to win their freedom".

Mike Blanchfield writes on foreign affairs for Canadian Press and his journalist's skill keeps this 260-page, 23-chapter account brisk and factu-

al. Carleton University Professor Fen Hampson is one of Canada's foremost political scholars. His books, notably his superb account of Brian Mulroney's foreign policy, are rare examples of making academic research accessible and readable to the wider community. Hampson and Blanchfield draw on reportage — Canadian and international — submissions and testimony from the Meng Wanzhou extradition hearings, among other sources. The book also benefits from their interviews with eminent Canadians as well as Vina Najibullah, whose a support for her husband, Michael Kovrig, did much to build public support.

The Two Michaels begins with the Trudeau government's decision in December 2018 to proceed with the US extradition request for Huawei executive Meng Wanzhou and follows through the many efforts of the many players – Canadian and international - that ultimately helped secure their release in late September.

Reading *The Two Michaels* left me with three main observations and a recommendation.

First, Canadian governments need to proceed with great care and circumspection when it comes to extradition requests because they can blow up in your face. Justin Trudeau's admission that he was well aware of the US request infuriated Beijing and led to the seizing of the two Michaels as hostages as well as the application of various economic measures designed to coerce Canadian compliance.

Did those advising the Prime Minister think through the implications of our actions? Other nations approached to arrest Meng demurred. We did not and came out looking like chumps. Better to have followed John Manley's advice to show some 'creative incompetence' at the Vancouver Airport.

Having seized Meng Wanzhou, the Trudeau government then cloaked itself in their interpretation of 'the rule of law'. Respected legal counsel cast doubt on the government's high-mindedness while for Beijing, this reinforced their belief that Canada was simply a US puppet. This left Canada no room for

maneuver, a cardinal sin in diplomacy.

The second observation is that the two Michaels behaved with grace and courage throughout their ordeal. Having visited Chinese jails as a consular officer I can tell you they are not a place in which you'd want to spend any time. Kovrig and Spavor found solace in exercise, meditation and, when permitted, the luxury of reading. The choice of Viktor Frankl's Man's Search for Meaning recounting Frankl's survival through the Holocaust is poignant: "The one thing you can't take away from me is the way I choose to respond to what you do to me. The last of one's freedoms is to choose one's attitude in any given circumstance."

A third observation: If the two Michaels are the heroes of the book, the villains are Donald Trump and Xi Jinping. For President Trump. Meng Wanzhou was the "the Ivanka Trump of China." to be parlayed for Chinese concessions in the battlefield over technological supremacy.

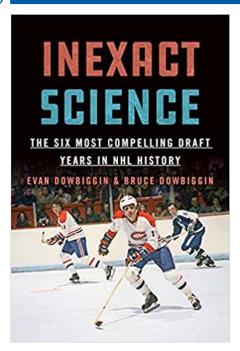
The best advice on handling Xi Jinping comes from former Canadian ambassador Rob Wright .who advised the House of Commons special committee on China that

"little is achieved by shouting publicly, loudly, at the Chinese on these issue". Instead "we need to maintain a strong diplomatic presence there and a deliberate context, ... not turn these into public issues that made.. them more difficult to manage."

Managing an aggressive China is the challenge of our times. We now need to add teeth to the Declaration on Arbitrary Detentions, drawing on the Magnitsky laws targetting the individual perpetrators of human rights abuses by hitting them and their families in their ability to bank, travel and reside in democracies.

As this book attests, we've got to expunge hostage diplomacy as a tool of statecraft. We owe it to the two Michaels.

Contributing Writer Colin Robertson is a former Canadian diplomat and Fellow at the Canadian Global Affairs Institute in Ottawa.



Inexact Science: Exactly the Book for Hockey Fans

Inexact Science: The Six Most Compelling Draft Years in NHL History

By Evan Dowbiggin and Bruce Dowbiggin ECW Press, November 2021

Review by Paul Deegan

nexact Science: The Six Most Compelling Draft Years in NHL History, written by the father-son team of Bruce and Evan Dowbiggin, pulls back the curtain on six of the NHL's most fascinating drafts. The book is meticulously researched, which is not surprising given that Evan is a sports statistical researcher for TSN, and Bruce was a longtime CBC sports broadcaster.

The draft puzzle, as defined by the Dowbiggins, can be "the way to victory", or "the road to ruin". For prospects, it can lead to riches or disappointment. The roots of the modern draft go back to 1963, but the amateur draft, as it was known at the time, bears little resemblance to today's draft extravaganza.

By way of illustration, Garry Monahan, selected number one overall in

that inaugural draft, didn't even know there was a draft and only found out after-the-fact when the Canadiens' legendary general manager Sam Pollock called to relay the good news.

The authors note that many teams failed to pick up on the importance of the draft in the early days. However, smart managers, with teams like the Canadiens, Islanders, and Oilers, recognized the value of "stockpiling picks through trades", and they went on to create Stanley Cup winning dynasties.

The Dowbiggins note that drafting is just the first hurdle when it comes to building a dynasty. Training and development are needed to turn top prospects into legends.

The first draft the authors examine is 1971, when Guy Lafleur went number one overall, and Marcel Dionne went second. Lafleur, whose #10 tricolore jersey was eventually retired in Montreal, wore #4 for his hero Jean Béliveau while playing junior hockey. He racked up 130 goals and 207 points in 62 games during his final amateur season. That Lafleur wound up in Montreal, and not in California as Dionne later would, reflects the brilliance of Sam Pollock, who pried a first-round pick from the Oakland Seals with the nerve a burglar and the skill of a top CEO.

Evan and Bruce Dowbiggin take the reader down a fascinating road that will be loved by hockey fans everywhere. To suggest, however, that its appeal will only be to hockey nuts and stat geeks is to sell it far too short. 99

Pollock would continue to nab firstround picks from weaker competitors. More than any of his contemporaries, Pollock proved that drafting and stockpiling those picks, not trading, was the ticket to the Stanley Cup. He knew that many top draft selections would not become superstars, so he sought as many picks and he could – even by manufacturing trades years earlier to secure high draft picks.

The authors conclude each chapter about these six drafts with a look at the actual top draft picks and their own "re-draft". Interestingly, Lafleur and Dionne are the only one-two combination that make the cut in the Dowbiggins' re-draft - although subsequent actual #1 picks Mario Lemieux, Eric Lindros, Sidney Crosby all make the Dowbiggins' re-draft. Comparing these actual vs. re-draft lists, it is a headscratcher that Mark Messier could have ever gone 48th in 1979, or Patrick Roy, Brett Hull, Luc Robitaille and Gary Suter could have gone 54th, 117th, 171st, and 180th respectively in 1984, after the Penguins so astutely picked Lemieux as #1.

They note that the "hockey gods are capricious", but stockpiling top picks comes through as a strong theme. Scouting for top talent is a "hit-and (mostly miss)" proposition. According to scout Mike Futa, "It's the only job where you can be right 15 percent of the time and be ruled a Hall of Famer or a success."

Evan and Bruce Dowbiggin take the reader down a fascinating road that will be loved by hockey fans everywhere. To suggest, however, that its appeal will only be to hockey nuts and stat geeks is to sell it far too short. Inexact Science has much broader appeal. It has much to teach us about the importance of selecting and developing top talent and it offers interesting historical nuggets and perspectives about everything from Quebec to the former Soviet Union. If your team is likely missing the playoffs, they are now playing for draft choices. And Inexact Science is the perfect primer.

Contributing Writer Paul Deegan is a lifelong Montreal Canadiens fan. He was deputy executive director of the National Economic Council in the Clinton White House and led government and public relations at BMO and CN.



Column / Don Newman

Ottawa's New Pastime: Leadership Speculation

o wonder there is a sense of déjà vu on Parliament Hill. The minority Parliament elected in September met for just two-and-a-half weeks before taking its holiday break.

business-as-usual **Perhaps** that post-election vibe in the House is why one of the favourite political discussions among insiders is speculation as to who will lead the two main political parties into the next election. Some may think this a waste of time. With a second consecutive minority government no one knows when the next election might be. And neither of the major party leaders, Justin Trudeau or Erin O'Toole, plans to step down. Quite the contrary. Both have said they are determined to lead their parties when voters next go to the polls.

However, circumstances might dictate otherwise. A leadership change in one party might trigger a change in the other. And new leaders in one or both parties could very well trigger an election. Either by the Liberals, again thinking they have another chance at a majority, or the opposition parties defeating the Liberals on a confidence motion. Given voters anger about the September election itself, all parties should want to avoid blame for another election — at least until the pandemic has exhausted its immediate supply of variants.

O'Toole is obviously the most vulnerable leader. The first call to replace him came right after the election. O'Toole has fought back. He has dropped dissident MPs from his shadow cabinet and had the original rebel who called for the review thrown

off the party's governing council. But under pressure, he also supported a caucus vote that allowed for a leadership review to be launched if 20 percent of MPs sign a formal agreement to trigger the process, and then 50 percent of the caucus supports the proposal in a secret vote.

over his head, the speculation is already rife about who might succeed him.

At the moment there is only one candidate who has a chance of beating O'Toole. Pierre Poilievre is the darling of the party's base, a fierce if not always accurate questioner of Trudeau in the House. Last spring, O'Toole replaced Poilievre as the party's finance critic but has reinstated him since the election, apparently following the Sun Tzu maxim to keep one's friends close and one's enemies closer. A leadership race would produce other candidates, some serious and some less so, and a new Conservative leader might put pressure on Trudeau to consider his future.

Some are wondering whether Trudeau has fought his last national election anyway. Two minority governments in a row have increased that speculation, but even if the current minority runs to a four-year term, Trudeau will be nearing the "best before" date most leaders face. After 10 years, Canadians usually want a change at the top. Parties often try to meet that desire by changing leaders. If they don't, the electorate sometimes does it for them.

A fter Trudeau, who? He is obviously trying to set his deputy prime minister up for the succession. Chrystia Freeland has al-

ready taken on some of the trappings of the job. In addition to her web page as minister of Finance, Freeland now has a deputy prime minister home page similar to the PM's. Freeland's high profile has its advantages, but can also have its drawbacks. By being so close to Trudeau, she can claim part of any successes. But it also means if the mud starts flying at Trudeau, she is also in line to get hit.

But a future Liberal leadership race will attract more than one cabinet minister. Industry Minister François-Phillipe Champagne is not making much of a secret that he wants to succeed Trudeau. And neither is Foreign Affairs Minister Mélanie Joly. Freeland represents a downtown Toronto seat and has western roots, which plays better to the Liberal tradition of alternating leaders from English Canada and Quebec.

Interestingly, Mark Carney's name does not get mentioned much. The fact that he has twice backed out of an active political career may be why. He came close to running for the leadership in 2012, then decided not to. And last summer, he said he would do everything to help the Liberals win the election, then again declined to run.

But Carney or no Carney, the jockeying is already starting for a leadership sweepstakes in both the Liberal and Conservative parties. It turns out there are good reasons for the speculation about what, and who, might come next.

Contributing Writer and Columnist Don Newman, an Officer of the Order of Canada and Lifetime Member of the Parliamentary Press Gallery, is Executive Vice President of Rubicon Strategy, based in Ottawa.

Concevoir un avenir durable

La question du climat représente un grand défi et une occasion encore plus grande pour le Canada : influencer nos vies ainsi que celles de nos enfants et des générations qui suivront. Le plan du Canada visant à réduire radicalement les émissions de gaz à effet de serre pour atteindre la carboneutralité d'ici 2050 nécessite la plus importante transition économique de notre époque ; une transition dans laquelle RBC s'est totalement engagée.

L'atteinte de la carboneutralité suppose que nous réinventions notre économie de façon à maintenir un équilibre entre les besoins de toutes les régions et de tous les citoyens. Cela nécessitera des innovations et des capitaux considérables. La façon d'y arriver est tout aussi importante que l'objectif en soi. Les sources d'énergie traditionnelles jouent un rôle important dans nos activités quotidiennes, même si nous modifions nos méthodes de production et notre consommation d'énergie pour contenir les effets dévastateurs des changements climatiques sur notre planète. Tout en bâtissant une économie plus durable, il faudra préserver les emplois et accroître la prospérité du Canada. Réussir cette transition ne sera pas facile : nous devrons avancer ensemble, animés du même sentiment d'urgence et de la même volonté d'action réfléchie.

RBC est prête à faire sa part, et cela va bien au-delà de notre leadership en matière de carboneutralité de nos activités, dont les émissions seront réduites de 70 % d'ici 2025. Nous mettrons à contribution nos employés et nos capacités dans chaque secteur et chaque collectivité pour faciliter la transition de trois façons importantes :

En aidant nos clients à passer à la carboneutralité

Nous nous sommes déjà engagés à investir 500 milliards \$ en financement durable d'ici 2025 et nous sommes en bonne voie d'y arriver. Grâce à notre vaste gamme de produits, de services et de conseils, nous continuerons d'aider nos clients, les entreprises et les personnes de tous les secteurs et de toutes les régions à fixer et à atteindre leurs objectifs climatiques.

En assumant nos responsabilités

Nous suivrons les progrès réalisés par nos clients vers la carboneutralité et nous en rendrons compte. Au début de 2022, nous publierons les données sur les émissions produites par nos clients qui sont de grands utilisateurs de nos services financiers et de prêt – les « émissions découlant de nos activités de prêt ». Nous fixerons simultanément des objectifs intermédiaires en vue d'atteindre la carboneutralité d'ici 2050. Pour y parvenir, nous collaborerons avec nos clients des secteurs à émissions, dont les innovations et les stratégies de réduction des émissions sont d'une importance cruciale pour permettre au Canada d'atteindre ses cibles.

En participant activement à un avenir durable pour le Canada par l'information et l'inspiration

Nous contribuerons à faire connaître le problème des changements climatiques et proposerons des idées pour réussir la transition vers la carboneutralité. Notre plus récent rapport, « Le parcours du Canada vers un monde à zéro émission nette », propose six parcours pour changer notre façon de vivre, de voyager, de croître et d'alimenter nos vies en énergie sans sacrifier emplois, collectivités et entreprises. Nous continuerons de financer, d'écouter et de rassembler les collectivités, y compris les chefs autochtones, les experts en technologie ainsi que les secteurs publics et privés, afin d'innover pour apporter de nouvelles solutions climatiques aux plus grands enjeux.

La volonté du Canada d'atteindre la carboneutralité renforcera les secteurs économiques existants et en créera de nouveaux qui seront durables. La prise en main de projets durables ainsi que des actions plus générales visant à atteindre la carboneutralité auront une portée significative pour la réconciliation avec les peuples autochtones. Et nous offrirons à nos enfants un monde plus sain dans lequel ils pourront prospérer. Notre économie sera plus propre, notre nation plus forte et notre planète plus saine. Tous ensemble, nous pouvons y arriver.

C'est là le parcours le plus ambitieux du Canada, et nous le soutiendrons à chaque étape.









Canada's Charities Depend on Parliament for Recovery—It Starts with Budget 2022

An open letter to Members of Parliament,

Canadians want the new Parliament to work for recovery from the pandemic. Recovery of health. Recovery of the economy. Recovery of optimism.

It's up to MPs from all sides to make it work. In a minority Parliament, that's the nature of the place. Canadians expect no less—a bi-partisan agenda for Canada.

And it starts with Budget 2022.

Canada's charities know all about this. Recovery has always been their mission. Recovery and renewal, by re-investing in Canadians.

Never have charities been more needed, or their work more essential, than during the challenging times of the last two years. And never have they experienced the significant financial impact, where access to normal fundraising channels has been significantly curtailed during the pandemic.

Parliament can help, at virtually no cost to government, simply by eliminating the capital gains tax on charitable donations of private company shares and real estate.

Back in 2006, when Ottawa removed the tax on gifts of publicly held stocks, the change resulted in charitable gifts of over \$1 billion a year, in nearly all of the 15 years since. Removing the tax on donations of privately held shares as well as property, would have a similarly beneficial effect.

When I pointed this out in a recent article for the Globe and Mail, a prominent business leader and philanthropist called and said if this measure was included in Budget 2022, he would donate \$100 million to registered charities over the next seven years.

That's money talking. Money that can be put to work for Canadians who need a helping hand.

We've been talking about this for years. Budget 2022 presents an opportunity to get it done. For Canada's charities. For Canada. And for Canadians.

Now's the time. Let's do it.

Yours sincerely,

Donald K. Johnson, O.C., LL.D.

Director, UHN Foundation

Chair, Vision Campaign, Toronto Western Hospital

Member, Advisory Board, Ivey Business School, Western University

Chairman Emeritus & Director, Business / Arts

Member, 2021 Major Individual Giving Cabinet, United Way Greater Toronto Member, Honourary Board, The National Ballet of Canada

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Barrick believes that the best assets managed by the best people will deliver industry-leading returns. Its 17-country portfolio holds 14 gold mines, including six of the world's Tier One* operations as well as three leading copper producers, all with long-term business plans based on declared resources. As for its people, their record speaks for itself. Barrick is closely aligned to the new demands and expectations of a rapidly changing world. That is why Barrick is not only an industry leader in operational and financial performance but is setting the pace for mining's cultural adjustment to the modern world.

