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Innovation at work

Policy

*Canadian Politics and
Public Policy*

EDITOR

L. Ian MacDonald

lianmacdonald@policymagazine.ca

ASSOCIATE EDITOR

Lisa Van Dusen

livddc@policymagazine.ca

CONTRIBUTING WRITERS

Thomas S. Axworthy

Andrew Balfour, Yaroslav Baran

Derek H. Burney, Catherine Cano

Margaret Clarke, Celine Cooper

Susan Delacourt, Fen Osler Hampson

Daniel Gagnier, Martin Goldfarb

Patrick Gossage, Brad Lavigne

Kevin Lynch, Jeremy Kinsman

Andrew MacDougall, Velma McColl

David McLaughlin, David Mitchell

Don Newman, Geoff Norquay

Robin V. Sears, Gil Troy

Anthony Wilson-Smith

WEB DESIGN

Nicolas Landry

policy@nicolaslandry.ca

SOCIAL MEDIA EDITOR

Grace MacDonald

grace@policymagazine.ca

GRAPHIC DESIGN & PRODUCTION

Monica Thomas

monica@foothillgraphics.ca

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From the Editor / L. Ian MacDonald

Clean Energy

Welcome to our special issue on clean energy, a compelling public policy theme for Canada in which the environment and development are two sides of the same coin.

For openers, Greg Lyle of Innovative Research shares the results of an exclusive poll for *Policy* on Canadian public opinion on climate change. While eight in 10 Canadians are very or somewhat concerned about climate change, he writes that “it ranks well down the list of issues they regard as most important.” Canadians in various provinces also have decidedly mixed views on carbon taxes. They might be concerned about climate change, but not necessarily prepared to pay to do something about reducing greenhouse gas emissions.

From Clean Energy Canada, Dan Woy-nillowicz, Merran Smith and Clare Demerse provide an update on the shifting economics of clean energy. Citing Bloomberg’s *New Energy Finance*, they note that “more money was invested in clean energy in 2015—a record US\$329 billion—than in oil and gas (US\$321 billion).”

Citing the same Bloomberg study, Contributing Writer Dan Gagnier, former chair of the International Institute for Sustainable Development, writes: “Investment in innovation, clean technology and research is now a competitive issue.”

From the opposition front bench, Conservative natural resources critic Candice Bergen weighs in on the great Canadian pipeline debate, Canada’s other national sport. For her part, Green Party Leader Elizabeth May writes that “Human society is now at a tipping point of a massive transi-

tion away from fossil fuels. From Calgary, lawyer and former MLA Donna Kennedy-Glans has been taking the pulse of Albertans on climate change through ViewpointsAB.

Forest Products Association of Canada CEO Derek Nighbor writes: “By following climate-sensitive practices, properly managed forests can be a major contributor to an improved Canadian climate management system.”

From the electricity industry, ABB Canada President Nathalie Pilon writes: “By now it should be obvious that Canada’s goals for the economy and the environment are predicated on a fundamental change in our energy supply chain.”

From Canada’s nuclear industry, Canadian Nuclear Association President John Barrett notes the role of nuclear as the fourth cleanest renewable after hydro, tidal and wind. The main reason Ontario was able to close its coal-fired generating stations, he writes, “was that over 3,000 megawatts of nuclear power came back online to fill the clean energy gap.” Bruce Power is also investing \$25 billion to upgrade its Ontario system and its president, Kevin Kelly, writes: “Nuclear energy plays a critical role in meeting the energy and air quality needs in Ontario...”

VIA Rail President and CEO Yves Desjardins-Siciliano writes that passenger rail will have an important role in taking cars off the road: “Passenger trains are among the greenest ways to travel in terms of energy consumption.”

Turning to *Canada and the World*, we lead with extensive analysis of the NDP’s extraordinary Edmonton convention, in which it rejected leader Tom Mulcair and al-

lowed its policy agenda to be hijacked by the Leap Manifesto. Our Robin V. Sears, former national director of the NDP, writes of a party at a historic leadership and policy crossroads. Mulcair’s leadership was undone by the “risk aversion of the 2015 campaign.”

Former senior campaign adviser Brad Lavigne asks “Whither the NDP?” and columnist Don Newman says the party is going back to the future with the Leap crowd, turning the clock back 45 years to the Waffle movement.

From Regina, author and former columnist Dale Eisler dissects a provincial campaign in which Premier Brad Wall and his Saskatchewan party easily won its third consecutive majority, winning 51 out of 61 seats in the legislature and 62 per cent of the vote.

After the Paris and Brussels terror attacks and the massive migration of refugees into Europe, not to mention the UK’s Brexit referendum, Europe appears to be caught up in a perfect storm. Our lead foreign affairs writer Jeremy Kinsman asks whether Europe is too big to fail.

BMO Vice Chair Kevin Lynch worries about the new normal of low global growth and writes that increased business spending on R&D is imperative to the growth of Canada’s economy. “We have an innovation problem,” he writes. Veteran Liberal sage Patrick Gossage writes that a guaranteed annual income would be a very effective means of alleviating income inequality in Canada.

Finally, Geoff Norquay weighs in with a positive review of Susan Delacourt’s updated bestseller, *Shopping for Votes*, in which she tells how Justin Trudeau and the Liberals did it in the 2015 campaign. Great stuff. **P**

Reducing Carbon

ARE CANADIANS WILLING TO PAY FOR THEIR GOOD INTENTIONS?

Greg Lyle

At both the federal and provincial levels in Canada, environmental policy is going through a major shift. The Trudeau government has already begun a radical 180 degree turn from the Harper government's approach to environmental policy, beginning with climate change. In Alberta, the Notley government introduced a carbon tax in its April 14 budget. Pollster Greg Lyle has some new numbers, exclusive to Policy, which flesh out how Canadians are feeling about environmental issues.

Canadians say they care about the environment. But good intentions will only carry us so far. If it proceeds with a carbon pricing initiative, the new federal government will be putting Canadians' good intentions to the test. Are we willing to pay more to reduce carbon emissions?

Our latest poll at Innovative Research indicates that while an overwhelming majority of Canadians say they are concerned about climate change, it ranks well down the list of issues they regard as most important. Our survey was conducted from April 8-12, and 2,383 Canadians were invited participants in our Canada 20/20 online survey.

On climate change, 37 per cent of participants said they were very concerned, while 44 per cent said they were somewhat concerned, for a resounding 81 per cent who cared about climate change.

But when asked to rank the most important issues, climate change ranked only seventh on the list at 6 per cent. Jobs and the economy were the top-ranked issue (23 per cent), followed by healthcare (17 per cent), honest and accountable government (13 per

cent) the gap between rich and poor (10 per cent) taxes (8 per cent) and government spending (7 per cent).

This changes among those passionately engaged. Among those who are very concerned about climate change, the issue is tied with jobs and healthcare as number one on the list of issues facing their province.

An earlier online poll of 3,055 Canadians in December found a positive initial reaction to the federal Liberal gov-

ernment's position at the UN Climate Change Conference in Paris. More than half of those following the Paris Conference were left feeling more favourable to the federal government. Just 16 per cent felt less favourable.

In December we also asked Canadians in BC, Alberta, Quebec and Ontario how they felt about their provincial government's position on climate change. The policies were summarized as follows:

BC A revenue-neutral carbon tax that has been in place since 2008, rising gradually each year and fully offset by reductions to other taxes

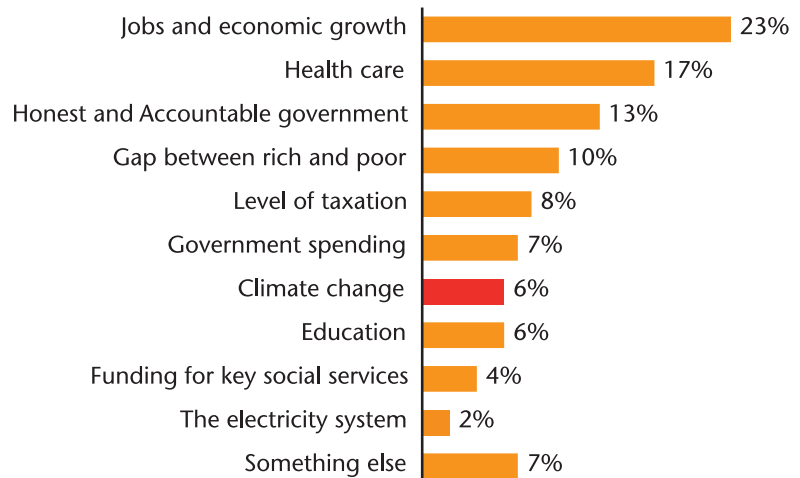
ALBERTA A new climate change strategy that includes a carbon tax, phasing out coal generation, and capping overall oil sands emissions

ONTARIO To partner with Manitoba and Quebec in a joint cap-and-trade system covering all three provinces

QUEBEC To partner with Ontario and Manitoba in a joint cap and trade system covering all three provinces

Figure 1: As an Issue, Climate Change is Not a Top Priority

Q Looking at the list of provincial issues below, which is the most important issue to you? [asked of all respondents]



In BC, Ontario and Quebec a plurality support the government's policy, with particularly strong support in Quebec. Albertans are more divided but people likely to vote for the provincial NDP government are strongly supportive.

Action is driven by passion. We all know that if we want to lose weight we should eat less, eat better and exercise more, but many people who know what they should do still fail to actually do it because they don't feel the urgency to act. Environmental action, whether we are talking about conservation, recycling, or paying for carbon, is just the same.

“Almost 6-in-10 Canadians believe that climate change is definitely occurring and another 26 per cent say it is probably occurring. The more people say they know about the issue, the more certain they are that climate change is definitely happening.”

When it comes to what we think, there is no doubt Canadians see an environmental problem. Canadians are engaged in climate change. While only 3-in-10 say they have a detailed understanding of climate change, more than half say they have a general understanding of the issue. Almost 6-in-10 Canadians believe that climate change is definitely occurring and another 26 per cent say it is probably occurring. The more people say they know about the issue, the more certain they are that climate change is definitely happening.

The challenge is our feelings. A majority of Canadians (59 per cent) agree that “We need to take dramatic

action now if we want to stop climate change before it's too late.” But only 28 per cent strongly agree with that statement. We see the same problem when we ask how concerned Canadians are about climate change. Just over two thirds of Canadians say that they are concerned about climate change, but only 31 per cent are very concerned. The passion is lacking.

Why should we care about this lack of passion? It matters in two ways.

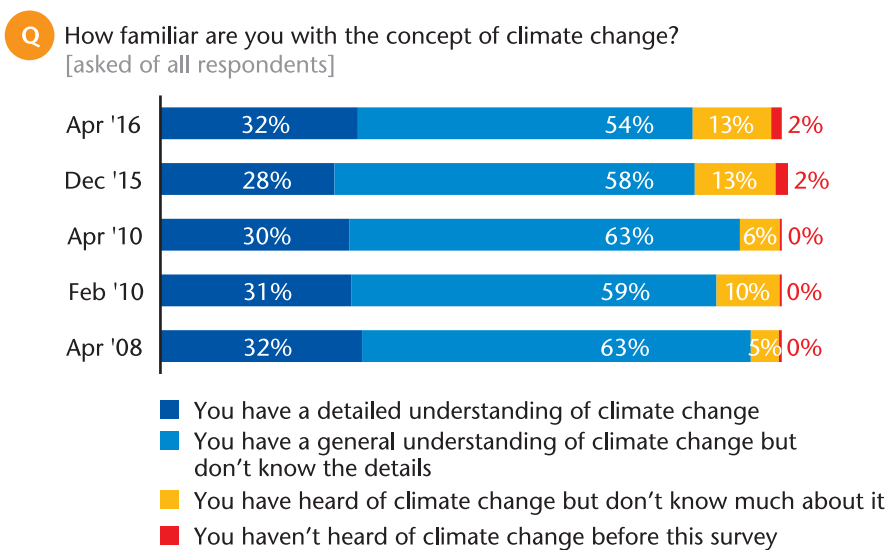
First, as noted, climate change does not rank highly compared to other issues competing for attention on provincial government agendas. Second, it matters in terms of being willing to pay for a price on carbon. The actual increase in the cost of fuel due to a price on carbon will depend on the fuel and the final price set by governments. Given that uncertainty, we tested three scenarios; one third of our respondents were asked about a 5 per cent increase in the cost of energy each year for the next 10 years, another third were asked about a 10 per cent annual increase and the final third were asked about a 15 per cent annual increase.

More oppose than support creating a price for carbon given those impacts. On average, only one Canadian in three supports introducing a price on carbon, with 45 per cent opposed. As expected, the actual level does make a difference. Respondents were equally divided (38 per cent support, 38 per cent oppose) if it means a 5 per cent increase a year, there are 12 percentage points more opposed than willing to support at 10 per cent increase and a majority (51 per cent) are opposed to a 15 per cent increase in the cost of energy.

Passion again makes a big difference. On average, a majority (50 per cent) of those who are very concerned about climate change support introducing a price on carbon with these impacts. Even at the 15 per cent level, those who are very concerned are equally divided with 42 per cent supporting a price on carbon with the same amount opposed.

Despite the general lack of passion, federally the right voters care. Voters in the federal Liberals' base tend to support a price on carbon. A majority of the most passionate Liberal voters support a price on carbon with these impacts.

Figure 2: Familiarity With CC: Marginal Improvement in the Depth of Understanding of Climate Change over Last December



NOTE: Prior to 2010, the term “global warming” was used in place of “climate change”

New Democrats and the PQ are more divided. For both of those more left-leaning opposition parties, some of their potential supporters are more supportive than their core of climate change. So the issue matters more among the voters they are contesting with the Liberals than in their respective bases.

The current Conservative base is strongly opposed to a price on carbon. This is not because of denial. Even among the party's core vote, more than 60 per cent say climate change is probably happening and that belief grows notably among less firm Conservatives. The issue is those voters much less likely to be very concerned about the issue and are not convinced that action is needed now.

Of course, in Canada's federal system, policy areas such as energy and the environment include overlapping federal and provincial responsibilities and the federal government cannot act alone. It needs to bring the provinces along with it.

In Alberta, both government supporters and unaligned voters support carbon pricing. Government opponents are strongly opposed. So despite stereotypes, the Alberta government's

inclusion of a carbon tax in its April 14 budget carries little political risk, unless the issue so enrages the opposition that the two parties on the right, Progressive Conservatives and Wildrose, unite.

“ Quebec, which is in many ways Canada's greenest province, is not so green on this issue if it means paying even more for carbon pricing. Quebec has already established a cap-and-trade program and Quebecers are proud of that program. But they are not prepared to pay more. ”

In Ontario, Liberal government supporters also support carbon pricing, but unaligned voters are opposed, as are most opposition voters. The government can move now, but it will need to be more cautious as it needs to expand its base in the lead-up to the election.

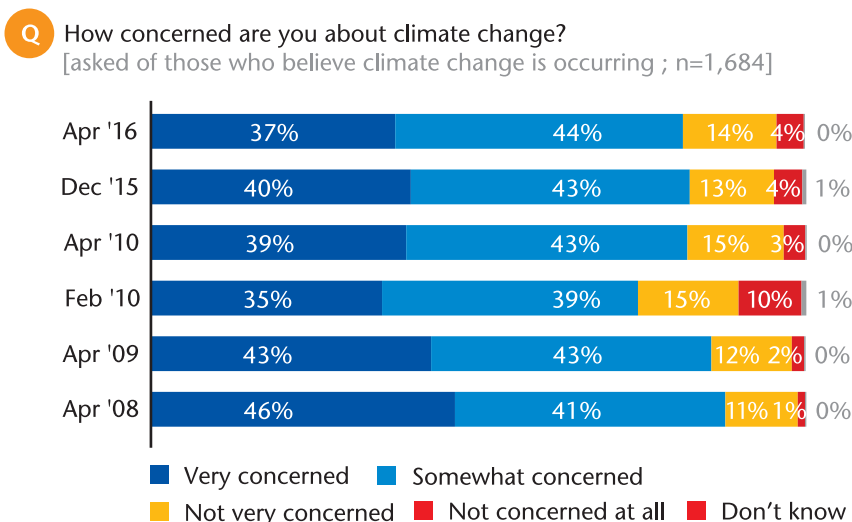
Quebec, which is in many ways Canada's greenest province, is not so green on this issue if it means paying even more for carbon pricing. Quebec has already established a cap-and-trade program and Quebecers are proud of that program. But they are not prepared to pay more. On average, supporters of the provincial Liberal government oppose carbon pricing when tied to these price impacts. Unaligned and opposition voters also tend to be opposed. Quebec could be tricky to navigate on this issue if voters see the national initiative as a new tax.

BC is also challenging. Half of BC Liberal voters oppose carbon pricing as tested. They can live with the status quo but they resist paying more. Unaligned voters are also more opposed than supportive of a carbon price. Even opposition voters are divided. It will be hard for a government within a year of an election to be seen to be doing anything that would result in higher prices.

At first glance, Canadians like the new federal government's fresh initiative on climate change and they support provincial government policies, at least in theory. However, once the possibility of higher taxes comes into the picture, the issue becomes more challenging. The Alberta and Ontario government have some freedom to pursue these initiatives. In Quebec and BC, with well-established and high-profile carbon pricing initiatives, any suggestion of even higher prices creates backlash among provincial government supporters, which limits the policy options available to those governments. **P**

Greg Lyle is President of Innovative Research Group, a national polling company with offices in Toronto and Vancouver. glyle@innovativeresearch.ca

Figure 3: Concern Over CC: Intensity of Concern is Marginally Lower than Back in December



NOTE: Prior to 2010, the term "global warming" was used in place of "climate change"

From Resources to Resourcefulness: The Promise of Clean Energy

Dan Woynillowicz, Merran Smith and Clare Demerse

“We are at a crossroads between reliance on fossil fuels of the past and the renewable energy future ahead.” It wasn’t so long ago that these words would only have been uttered by an environmentalist, an executive at a start-up renewable energy company, or a Green party candidate. But in 2016, it was Canada’s Natural Resources Minister Jim Carr who delivered this message at the Future of Energy Summit in New York City, hosted by Bloomberg New Energy Finance.

It’s not just the federal government that changed in 2015. Global energy markets roiled with unexpected changes: oil and gas prices plunged, as did capital investment. Coal companies were going bankrupt. And many analysts predicted that clean energy investment would similarly stall out—how could renewable energy possibly compete with cheap oil, gas and coal?

But clean energy did compete, and it won.

As Bloomberg New Energy Finance reports, more money was invested in clean energy in 2015—a record US\$329 billion—than in oil and gas (US\$321 billion). That trend also held when looking just at investments in electricity generation, with investment in renewable energy outstripping investment in fossil fuel power by a greater than two to one margin.

The countries that saw the majority of this investment are also worth noting: for the first time, more money was invested in clean energy in developing countries than in developed ones. Clean energy investment in China was up 17 per cent to US\$110 billion last year, and China is

per cent to US\$10.9 billion—and with some of the most aggressive renewable energy growth targets in the world, India is just getting started.

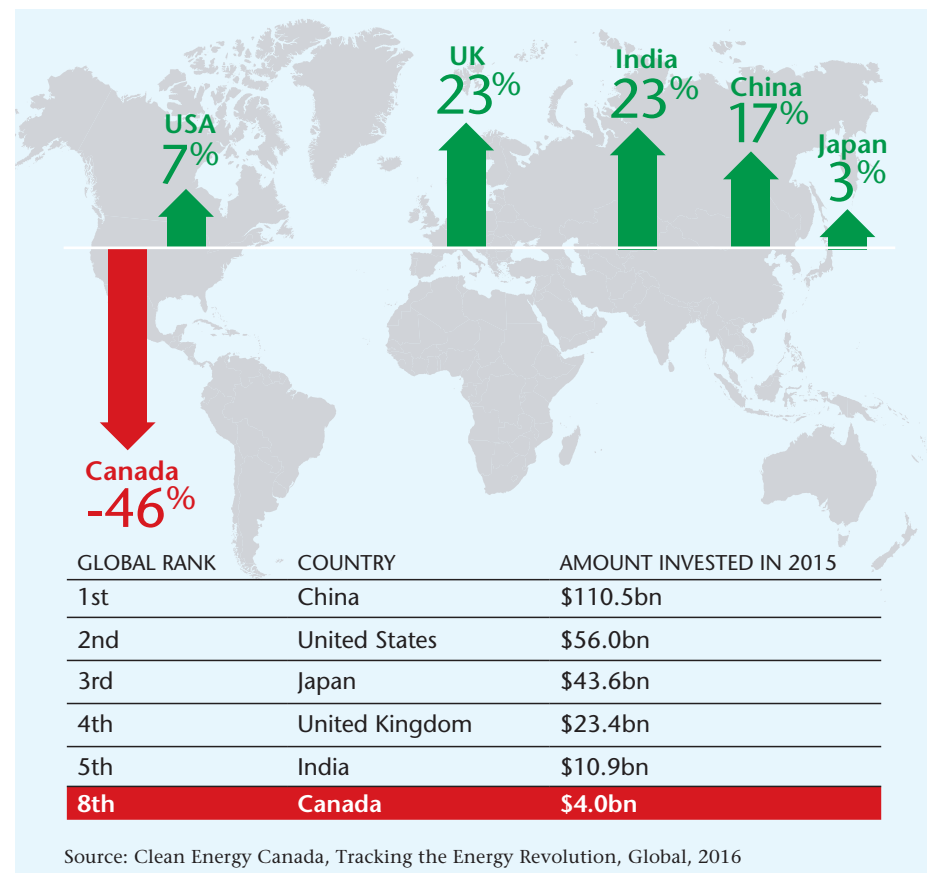
Investment was also up among leading developed countries: Investment in the United States grew 7 per cent to US\$56 billion, rose 3 per cent to US\$43.6 billion in Japan, and the UK saw investment grow 23 per cent to US\$23.4 billion.

How did Canada fare? Unfortunately, not so well, with a dramatic 46 per cent drop in investment to US\$4 billion.

But there are signs that 2015 will prove anomalous, rather than the

expected to remain the world’s dominant clean energy player in the years ahead. India saw investment rise 23

Figure 1: Change in Clean Energy Investment (2014-2015)



start of a trend. The end of 2015 was marked by a flurry of changes in Canada's clean energy landscape: new commitments to renewable power in Alberta and Saskatchewan, the promise of carbon pricing in more provinces and even nationally, and a renewed federal commitment to climate leadership on the global stage in Paris. This was reinforced by the Vancouver Declaration in which provincial and territorial leaders and the new prime minister agreed to work together to develop a pan-Canadian framework on clean growth and climate change, and implement it by early 2017.

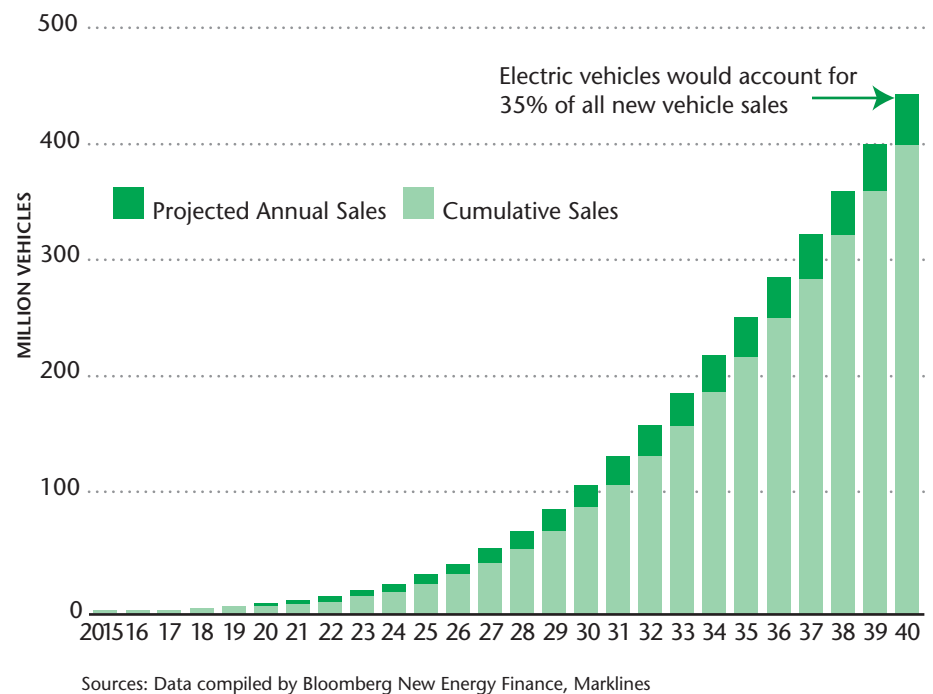
“While carbon-based fuels will remain an important part of the global energy system and Canada's economy for decades to come, their dominance and longevity are increasingly uncertain. Take just two of our fossil fuel exports, oil and gas.”

As Achim Steiner—Executive Director of the UN Environment Program—said during a visit to Canada earlier this year, “The future markets, the technologies, the energy systems will be low-carbon...Whether you build the next pipeline or not...the economy of Canada will not be centered around a fossil-fuel based extractive economy.”

While carbon-based fuels will remain an important part of the global energy system and Canada's economy for decades to come, their dominance and longevity are increasingly uncertain. Take just two of our fossil fuel exports, oil and gas.

Canada's oil sands are a high-cost, high-carbon source of oil, so today's low oil prices are already posing a

Figure 2: The Rise of Electric Cars



challenge to the sector. As we move to an increasingly low-carbon world, demand for oil—particularly oil with a high carbon footprint—can be expected to fall.

A perfect illustration of what the transition to low carbon means for oil demand comes from projections that show a significant scaling-up of electric cars. A recent analysis from Bloomberg found that continued declines in the cost of electric car batteries—they fell 35 per cent last year alone—will make electric vehicles cost-competitive with internal combustion engines by 2022.

This would drive a big boost in electric vehicle sales and, as a result, the displacement of 2 million barrels per day of oil demand by 2028. Why is 2 million barrels per day of oil displacement significant? It's a glut of oil on the market equivalent to what triggered the 2014 oil crisis.

The prospects for liquefied natural gas (LNG) exports also face growing uncertainty. The U.S. Energy Information Administration recently released data showing that LNG im-

ports into Japan, South Korea and China dropped five per cent in 2015. And just as demand for LNG is softening, there has been a surge of LNG production. The result? Stubbornly low prices and fierce competition among would-be LNG producers.

B.C. is competing with a host of other prospective LNG suppliers, but it's also competing with other forms of energy. The restart of nuclear reactors in Japan, coupled with growing use of renewable energy, are expected to push down LNG imports by as much as 10.5 per cent by 2020. And a recent study from economists at the Brattle Group, a respected economic consultancy, suggests that North American LNG faces increasing competition from renewable energy.

The Brattle group's study, *LNG and Renewable Power: Risk and Opportunity in a Changing World*, finds intensifying links between global natural gas and electricity markets. With renewable power costs falling all the time, the study suggests there is significant investment risk in proposed LNG export

projects in North America: why import LNG when you can use clean power for less? The Brattle group concludes that if the cost of renewable power is low enough in the markets B.C. aims to sell LNG into, “it could dampen the attractiveness of North American-sourced LNG as a fuel for electric generation and the willingness of market participants to continue to contract for LNG export infrastructure.”

So when Prime Minister Trudeau recently told the World Economic Forum “My predecessor wanted you to know Canada for its resources. I want you to know Canadians for our resourcefulness,” he was, like Wayne Gretzky, skating to where the puck is headed. We’re going to need that resourcefulness to seize the opportunity of transitioning our energy system to clean energy—and to effectively capture its export potential.

Which brings us back to the Vancouver Declaration and its commitment to delivering a pan-Canadian framework for clean growth and climate change. What would success look like?

Countries leading the way on clean energy and climate action—developing new technologies and services, deploying them at home and exporting them abroad—stand to benefit economically and environmentally, and will emerge as the energy leaders and economic winners of the 21st century. If we are truly going to realize a pan-Canadian framework on clean growth and climate change, we need a unified climate and energy plan—call it a clean energy plan, perhaps—that delivers on both our emission reduction obligations and our economic aspirations.

Central to such a plan is the role that electricity will play in decarbonizing Canada’s economy, as illustrated by study after study, which should be assertively communicated as a key strength and advantage for Canada. As the Canadian Council of Academies’ recent report on *Technology and Policy Op-*

“Thanks to President Obama’s Clean Power Plan south of the border—which expressly allows states to import new Canadian clean power as a means of attaining their targets—the North American Electric Reliability Council believes that Canadian power exports to the U.S. could triple by 2030.”

tions for a Low-Emission Energy System in Canada noted, “Low-emission electricity is the foundation for economy-wide emission reductions in transportation, buildings, and industry.” In other words, we need to electrify parts of the economy currently reliant on fossil fuels. As the Canadian Council on Renewable Electricity has noted, the fact that we already have such a clean grid (Canada’s power is 65 per cent renewable today)—as well as plentiful renewable energy resources distributed across the country—offers Canada a competitive advantage over our peers. But it’s going to take a joint effort by federal and provincial governments to enable growth in renewable energy at the scale we need. That means choosing smart, strategic clean energy policies across Canada, from carbon pricing to electricity infrastructure.

Beyond the economic opportunities associated with deploying more renewable energy and other clean energy solutions in Canada, careful consideration needs to be given to how governments can foster and support export opportunities for Canadian companies—from clean electrons to the U.S. to clean energy technologies and services to markets around the world.

Thanks to President Obama’s Clean Power Plan south of the border—which expressly allows states to import new Canadian clean power as a means of attaining their targets—the North American Electric Reliability Council believes that Canadian power exports to the U.S. could triple by 2030.

Looking beyond our neighbour, there

are growing clean energy opportunities in markets around the world—including key trading partners such as countries in the EU, Africa and Asia. Canadian project developers, technology developers, manufacturers and energy service providers are eager to take advantage of those opportunities. Competing successfully will require dedicated support from the federal government, which could be modelled after President Obama’s American Renewable Energy and Energy Efficiency Export Initiative, launched in 2009.

After a decade of federal indifference to climate and clean energy, we have some catching up to do. So it’s great news that Canada’s governments have set themselves an aggressive deadline to deliver a national framework for clean growth and climate change. If they succeed, it will prove a historic turning point for the future of Canada and all Canadians. **P**

Dan Woynillowicz is Policy Director at Clean Energy Canada, an initiative of the Centre for Dialogue at Simon Fraser University.

dan@cleanenergycanada.org

Merran Smith, Executive Director of Clean Energy Canada is a 2014 recipient of the Clean 16 Award for leadership in clean capitalism, and serves on the board of the Canadian Climate Forum.

merran@cleanenergycanada.org

Clare Demerse a Senior Policy Advisor at Clean Energy Canada, previously worked on federal climate policy with the Pembina Institute, was a Gordon Foundation Global Fellow and is a current fellow of the Broadbent Institute. clare@cleanenergycanada.org



In 2012, PlanetSolar became the first ever solar electric vehicle to circumnavigate the globe. Wikimedia photo

Sustainable Energy: A Goal in Need of Consistent Support

Dan Gagnier

After a century of dependence on fossil fuels and decades of calculating the costs of that dependence to the planet, both developed and developing economies are shifting to more sustainable sources of energy. How quickly is that transition un-folding, who's leading it and what's next? Dan Gagnier, ex-Chair of the Institute for Sustainable Development scans the horizon.

It has become fashionable in recent decades to attach the descriptor “sustainable” to almost any activity of man. Sustainability is applied to finance, economic development, forestry, mining and, most ubiquitously, energy to describe the hopes and aspirations of a broad range of humanity to solve the problems of a demographically and climatically challenged energy-hungry world.

The world is not only affected by the warming of the planet but by myriad challenges springing from human activity. This includes the exploitation and consumption of the planet's resources in

order to improve the living conditions of its inhabitants. Energy is a basic requirement for people to heat their homes, enhance their mobility, feed themselves and enjoy the benefits of light and the technological marvels of the modern world. Our challenge in today's world is how to supply energy for modern development while reducing our carbon footprint and improving our overall environment.

For many, the term “sustainable energy” applies to energy obtained from non-exhaustible resources. By definition, sustainable energy serves the needs of the present without compromising the ability of future generations to meet their needs.

There are advocates for a range of generating technologies from solar, wind, tidal, biomass, nuclear fusion and a number of biofuels derived from naturally occurring plants or marine sources. Whatever the technology, the generally accepted goal is to identify reliable means of generating enough energy to reduce our carbon footprint and to replace non-renewable resources. In particular, fossil fuels and coal are preferred targets for many. Failing some technological breakthrough on decarbonizing fossil fuels, these are likely to remain targets notwithstanding their role in meeting increasing demand globally from consumers and over a billion people without a reliable supply of affordable energy.

The question as we move through an economic and energy transition is how fast and how far are we prepared to go and at what cost? Ensuring energy for peoples' benefit while securing healthy economic development and a sound healthy environment is the challenge. Investment in innovation, clean technology and research is **now both a means and a competitive issue**.

According to the latest report from Bloomberg New Energy Finance, global investment in clean energy hit a record \$329 billion in 2015. China led the way with a 17 per cent increase over 2014 for a \$110.5 billion investment while the US was second with \$56 billion, up 8 per cent from 2014. The UK was the strongest market, with investment up 24 per cent

“Ensuring energy for peoples' benefit while securing healthy economic development and a sound healthy environment is the challenge. Investment in innovation, clean technology and research is now both a means and a competitive issue.”

to \$23.4 billion. A number of “new markets” committed tens of billions of dollars to clean energy in 2014, including Mexico (\$4.2 billion, up 114 per cent), Chile (\$3.5 billion, up 157 per cent), South Africa (\$4.5 billion, up 329 per cent) and Morocco (\$2 billion, up from almost zero in 2014).

A valid conclusion points to significant increases both in the developed and developing economies to shift towards energy generated by renewable clean sources. This is an impressive trend when, especially coupled with the billions being invested in research in areas that hold promise within the next two decades.

The context, however, holds other perspectives that are critical to successfully managing a transition to the desired outcome for low carbon economies.

According to the International Energy Agency (IEA), it is energy efficiency that is expected to play a critical role in limiting world energy demand growth to one-third by 2040, even while the global economy grows by 150 per cent in the same period. This last figure represents a challenge for us all in terms of decarbonizing energy systems and

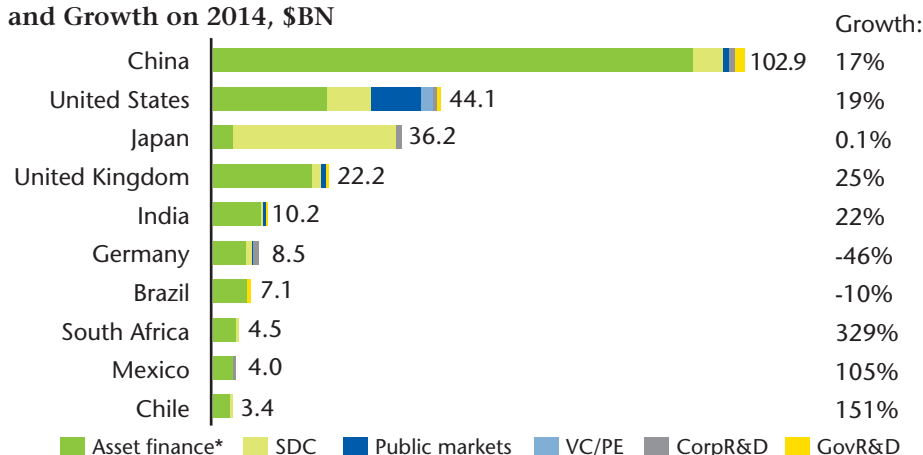
sources of all kinds.

The greatest growth in end-use during this period is expected to be electricity consumption—it is forecast to be 25 per cent of growth. Renewables-based generation reaches a share of 50 per cent in the European Union, around 30 per cent in China and Japan, and above 25 per cent in the United States and India. Coal, by contrast, accounts for less than 15 per cent of electricity supply outside of Asia.

According to statistics released by the Global Wind Energy Council (GWEC) as reported by the *Globe and Mail* in February 2016, China installed 30,500 mega-watts of new wind power last year, compared to the world total of 63,000 MW. China now has 145,100 MW of wind power, or fully one-third of the global total of 432,400 MW.

But a mixed picture overlays these facts. Fossil fuel consumption continues according to the IEA report to benefit from large subsidies. Subsidies for renewables and for biofuels also continue and will likely increase. Subsidies and investment forecasts aside, several things are clear when reading a number of reports, includ-

New Investment in Renewable Energy by Country and Asset Class, 2015, and Growth on 2014, \$BN



Top 10 countries. *Asset finance volume adjusts for re-invested equity. Includes corporate and government R&D
Source: UNEP, Bloomberg New Energy Finance

ing outcomes from the COP21 in Paris and declarations by leaders:

1. The global energy transition is underway: the question is whether the pace will increase or not.
2. Government policies and investments (including subsidies) will remain critical unless more countries institute a price on carbon.
3. Pressure on political leaders, as well as industry leaders, is only going to increase as the effects of global warming are increasingly felt.

In its special report “Energy and Climate Change” of June 2015, the IEA’s World Energy Outlook postulated that more needs to be done to restrain and diminish energy-related emissions of GHGs. These measures have mostly been on the radar screen and raised in various forums over the past ten years at the very least. They include:

1. Increasing energy efficiency in the building industry and transportation sectors.
2. Progressively reducing the use of the least-efficient coal-fired power plants.
3. Increasing investment in renewable energy technologies in the power sector from \$270 billion in 2014 to \$400 billion in 2030.
4. Phasing out of remaining fossil-fuel subsidies to end-users by 2030.
5. Reducing methane emissions in oil and gas production.

The report underscores that “a clear and credible vision of long-term decarbonization is vital to provide the right signals for investment and to allow a low-carbon, high-efficiency energy sector to be at the core of international efforts to combat climate change.”

Wherever one looks, there are signs of catalytic change taking shape. A United Nations report on sustainable energy report spells out the objectives to be reached. The first is to ensure universal access to modern energy services. The second is to double the global rate of improvement in energy efficiency. And the third is to double the share of renewable energy in the global energy mix.

The goal underpinning this agenda

is both to lower the carbon footprint on energy through a projected transition period of several decades and to invest in and promote clean technology development. If you include investments in innovation and technology, clean technology and various energy efficiency programs we are talking billions uniquely from sources of public funding and government supported initiatives. Billions more from private investors and business sources provide a pool of resources that, if used well, should help us meet the state we all hope is achievable. Are we moving fast enough?

Clean Technica’s January letter estimates that investment flows of \$400 billion a year will need to triple to achieve the necessary pace of progress. A partial explanation for slow progress on sustainable energy objectives is the shortfall in investment. According to Clean Technica, global investment in areas covered by the UN’s three objectives was estimated at around \$400 billion in 2010, while requirements are in the range of \$1.0-1.2 trillion annually, requiring a tripling of current investment dollars

A UK think tank, Sandbag, registered for 2015 a record 2.5 per cent increase in renewables generation in Europe, which now makes up 29 per cent of total European electricity supply. However, as a result of lower output from hydropower and nuclear power stations, the amount of fossil fuel generation barely changed. CO₂-emissions from the power sector fell only 0.5 per cent after a 7.5 per cent fall in 2014.

Here in Canada, the recently elected Liberal government is committed to join the provinces in accelerating a price for carbon and in initiating policies to promote both sustainable energy and increased investment in clean tech as well as research and innovation.

Means of delivery have yet to be fully fleshed out but it is instructive to see federal agencies such as the Sustainable Development Technology Council (SDTC) re-formulate their priorities to help reach a more sustainable outcome. The Council’s five priority areas are:

1. Responsible natural resource development

2. Carbon-free power generation and distribution
3. Remote and Northern Community Utility Systems
4. Energy efficiency for industry and communities
5. Next generation technologies with longer-term benefits for Canada
 - Biofuels and Bio-refineries
 - Sustainable Agriculture and Food Security
 - Biodiversity Protection and Enhancement)

In his Sustainable Energy for All report of September 2011, UN Secretary General Ban Ki-moon clearly laid out the nature of the challenge for both the developing and the developed part of our planet. The developing world has several billion people without access to energy or with unreliable access while countries like Canada waste energy or fail to maximize the billions that federal, provincial and municipal governments expend on energy and energy-related programs of one form or another. The IEA’s two reports on Canadian Energy in February clearly address both the dilemmas of getting our needed energy to markets and investing in research and development to make the industry cost competitive while reducing its environmental footprint.

It’s time to decide what we can do better together. The ability to take concrete and more rapid actions towards sustainable energy depends on sharing a common vision and an ability to collaborate on making things happen. A better focus and closer collaboration between governments in this country and between the private and public sectors could go a long way to improving performance as well as enhance, even accelerate our path to a sustainable energy future. **P**

Contributing Writer Dan Gagnier was until recently Chair of the International Institute for Sustainable Development. He is a former deputy clerk of the Privy Council, former principal secretary to Ontario Premier David Peterson, and former chief-of-staff to Quebec Premier Jean Charest. danielgagnier46@gmail.com

The Other National Sport: Pipeline Debates

Candice Bergen

The debate over the construction of pipelines in Canada combines the politically combustible elements of geography, regional economic disparity, environmentalism and aboriginal rights. Conservative natural resources critic Candice Bergen argues that our current conversation on the issue is as politicized as the issue was in the 1950s, while making a few points of her own.

When Mark Twain said “Whisky is for drinking and water is for fighting over,” it was long before the political posturing, loaded rhetoric and division that pipelines in Canada conjure.

Canada needs more pipelines, especially pipelines to tidewater. But there has been undermining, half-truth and cloudiness injected into the argument against building a national pipeline. Although important, unclear terms like “community consultation”, “acceptable” upstream greenhouse gas emissions (GHG), or—one of my favourites—“social licence,” seem to be the flavour of the day. Terms that the Liberal government, when presenting their transition plan for the approval of pipelines, have failed to quantify or provide a frame of reference for to the applicants.

Even when the Liberals defined what they would be considering when evaluating “upstream emissions” they didn’t disclose what the acceptable limit would be. The terms and conditions present an unclear and ever-moving goal post, never quite reachable, for those who want to build pipelines, and for those whose hopes of a job depend on them. Although some oil executives either have a bad case of Stockholm syndrome, or they are just trying to get along so as not to upset or

anger anyone in the new government, the frustration and uncertainty among workers in Alberta is palpable.

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Here are some facts to consider when talking about energy infrastructure:

FACT # 1. Canadian oil is some of the most responsibly extracted in the world. In terms of emissions, Canadian oil extractors have been given an undeserved bad rap. In fact, the “dirtiest oil in North America” is produced just outside of Los Angeles, California in the Placerita oil field. This field generates about twice the level of up-

stream emissions per-barrel than the Canadian oil sands produce. There are over a dozen other fields in the U.S. alone that have a higher per-barrel GHG emission rate than the entire Canadian oil sands. And that’s just oil. The state of Illinois alone (President Obama’s home state) with its coal-fired electricity, produces twice the amount of GHGs than all of Alberta’s oil sands. In terms of human rights and labour laws, Canada stands head and shoulders above most of its oil producing competitors. Canada is a free, democratic society where the rule of law, minority rights and gender equality is entrenched into our Constitution. Among other impressive indexes, Canada is ranked sixth in the 2015 Human Freedom Index. This in comparison to countries like Saudi Arabia, where women are not allowed to drive and dissidents are executed, which was 141st, or Venezuela which ranks 144th.

FACT #2. Canadian pipelines are the safest and most efficient way to transport oil. Railways move 280,000 barrels per day, and have an accident rate of 0.227 per million barrels of oil equivalents (MBOE), over four times higher than the incident rate for pipelines of 0.049 per MBOE. The other option for transporting oil is by truck, however trucks emit approximately seven times more GHGs than pipelines when it comes to moving oil. Coupled with the fact that 99.999 per cent of crude shipped through Canadian federally regulated pipelines reaches its destination safely, pipelines clearly should be the preferred method of transporting oil.

FACT #3. The National Energy Board (NEB), although not a perfect regulator, has worked. The NEB was originally created because the construction

of pipelines had become so politicized under the St. Laurent Liberals in the early 1950s. Accusations of political interference and wasting of taxpayers' dollars was commonplace. In 1959 the process was removed from Parliament and the NEB was created. The Liberal government's defeat and the election of John Diefenbaker's Conservatives in 1957 are often attributed to the intense politicization of the 1956 pipeline debate. It appears that we have come full circle. Prime Minister Trudeau and Natural Resources Minister Jim Carr have affirmed that the decision on pipeline approval will be political once more. While in government, Conservatives nuanced the way that Cabinet approved projects in order to create a safeguard for cases that were of demonstrable national importance. Despite this change, and contrary to the assertion of the current Liberals, the Conservative government consistently accepted the recommendations of the NEB and their conditions. In fact, between 2006 and 2012 pipelines have been approved, constructed and put into service. Twenty-three pipeline projects have been approved by the NEB; consisting of 3595 kms of new pipeline. These are Canadian pipelines that cross both provincial borders, with some going directly into the U.S. You didn't hear about those in the media, because the NEB process under the previous Conservative government was working. The former government was clear; it wanted to support Alberta and Canada's energy sector. It wanted to see responsibly built pipelines move forward. Admittedly it didn't see the Big Four (Keystone XL, Kinder Morgan Trans Mountain, Northern Gateway and Energy East) constructed or even approved, but it quietly and responsibly oversaw the construction of 17 of 23 proposed pipelines.

These facts are important in the discussion around pipelines and natural resources infrastructure, because the Liberals have been repeating a narrative that undermines all of these facts. Trudeau and Carr have been saying there isn't confidence in the system. The facts tell a different story. By their silence and refusal to cham-



Opposition Natural Resources Critic Candice Bergen writes that Indigenous communities must "share in the economic benefit" of pipeline projects. House of Commons photo

pion Canadian oil and pipelines, they are reinforcing the anti-oil, environmental activists (some of whom are in their cabinet, with many more staffing and advising them) and their misplaced ideology.

“The more indigenous communities share in the economic benefit and witness how the risks are mitigated and given serious consideration, the greater the probability there is of having a constructive and mutually beneficial relationship between industry and the Aboriginal communities.”

Admittedly there have been challenges along the way; one particular area where ongoing improvement needs to be seen is in understanding, appreciating and mitigating the concerns of Aboriginal people. By their very nature, major pipelines often intersect with many

First Nations territories. The more indigenous communities share in the economic benefit and witness how the risks are mitigated and given serious consideration, the greater the probability there is of having a constructive and mutually beneficial relationship between industry and the Aboriginal communities.

Despite the Liberals' best effort to offer a solution to a problem that didn't exist, provincial governments like Quebec's have indicated that they don't have faith in the Liberals' "process", as shown by their opposition and legal actions against Energy East. That may have been for political advantage, considering that just over a year ago the Quebec government made legislative changes so that a cement plant being built in the Gaspé region would not have to undergo an environmental assessment in order to ensure that the project went ahead. And the city of Montreal, whose mayor is concerned about Energy East crossing the St. Lawrence River, dumped nearly 8 billion litres of raw sewage into the St. Lawrence last November. And this with the approval of Environment Minister Catherine McKenna and the new Liberal government in Ottawa. These governments' actions do not match their words.

To say that the NEB approval system is broken is evidentially false, as shown by the number of projects approved, constructed and the exemplary safety record of Canadian pipelines already in use. Mark Twain may not have encountered a Canadian pipeline debate when he was talking about water and whisky but he certainly summed up the economic plight of Canadians in the oil patch when he said "All good things arrive unto them who wait—and don't die in the meantime." Let's just hope the Liberals don't see the Canadian oil industry wither on their watch, while we all wait for a national pipeline to be built. **P**

Candice Bergen, MP for Portage-Lisgar (MB), is the natural resources critic for the Conservative Party of Canada. Previously, she was minister of social development in the former Conservative government. candice.bergen@parl.gc.ca

The Move Away From Fossil Fuels Has Begun

Elizabeth May

In 2015, global investment in renewables outpaced investment in fossil fuels for the second year in a row. While the knock-on effects of the oil price crash have reminded us of the cost of Canada's retrograde focus on the oil sands while other countries were developing more reliable, predictable and clean alternatives, the Trudeau government has the scope and jurisdiction to start leading by example.

At the 2016 Globe Leadership Summit in Vancouver, in an illuminating talk (literally, pun intended) energy guru Amory Lovins provided an analysis of how we have lit our homes over the last 200 years or so. We tend to forget how many energy sources we've cycled through—from whale oil to kerosene to the electric light bulb. The fundamentals of the transition were consistent—we switch energy sources when something more efficient comes along.

North American society stopped using whale oil in lamps not because of higher costs or a lack of supply. Kerosene was better. And so on. Lovins' last slide was of a child in a hut in Africa, without electricity, but lit by a small handheld solar light.

Lovins summarized the end of whale oil for lighting: "They ran out of customers before they ran out of whales." (For those wanting more data and solutions, see Lovins' 2011 book, *Reinventing Fire: Bold Business Solutions for the New Energy Era*.)

It is largely the same point made decades ago by former Saudi oil minister Sheikh Yamani: "The Stone Age did not end because we ran out of stones." Bronze tools were better.

We are already seeing a movement of investment away from coal, oil and gas. 2014 was the first year in which global investment in renewables outpaced global investment in fossil fuels. And 2015 was the second year in which investors moved to green energy.

“ We are already seeing a movement of investment away from coal, oil and gas. 2014 was the first year in which global investment in renewables outpaced global investment in fossil fuels. And 2015 was the second year in which investors moved to green energy. ”

Human society is now at the tipping point of a massive transition away from fossil fuels. While the primary driver for the shift is the threat of climate change, the benefits of such a change will touch on nearly every aspect of a better world. An end to

fossil fuel dependence will have geopolitical benefits. We will no longer fight wars over access to oil. Moving away from fossil fuels will undercut the power of some political actors we don't like very much. It doesn't take long to recall the dictators whose regimes were—and are—fueled by oil.

Our air will be cleaner, reducing deaths from respiratory illness. The rapid ramping up of wind, small-scale hydro, geo-thermal, tidal, photovoltaic solar and the infrastructure that serves them will employ hundreds of thousands of people in Canada and millions around the world.

Done right, a shift to renewables can democratize energy. The model of massive mega-projects with inefficient wires leading to homes and businesses could be a thing of the past. With this democratization to localized power sources, our economy can be far more resilient. The current monopolistic mega-utility model is so fragile that a single rogue tree branch can shut down power to millions. Recall that massive outage on August 14, 2003. More than 55 million people in Canada and eight states in the United States were without power due to the failure to trim a tree in Ohio.

Imagine a more resilient, distributed energy system. Denmark has succeeded in reducing waste of thermal energy by maximizing district energy. It mapped its thermal grid as well as its electricity grid and designed housing to benefit from waste heat from one building to warm others. It married its strong wind program to local ownership of windmills in housing cooperatives. When the wind-generated electricity exceeds demand, the

Danish wind power is sold to Norway, where its energy system stores the wind power by using it to pump water into existing reservoirs. When Norway needs the power, it opens its sluices and the work of gravity allows a steady and reliable hydro-powered system to produce electricity. It is so elegant—homeowners owning wind power sell to Norway to make hydro.

“In addition to the shift in investment dollars to renewable energy in 2014 marked the first time in post-Industrial Revolution history when economic performance was unplugged from growth in greenhouse gases.”

Globally, the signs are everywhere that we are on the cusp of a major shift to clean energy. In addition to the shift in investment dollars to renewable energy in 2014 marked the first time in post-Industrial Revolution history when economic performance was unplugged from growth in greenhouse gases. The unprecedented phenomenon of emissions dropping outside an economic downturn continued in 2015.

China has shut down over 70 gigawatts (one gigawatt is one billion watts) of inefficient coal plants, while pledging to bring on-stream 200 gigawatts of solar and 150 gigawatts of wind power by 2020. China hit its 2015 targets for renewable energy and these huge 2020 commitments appear to be real.

So where is Canada in all this? Under the previous Conservative government, we put all our eggs in the bitumen basket. Canada is the only industrialized country and one of only a handful of countries in the world not to have joined the International



Elizabeth May writes that “the best way” to meet clean energy goals is “to get all fossils out of electricity by 2025”. Flickr photo

Renewable Energy Agency when it was founded in 2009. We have lost precious years as other countries ramped up their technological capacity in clean and renewable energy.

Even so, there are more jobs in Canada today—and there were even before the price of a barrel of oil plummeted—in clean tech than in the oil sands. We need to grab this opportunity and get out in front of it for the benefit of the environment, but also for Canadian competitiveness and prosperity. We are far behind other countries.

The best way to catch up is to set ambitious goals to get all fossils out of electricity by 2025. This is doable. And it will spur development, employment and economic opportunities. It needs federal leadership in investing in massive upgrading and better linkages of our east-west electricity grids. It will also benefit from programs that give consumers incentives to install their

own renewable generating capacity. Solar panels should be a required feature of every new building, as well as maximum insulation, double-glazed windows, energy efficient furnaces and heat pumps.

By all means, let’s support the Trudeau government in its collaboration with other orders of government. But let’s also insist that collaboration requires a healthy dose of political leadership. Federal-provincial/territorial meetings are not a substitute for decisive action. The federal government has the scope and jurisdiction to start leading by example. Set the goals and meet them. The benefits to Canada’s economy and to our social capital are enormous. **P**

Elizabeth May is Leader of the Green Party of Canada and MP for the B.C. riding of Saanich-Gulf Islands. elizabeth.may@parl.gc.ca

Taking the Pulse of Albertans on Energy and Climate Change

Donna Kennedy-Glans

After a 44-year Progressive Conservative dynasty, the year-old New Democratic Party government in Alberta is advancing policies to embed its political ideology. The most notable is Premier Rachel Notley's plan for climate change and energy policy reform that coincides with a steep drop in oil prices and economic free-fall in Alberta. How does this new government reconcile their legislative prerogative to push through a partisan mandate and their accountability to consult with the people of Alberta? And, in the midst of this polarized debate about climate change and energy development, why is it essential to hear citizens' voices?

It was clear that Alberta's NDP government would take action in the areas of environmental responsibility and climate change; this was a major plank of the NDP's campaign. In advance of the COP21 climate change meetings in Paris last December, and in concert with the carbon policies announced by a new federal Liberal government, Notley advanced ambitious energy policies that included:

- A refreshed climate change policy, including a broad-based carbon tax on all emissions;
- Accelerated shut-down of coal-fired electricity generation in Alberta, and renewable energy quotas for electricity generation in Alberta;
- A review of the oil and gas royalty system to assure that Albertans are receiving a fair return for their resources; and
- A cap on oil sands emissions.

Notley's approach to energy and climate change included the appointment of expert panels, the Royalty Review Panel and the Climate Change Advisory Panel, established to not only conduct studies but to solicit public opinion. As well, the Alberta delegation participating in the December climate change talks

in Paris included the premier and Environment Minister Shannon Phillips supported by pro-climate change advocates and industry. These policies garnered much-needed positive international feedback during the COP21 process.

Now Albertans live with the aftermath of these commitments, because—make no mistake—these changes will affect Albertans, not policy makers in Edmonton.

When it comes to climate change and energy choices, policy makers speak as if they know what Albertans think and want. But not everyone is sure we have actually heard from citizens. Last September, a group of us launched a short-term initiative called ViewpointsAB to find out what Albertans were thinking. Between September 11th and December 11th, half a million Albertans responded to our invitation to speak up about climate change and the future of energy in Alberta. ViewpointsAB was an effort entirely supported by volunteers with no financial or organizational support from government, political parties, special interest groups, private sector companies or traditional media.

ViewpointsAB emphasized one-on-one dialogue and small group facilitation; individual sharing of viewpoints without editing or reductionism; participative sharing of knowledge and ideas via social media; province-wide outreach targets; and ongoing sharing of viewpoints with formal and informal decision-makers and media.

We also spent considerable time determining the best questions to ask Albertans. We didn't want to skew the opinions, and decided on open-ended questions that allowed people to speak to issues they cared about and to be honest about their preparedness for change, their understanding of choices and their assumptions. We intended to read the provincial pulse of where people were at rather than

pushing them in any particular direction via nudging survey questions. Responses were more emotional than we anticipated—with anger, shame and shaming, and frustration emerging.

Based on our 'pulse-taking', Albertans accept change should and will occur, and they have an appetite to discuss *how* change should occur: *How* will Alberta fairly allocate a cap on oil sands development among investors? *How* will energy efficiency incentives be made available with clear accountabilities and without creating a subsidy economy? *How* will coal plant shut-downs be accelerated without creating stranded assets? *How* will research into green energy be funded and prioritized? *How* do we minimize duplication of infrastructure as we increase renewable electricity? *How* do we retain and attract investors? *How* do we build support for workable pipeline approval processes? *How* do we ramp up the implementation of better practices in non-renewable energy projects? *How* do we maintain economic and secure supply of vital energy in our cold unforgiving climate? Will there continue to be well paying jobs to support families in this re-imagined new world? And, in all of this, *how* do we remain competitive?

In an attempt to appease critics and inspire accelerated change, Alberta's leaders are framing the choices for our energy future in bold, positive language. Yes, citizens agree, our province is moving through a paradigm shift, and disruption may be what's needed. But these changes can only be sustained if Albertans believe in the choices. Engagement across a spectrum of viewpoints is essential to building an innovative and implementable path forward. **P**

Donna Kennedy-Glans, QC, a Calgary lawyer and businesswoman, is a former Progressive Conservative and independent member of the Alberta legislature. Twitter @dkennedyglans

Canada's Forest Sector: Part of the Climate Change Solution

Derek Nighbor

Governments, industry, environmental groups and the public at large are all grappling with the signature issue of our time—climate change and the transition to a low-carbon economy. The Canadian forest products industry has the determination and drive to do its part by issuing a “30 by 30” Climate Change Challenge that would contribute more than 13 per cent of Canada’s emissions reduction target.

tional commitments through a pan-Canadian framework. Now the hard work begins.

In Paris, Canada promised to cut GHGs by 30 per cent by the year 2030—the equivalent of an annual reduction of 225 megatonnes (MT) of carbon. That means removing a lot of carbon considering a single megatonne is made up of one million tonnes of CO₂. A single metric ton is released when you drive about 4,000 kilometres or use 40 barbeque propane canisters.

While industrial sectors throughout Canada scramble to figure out how much they can contribute to that ambitious target, the Canadian forest products industry is stepping up to the plate. Healthy Canadian forests and forest products derived from

Clean tech, innovation, climate change. These words have become a mantra and a call to action for the new Liberal government. At the big United Nations Climate Conference held late in 2015, Canada signed the Paris Agreement which called for significant reductions in global greenhouse gas emis-

sions (GHGs) to limit global warming to less than 2°C and to pursue efforts to limit it to 1.5°C above pre-industrial levels. Then came the First Ministers meeting in March that resulted in the Vancouver Declaration on clean growth and climate change and the pledge to develop a concrete plan to achieve Canada’s interna-



Canada has:

348 million hectares of forest

161 million hectares of forest independently certified as sustainably managed (2014)

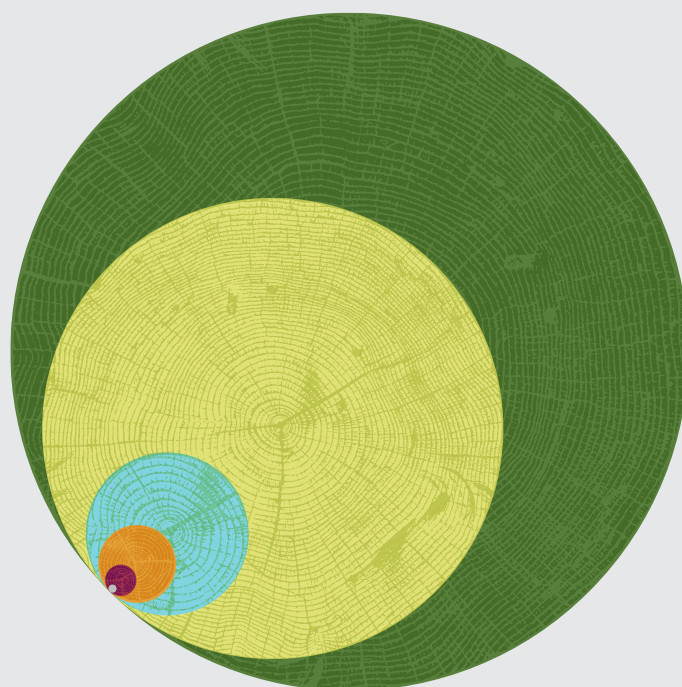
20.1 million hectares of forest damaged by insects (2013)

4.6 million hectares of forest burned in forest fires (2014)

0.74 million hectares of forest harvested (2013)

0.05 million hectares of forest deforested (2013)

Source: NRCAN



wood fibre will have a vital role to play in the transition to a greener, low-carbon economy.

The industry is pledging to remove 30 MT of CO₂ a year by 2030—more than 13 per cent of the Canadian government's recent target of 225 MT. We call it our "30 by 30" challenge and will be a particularly lofty goal to achieve during a period when the sector expects to grow significantly, expand markets and create more jobs throughout Canada

So how can we do it? By maximizing carbon storage in our forests and forest products and reducing emissions at our mills.

Canada's forests are a truly astonishing resource. They represent 348 million hectares of forest land, a vibrant green ribbon stretching from the coastal rainforests of British Columbia to the boreal forests of Newfoundland and Labrador. These vast renewable forests are not just a globally important ecosystem but they also absorb tremendous amounts of carbon dioxide (CO₂), and, by doing so, help to

“The industry is pledging to remove 30 MT of CO₂ a year by 2030—more than 13 per cent of the Canadian government's recent target of 225 MT. We call it our “30 by 30” challenge and will be a particularly lofty goal to achieve during a period when the sector expects to grow significantly.”

regulate the world's climate systems. The UN New York Declaration of Forests says that “forests represent one of the largest most cost-effective climate solutions available today”.

Though some environmental groups may argue otherwise, it's a fact that Canada is retaining its forest stock and role as a carbon sink. Forests are renewable and, by law in Canada, any harvested tree must be replaced—Canada has a mere 0.02 per cent rate of deforestation, and that rate is declining. The tiny amount of deforestation is mainly caused by agriculture, urban expansion and resource extraction—not forestry. About 550 million trees are planted in Canada each year.

Canada also has some of the most rigorous forest management policies in the world, using science-based principles that balance environmental, social and economic considerations. In fact, our country has 166 million hectares of forest independently certified to follow sustainable forest practices—that's 40 per cent of the world's certified forests in the world and almost four times more than any other country.

By following climate-sensitive practices, properly managed forests can be a major contributor to an improved Canadian climate management system. Active forest management practices can help forests adapt to climate

Canadian Certification in the Global Context, 2015 Year-end



Sources: www.certificationcanada.org as of Dec. 31/15 www.fsc.org as of Jan. 5/16 www.pefc.org as of Dec. 31/15

change and maximize carbon sinks through such practices as salvage harvesting, jump-starting the growth of forests or planting resilient species.

The forest products industry is continuing to work to improve its forest management practices to maximize climate resilience. This includes science-based work under the Canadian Boreal Forest Agreement to develop and promote climate-friendly practices and reduce GHGs.

A cubic metre of wood represents almost one tonne of CO₂ removed from the atmosphere. The potential for carbon storage is especially evident in taller wood frame buildings using mass timber systems. Building code changes now permit up to six-storey buildings but even taller wood buildings are envisaged, such as an 18-storey residence building at the University of British Columbia. These buildings store carbon in the wood and require less energy to produce, giving them a lower carbon footprint than competing construction materials made of energy-consuming concrete and steel. Vancouver architect Michael Green estimates that from a carbon perspective, a single 100,000 square foot wood building would be the equivalent of taking 1,410 cars off the road each year.

The potential is also found in the increasing number of non-traditional bio-products based on wood fibre that can displace products made from fossil fuel. As just one example, the console of a Ford Lincoln is being made from a wood fibre composite. That helps the low-carbon economy in two ways—by replacing plastics made from non-renewable fossil fuels and, by cutting fuel consumption since its lighter in weight. More and more of these non-traditional products made from wood are being developed all the time, with about \$1.5 billion invested in clean tech innovation over the past five years

Forest product companies have been “ahead of the curve” by aggressively reducing their carbon footprint and

running more efficient facilities. While Canada’s total GHG emissions were increasing, pulp and paper mills cut emissions by an impressive 66 per cent since 1990, or an equivalent of 9MT of carbon. Some of this is admittedly because of a contraction of the forest industry but a large part is a result of changing energy usage and increases in the self-generation of power at forest facilities. Mills are now using residuals on site to generate clean and green electricity.

Further reductions in the carbon footprint at the mills will be challenging but the sector can find additional cuts by striving to be more energy efficient, fuel switching using mill waste to displace fossil fuels and reducing the use of fossil fuels when transporting harvested trees to mills or shipping products to market.

Our pledge to cut 30 MT by 2030 was not scribbled down on the back of a napkin. Foresters, engineers and scientific minds have closely analysed figures from the Canadian Forest Service and elsewhere to come up with this ambitious target. In the months ahead, FPAC will be preparing a more detailed road map to show precisely how we will meet our Climate Change Challenge.

The sector is confident that it can meet the challenge and its industry-driven “30 by 30” goal, but we cannot do it alone. We will need to once again work closely with all levels of government to ensure alignment with their policies and programs related to climate change. Governments can help us in several ways:

- Creating a “future forests” fund to stimulate local solutions and to drive the most effective actions for climate change forest adaptation, resilience and mitigation;
- Investing in innovation and transformation to de-risk the commercialization of new bio-products and clean technology in the forest sector;
- Adopting a “Carbon First” principle to consider the carbon

footprint of all procurement and infrastructure spending;

- Expanding the sector’s adaptation and mitigation potential through continued funding of research and development including support for Canada’s forest research centre, FPInnovations, as well as the academic sector;
- Providing tax incentives that would encourage industry’s contribution to climate mitigation;
- Changing building codes to reflect the exciting new opportunities for taller wood-frame buildings.

We also want to ensure that biomass used to produce green energy will be considered carbon neutral and that market-based policy mechanisms, such as carbon pricing and offsets, maximize the mitigation potential of the forest sector.

There is no doubt that the Canadian forest products industry was once part of the problem when it came to environmental stewardship. Those days are long gone. We are now part of the solution. The sector has earned world-leading environmental credentials—in fact, a 2015 Leger survey of international customers found the Canadian industry has the best environmental reputation of any country. Now we want to take it to the next step as the world confronts climate change.

Natural Resources Minister Jim Carr has said: “As Canada transitions to a low-carbon economy, it is imperative that all levels of government—and industry—think big and work together to achieve results.” We agree.

Tackling this signature issue of our generation will require thinking big and working together. We will need fresh ideas, bold changes, and extraordinary will. And our sector is up to it—the Canadian forest products industry is ready to show determination and drive by embracing its Climate Change Challenge. **P**

Derek Nighbor is CEO of the Forest Products Association of Canada.

An Energy Primer for Canada: People, Technology and the Economy

Nathalie Pilon

Since the election of a new federal government and the tabling of a budget in March focused on stimulus spending, a national debate is underway about what we need to do on many fronts, whether in transit infrastructure, clean technology for industrial and institutional use, or development of our natural resources. Whether in Alberta or Quebec, British Columbia or Newfoundland, all Canadians want affordable energy, clean, efficient transportation and sustainable communities.

The polarizing discussion on regional disparities and behaviours with regard to climate and the environment does not answer the simple question: What future do we want for our country and its economy based on the resources we have in Canada?

As a Canadian, I believe that to address this question we must focus on three broad sectors: manufacturing, transport and energy.

As someone with more than 20 years of experience in the manufacturing world, I have a special affinity for the first of these and I believe that designing and producing things in this country is not only desirable but essential for our economy to flourish. Manufacturing provides employment, commercial innovation, and importantly, trade deficit reduction. It also has a significant contribution to make towards environmental sustainability. However, the jobs we have long associated with manufacturing are disappearing.

Productivity in manufacturing relies on investment in technology such as automated processes and robotics.

Managing change has long been the primary challenge of both government and business. But as we live through what has been dubbed the Fourth Industrial Revolution, the one certainty that informs our decision-making is that change isn't what it used to be—technology has both diffused and accelerated it. ABB Canada President Nathalie Pilon provides a snapshot of where manufacturing, transportation and energy are in a changing world today.



ABB Canada President Nathalie Pilon writes that “Canada has all the energy resources it needs “to build a sustainable and prosperous future for its economy and its people.” ABB Canada photo

Data from the International Federation of Robotics show that between 1993 and 2007 the use of robots in manufacturing raised the annual growth of labor productivity and country GDP by 10 per cent and 16

per cent respectively. It also shows that the countries with the highest penetration of industrial robotics (i.e., Germany and South Korea) also enjoy some of the lowest unemployment rates in the developed world.

At the World Economic Forum earlier this year, ABB CEO Ulrich Spiesshofer addressed the issue of jobs and automation by making a critical distinction:

The purpose of technology is to make a better world. If we use it smartly, we will create work. The problem that we have is that people don't differentiate between jobs and work. There has never been an industrial revolution where the jobs haven't changed. Work will always be there; the jobs are changing.

We are now in the midst of what many have called a fourth industrial revolution, also known as "Industry 4.0." The final word for employment in this new age is that low-skill jobs will be replaced with new higher-skill roles. Robots and automated systems will do the dirty, dangerous and repetitive jobs they are best at, allowing people to focus on the things that they are best at. This is the essence of advanced manufacturing, and it implies an economy-wide adaptation in worker skill sets that Canada must embrace if we are to create a better future sustainably.

Similarly, we must reshape our transportation sector toward one that is powered primarily by electricity. Transportation accounts for 31 per cent of all energy use in Canada and 37 per cent of all GHG emissions. Electric drive is extremely efficient thanks to the fact that electric motors convert around 90 percent of the input energy to traction compared to 40 percent for diesel engines and 30 percent for gasoline. But electrified transport is much more than hybrid cars and metro lines. Think electric propulsion for ships, electric cranes at ports, electric forklifts in warehouses and electric big rigs recharging while their drivers sleep. All of these are feasible today or already in widespread use.

Canada, however, is also the fifth largest producer of oil and gas in the world. Our natural resources sector is an important part of our economy,

“The grid of the future will be much more complex, with multiple feed-in points from traditional power plants, remote wind farms and rooftop solar systems.”

and it is likely to remain so for the foreseeable future as the global economy transitions from high-carbon energy sources to lower-carbon alternatives. This evolution speaks to an “all of the above” energy strategy and is recognized in the Quebec Energy Policy, which for example calls for a network of electric vehicle charging stations that also offer hydrogen and natural gas.

The question of energy development and which choices to make in the long run have to take into account not only environment and efficiency but also assumptions on supply and infrastructure. The federal government's New Building Canada Fund and the investments that will be made by provincial and municipal governments for their communities will determine the future of the energy mix.

We are a long way from widespread adoption of electric vehicles and there are supply issues both for EVs and for charging infrastructure. The recent federal budget recognizes this with generous tax incentives allocated to transport systems that permit the furthest travel distances. This pragmatism is essential if we are to execute a smooth transition to a low-carbon transportation sector.

By now it should be obvious that Canada's goals for the economy and the environment are predicated on a fundamental change in our energy supply chain. Whether the end use lies in industrial production, private transportation or residential lighting, we must increase efficiency and productivity at every step in the process while we seek to reduce our overall environmental footprint.

We are facing two key global trends in Canada. One is the shift to renewable energy and a power grid that enables not only the wider use of wind

and solar but that supports technologies like energy storage, demand response and microgrids—all of which can improve sustainability while also increasing reliability.

The grid of the future will be much more complex, with multiple feed-in points from traditional power plants, remote wind farms and rooftop solar systems. New industry players will compete in the wholesale generation market by aggregating real-time reductions in demand from thousands of consumers. The grid itself will become more intelligent, anticipating disturbances and taking action before they occur. Managing this complexity will require a host of new technologies, many of which are already commercially available.

The second big trend lies in automation, where advances in sensor technology, combined with ubiquitous connectivity and an ever-growing capacity to process and store data, are enabling machines to be more and more intelligent. This is the basis for the Internet of Things, which at ABB we see more holistically as including services and people. For example, engineers and service specialists are already able to support remote sites like mines and offshore platforms from offices thousands of miles away through the use of video and real-time data feeds from devices in the field. Applications like this will dramatically reduce the energy required to produce goods and services.

Canada has all the energy resources it needs to build a sustainable and prosperous future for its economy and its people. Getting there will require change in many areas, but from my vantage point within one of the organizations that is driving that change, I am confident we will get there. **P**

Nathalie Pilon is President of ABB Canada.



The Darlington nuclear power station on Lake Ontario east of Toronto, generates more than 3,500 megawatts of clean electricity for Ontario, enough to supply a city of 2 million people.

Canada Can be Cleaner, and Stronger, with Nuclear

John Barrett

In the global conversation about climate change and clean energy, nuclear energy often gets sidelined. Canadian Nuclear Association President John Barrett argues that the accelerating push toward a low-carbon economy needs to include what was once a crucial component of both Canada's energy and foreign policy; nuclear power.

The Liberal federal government's March 22 budget proposes substantial spending under the heading of "strategic investments in clean technology to address climate change." The policy aim is clear: move Canada definitively and irreversibly towards a low-carbon economy.

But what is meant by "clean"? Are all clean energy technologies and sources included? Nuclear power, too?

A key initiative of last December's COP21 meeting in Paris was "Mission Innovation". Created by technology leaders like Bill Gates, it has also been embraced by a number of countries such as Canada, the United States, Japan and others. Mission Innovation contains a pledge to double in five years the funding of innovative technologies that foster low-carbon energy.

Mission Innovation cropped up at the recent North American Energy Ministerial meeting in Winnipeg in February. It was uncertain again whether nuclear power was considered part of the shift to a low-carbon energy future. The most one can find is a reference to “clean technologies—including renewable energy”. This would suggest that nuclear power is included.

On the margins of the Ministerial, I asked U.S. Secretary of Energy Ernest Moniz whether the United States included nuclear energy in its approach to Mission Innovation. His answer was an unequivocal “yes”.

The climate challenge we are facing is big and complex enough to warrant using the full range of low-carbon energy options available today—whether renewables, nuclear, or carbon-capture and sequestration. According to the Intergovernmental Panel in Climate Change (IPCC), low-carbon sources by 2050 must provide 80 per cent of global electricity, up from 30 per cent today, in order to hold back climate change. During the same period, global demands for electricity will double if the basic needs of humanity are to be met.

Does the contribution of nuclear to mitigating climate change really matter? Enormously. The International

Energy Agency has calculated that, since 1971, nuclear energy has avoided 56 Gigatonnes (Gt) of GHG emissions—equal to nearly two years of global emissions. Many climate scientists now agree that the greatest instrument for successfully and quickly decarbonizing energy systems is nuclear energy.

Can one be an environmental activist and support nuclear? There is a movement afoot among senior environmental leaders—like James Hansen, Mark Lynas, Michael Schellenberger and many others—that rejects the knee-jerk opposition between green and nuclear, especially if the overarching goal is to save the planet from climate change catastrophe.

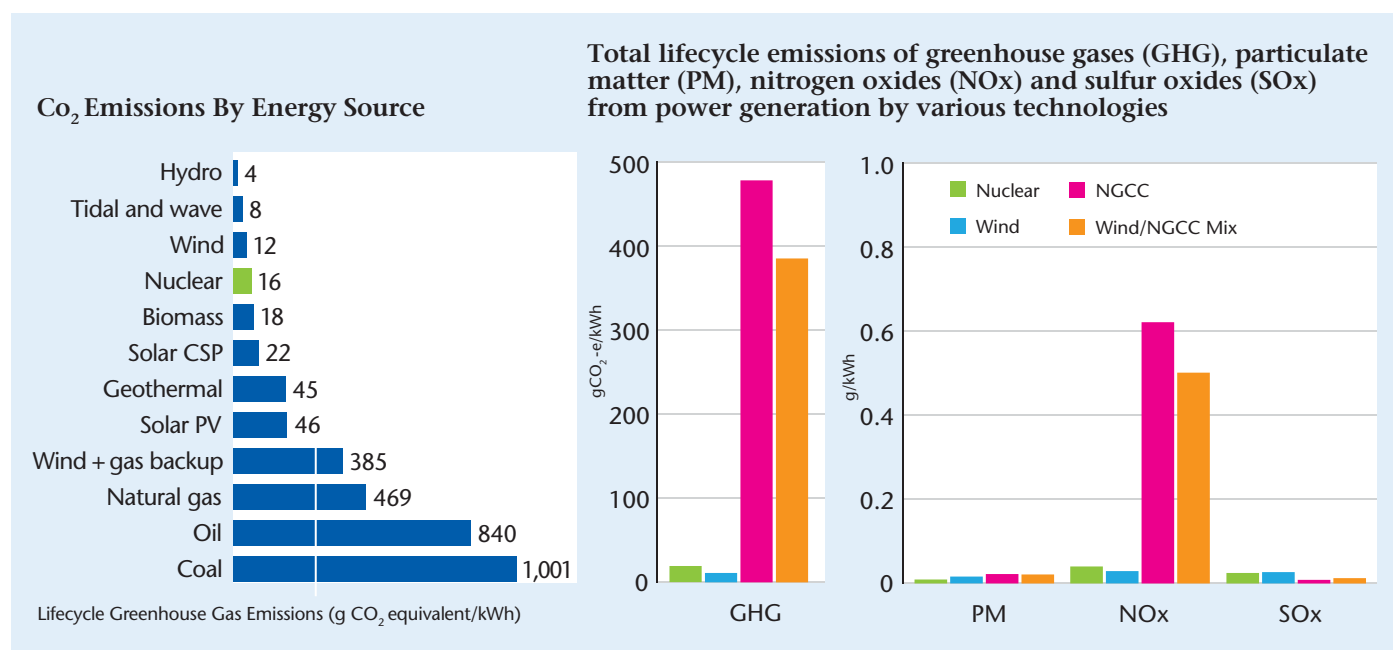
Committing huge expenditures of tax dollars needs sound policy as its foundation. Sound, effective energy policy requires an open mind; it starts with an unprejudiced, “technology neutral” analysis of the relative benefits and impacts of each clean energy source, in order to identify the real, practical solutions they offer for today’s policy needs.

Here are some initial observations of the important contribution of nuclear energy and technology to getting the country to a low-carbon future.

Nuclear-generated electricity is clean energy, free from air pollutants and with extremely low GHG emissions. The real reason Ontario was able to close its coal-fired generating stations, which far outweighed the small and irregular output of its current wind and solar, was that over 3,000 megawatts of nuclear power came back on-line to fill the clean energy gap.

Renewable technologies are intermittent. For some time to come, they will be minor players in providing the required electricity to power homes and industry. However, this may change in the longer term. A strategic perspective sees nuclear energy as a critical bridge to that future development, while providing clean, needed electricity in the meantime.

Moreover, with the U.S. Clean Power Plan, there will be increased demand in northern states for clean electricity, which could be supplied by hydro power (from Manitoba and Quebec) and nuclear (from Ontario). As such markets grow and greater electricity integration is sought (witness the recent MOU by North American energy ministers on clean energy collaboration), Canadians will benefit from the capacity to substantially increase nuclear-generated clean electricity exports.



Source: Intergovernmental Panel on Climate Change. Renewable Energy Sources and Climate Change Mitigation. Geneva; 2011.

Nuclear remains one of the most affordable electricity sources worldwide. In Ontario, the cost per kilowatt-hour of electricity generated by nuclear power is in the realm of eight cents—substantially less than wind power (typically above ten cents) and far less than solar.

Technology neutral analysis would examine the waste products and GHG emissions of all energy sources, including renewables. There is growing recognition that the environmental impact of renewable waste products has not been accounted for—unlike nuclear energy, where every bit of waste is identified, managed and paid for. As other energy sources go through technological change, what happens to the discards? Have the toxic components of wind turbines and solar panels, often mined in foreign countries, been fully accounted?

Nuclear power generation, like other advanced technologies, can bring big leaps in Canadians' quality of life. For example, innovative Small Modular Reactors (SMRs) could assist remote northern communities in providing clean, low-emitting electricity for electricity, heating, water purification and other needs. This would take these communities off dangerous, polluting, expensive and unreliable diesel fuel and remove a key constraint on their economic growth—advancing both aboriginal health and northern development.

SMRs could also enable resource and human development in hard-to-access, off-grid mining sites such as Ontario's Ring of Fire. They could power cleanly the steam generation needed in Alberta's and Saskatchewan's oil sands industries—cutting their GHG emissions and conserving natural gas for higher value uses.

There is much talk of electric cars and the extensive development of clean transport infrastructure to get millions of drivers off fossil fuel. Nuclear can support this, thanks to its large-scale, baseload character, ensuring that the cars are charging with electricity from clean generating sources (not fossil fuel-fired). Only nuclear

“Nuclear accounts for 15 per cent of the country's electricity. Most importantly, it produces 20 per cent of its clean, emissions-free electricity, a real contribution to reducing GHG emissions and building a carbon-free economy.”

has both the capacity and the low-carbon footprint to decarbonize the economy on the tight time-scale required by the climate challenge.

It is well to recall the role of nuclear-generated electricity in Canada. In terms of energy supply, nuclear accounts for 15 per cent of the country's electricity. Most importantly, it produces 20 per cent of its clean, emissions-free electricity, a real contribution to reducing GHG emissions and building a carbon-free economy.

Nuclear technology is a key part of an advanced economy, supporting medicine, materials science, advanced manufacturing, food safety, and energy production. According to the Canadian Manufacturers and Exporters, nuclear power generation directly and indirectly supports 60,000 Canadian jobs.

In Ontario, the coming refurbishment of 10 Bruce Power and Ontario Power Generation units will activate approximately \$25 billion in investment and thousands of high quality jobs. This is the largest concentrated clean energy investment in North America, if not the world.

Canada's civil nuclear capabilities are a strategic asset for Canada's foreign policy. They give the Government of Canada additional means for developing and building long-term relationships in Asia, Eastern Europe, Latin America, the Mideast and Africa.

However, countries will not buy Canadian nuclear technology (such as CANDU power reactors) or uranium resources without assurances that the Canadian government and Canada's nuclear industry are committed over the long term.

Moreover, Canadian nuclear technology, research and regulatory regimes give Canada world standing in deal-

ing with non-trade issues such as global security, non-proliferation and forging geopolitical relationships to meet Canadian foreign policy goals.

In setting an evidence-based and duly diligent policy framework for reaching the government's climate change/low-carbon objectives, the following should therefore be incorporated:

- Recognize the important role of nuclear energy in meeting GHG emissions targets
- Include nuclear energy in the definition of clean energy technology and in energy dialogues with Canada's provinces
- Invest in innovative low-carbon nuclear energy sources
- Provide funding support to R&D and innovative technology projects
- Support a Nuclear Innovation Council to bring together government and industry in cost-sharing partnership on nuclear technology and research
- Support exports of Canada's advanced nuclear technologies and uranium resources globally, as low-carbon sources of energy
- Integrate into foreign policy the important role played by our nuclear technology and expertise in Canada's key bilateral and international security interests.

With a strategic approach that includes nuclear, the policy options expand. And the possibility increases of successfully developing a low-carbon economy, with benefits not just for the climate but for Canada's workers, economy, energy supply, international partnerships and our place at the international table. **P**

John Barrett, a former Canadian diplomat, is President and CEO of the Canadian Nuclear Association.



Guest Column / Kevin Kelly

Nuclear Power Helps Sustain a Clean Energy System

As one of the many people working in the energy sector, it's easy to forget that Canadians don't actually spend a great deal of time thinking about where their electricity comes from or the impact it has on the environment.

We have a system that is so efficient that most people only consider electricity when it's not available.

Flick a switch and the light comes on.

Press a button and we're connected to the world on our computer.

It's a quality of life taken for granted by Canadians but not so the 1.2 billion people worldwide, 17 per cent of the global population, are without access to electricity. This is what they aspire to and it's a simple fact of life that the more economically advanced a society becomes, the more electricity it uses.

The source of that electricity will have a huge impact on the future of the planet and it's difficult to envision a solution that doesn't include a large role for nuclear power. Nuclear is a clean, affordable source of energy which, due to its high rate of availability, partners well with renewables.

As jurisdictions across the country and around the world enact policy to combat climate change, nuclear needs to be part of a balanced supply mix if we're going to be successful.

This is not to suggest nuclear energy is perfect, because that is simply not true. Every source of electricity has its pros and cons and we must weigh those carefully but as we look around the globe and into the future, climate change, population growth and developing economies loom as some of

the challenges facing the planet.

If we look closer to home, Ontario, as part of its Long Term Energy Plan (LTEP), has identified nuclear as continuing to play a major role in the supply mix and the province is set to begin an unprecedented period of nuclear refurbishment with 10 of its reactors set for major upgrades that will extend their lives for another 30 plus years.

Ontario's goal is to become a jurisdiction that can be powered using clean, non-emitting energy sources. A critical part of achieving that goal relies on Ontario renewing the entire nuclear capacity at the Bruce site.

That is why on December 3, 2015, Bruce Power announced that it had secured a long-term agreement with the Independent Electricity System Operator (IESO) to refurbish Bruce Power Units 3-8 infusing more than 30 years of operational life into each unit.

Under the agreement Bruce Power will continue to produce approximately 30 per cent of Ontario's electricity at a price that is 30 per cent below the average residential price of electricity. As a private sector operator, Bruce Power will continue to meet all investment requirements for the site and will bear the risk of delivering these projects on time and budget with upside sharing with the IESO for better than planned performance.

Bruce Power will continue to provide 2,400 megawatts of its output as flexible generation, allowing the IESO to balance system needs in a post-coal environment.

The scope of the refurbishment will

be limited to the replacement of key major components including steam generators and reactor components. This work will take place from 2020-33. Items outside these major components will take place through a program referred to as "asset management" and take place from 2016-53.

The program will secure an estimated 18,000 jobs directly and indirectly from continued operations and an additional 3,000 to 5,000 jobs annually throughout the investment program according to a joint economic impact analysis conducted by the Ontario Building and Construction Trades Council of Ontario, Southwest Economic Alliance, Canadian Manufacturers & Exporters, The Society of Energy Professionals, the Power Workers' Union and Bruce Power. In addition to the \$900 million to \$1.2 billion in direct and indirect labour income annually, 90 per cent of Bruce Power's spending takes place in Ontario supporting hundreds of business throughout the province.

If Ontario is to meet its long-term GHG targets, it will need to continue to decarbonize our energy system and that will involve us using much more electricity than we do today—notably for electric vehicles and urban transportation, for industry and quite possibly for building heat as well.

Nuclear energy plays a critical role in meeting the energy and air quality needs in Ontario and provides a natural partner with renewables as we look towards a cleaner and sustainable energy future. **P**

Kevin Kelly is Acting President and Chief Financial Officer of Bruce Power.



A VIA Rail train leaving Montreal, bound for Ottawa or Toronto. These three cities are located within the Quebec City-to-Windsor corridor, which accounts for over 90 per cent of VIA Rail's ridership in Canada. VIA Rail photo

Modernizing Passenger Rail: A Generational Imperative

Yves Desjardins-Siciliano

Canada's economic prosperity is dependent on our ability to move our country's resources, both goods and people, efficiently. As Canadian freight railways have kept Canada's resource and manufacturing economy growing by moving close to \$250 billion of goods annually, our country's knowledge and information economy demands that we move our people with the same world-class efficiency. VIA Rail's President and CEO believes that means modernizing our intercity train service.

Since the completion of the trans-continental railway more than a century ago, our transportation network on water, road, rail and in the air has benefited from many advancements. Canadian ingenuity has produced some world-leading companies in all aspects of transportation: from train and plane manufacturing to civil engineering of waterways, railways, bridges and roads; from profitably running former deficit-making, government-owned North-American freight railways and global airlines to financing airports and passenger railways around the world—not to mention our ability to harness renewable energy through waterways. That same ingenuity should fuel our confidence that we can do the same for intercity passenger train service. But

there is an additional concern that should transform this ambitious vision into a generational duty: making sure our economy is sustainable for future generations by reducing our economy's carbon footprint.

In 2014, Canada's transportation sector was responsible for 24 per cent of national greenhouse gas emissions. Fully 52 per cent of those emissions were produced by private vehicles using our extensive road network. In Canada's most densely-populated area, the Quebec City-to-Windsor corridor, close to 15 million people live, work or study. Within the heart of the corridor, between the major urban centers of Toronto—Ottawa—Montreal, over 80 per cent of intercity trips are by car. Reducing this number by 10 per cent, by moving those travellers from their car to the train, would be equivalent to eliminating 2.4 million cars from Canada's total car pool (which had 21.7 million cars in 2014).

Passenger trains are among the greenest ways to travel in terms of energy consumption per person. In 2007, a trip between Toronto and Montreal by train consumed 50 per cent less energy than by car. In 2015, following the overhaul of 53 of our locomotives, VIA Rail lowered its fuel consumption by an additional 27 per cent and the resulting emissions by 25 per cent. But we can do even better by moving to electric energy where possible: the Quebec City-to-Windsor corridor.

Passenger trains in Canada have always run on tracks designed and built to move heavy freight. Even after its creation in 1977, VIA Rail continued to run its trains on freight railway infrastructure. Over the years, as Canada's economy grew, so did freight traffic on railways running heavier, longer and slower trains. This growth has made the historic cohabitation of freight and passenger trains on the same infrastructure impractical for travellers, inefficient for both freight and passenger railways and, possibly, an impediment to the prosperity of our knowledge

“ Within the heart of the corridor, between the major urban centers of Toronto—Ottawa—Montreal, over 80 per cent of intercity trips are by car. Reducing this number by 10 per cent, by moving those travellers from their car to the train, would be equivalent to eliminating 2.4 million cars from Canada's total car pool (which had 21.7 million cars in 2014). ”

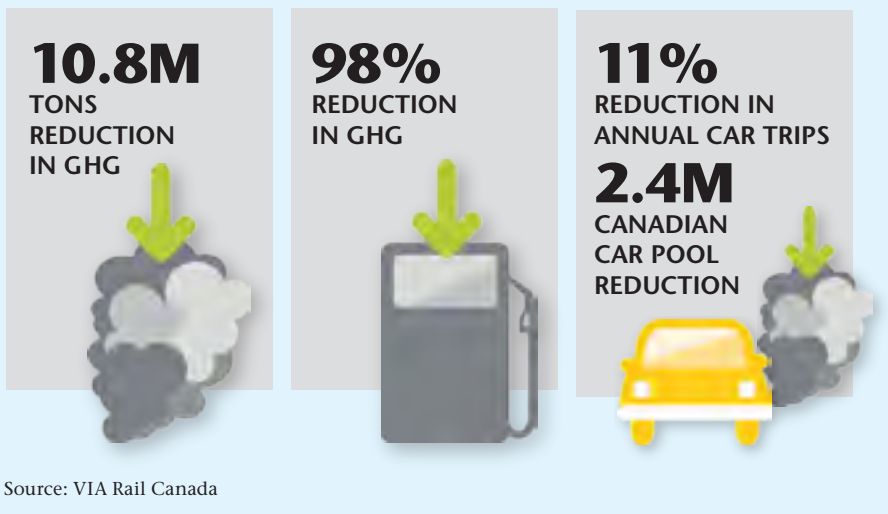
and services economy. Some studies have evaluated the cost of lost productivity due to people driving on congested roads as high as \$8 billion annually. Studies also show that the biggest determining factors in what mode of transport passengers choose are frequency (number of options per day) and reliability (on-time performance), both of which have been negatively affected by sharing the rails with freight traffic. It is quite reasonable to assume that a modernized intercity train service would help reduce the productivity deficit by enticing more people to take the train through better schedules and improved reliability. Conversely, if nothing were to be done to uncouple passenger and freight operating environments, by the time Canada celebrates its sesquicentennial next year, its intercity passenger service will offer

fewer frequencies, take more time to arrive at destination and arrive on time less often than it did in 1967. And things would only get worse in the years to follow, including a growing annual operating deficit to be covered by the taxpayer.

Commuter rail agencies in Canada have built a strong case for owning the infrastructure on which passenger services operate. Metrolinx in Toronto owns nearly 80 per cent of its GO Train routes while the Agence métropolitaine de transport in Montréal owns 27 per cent of its tracks. Since 2010, both agencies have seen their ridership grow by 24 per cent and 15 per cent respectively, while VIA Rail ridership fell 8.5 per cent over the same period. By operating on their own infrastructure, they are able to offer more frequent, faster, and more reliable service.

High frequency rail's impact on passenger GHG emissions

OVER THE NEXT 30 YEARS, WITH ELECTRIFIED RAIL:



Over the past few years, VIA Rail has purchased rail corridors when possible, in the Ottawa region and around Windsor. Ownership has allowed VIA Rail to improve its infrastructure to allow faster and more comfortable trips for its passengers. As well, on VIA Rail-owned infrastructure, passenger trains run on-time over 95 per cent of the time compared to 64 per cent of the time on mixed freight and passenger infrastructure. Today, VIA Rail only owns 2 per cent of the track on which it operates across Canada. However, it owns close to 17 per cent of the infrastructure it uses in the Quebec City-to-Windsor corridor.

Over the past 30 years, numerous studies have evaluated the feasibility of building high speed rail in the corridor. All studies concluded that the endeavour would be too expensive for Canadians as both taxpayers and travellers. Most importantly, a high-speed service would mainly link metropolitan areas and essentially replace air service without stopping in towns and villages in between.

Finally, it would not address the important issues raised above: road congestion, loss of productivity and carbon emissions, all of which demand that the modernization of an intercity train service be designed to remove people from their cars and make mobility sustainable.

In its first budget, the new federal government recognized many of the social, economic and environmental challenges facing Canada. Rather than limiting its focus on the risks such challenges present, it is proposing to seize the opportunities they create.

Modernizing intercity passenger rail service presents such an opportunity. It can provide a greener transportation infrastructure that facilitates home ownership by creating greater commutable distances to metropolitan areas and improve our economy by increasing labour productivity—all while lowering carbon gas emissions. In his budget, Finance Minister Bill Morneau acknowledged the need for improved passenger rail in Canada. He allocated more than 30 million dollars

to renovate stations and maintenance facilities. He provided funding for VIA Rail to determine the requirements of its next-generation fleet in the corridor. Most importantly, the budget acknowledges VIA Rail's proposal to build and operate rail infrastructure dedicated to passenger service in the corridor and provided funding to Transport Canada to support VIA Rail's high-frequency rail proposal.

“We should expect on-time arrivals to improve significantly from the current 64 per cent to above 95 per cent. Finally, one of the greatest benefits would be to the environment. This project would lead to a 98 per cent reduction in our GHG emissions compared to the current operating structure.”

Over the coming months, we will finalize the detailed cost estimates for both the new fleet and the rail infrastructure. By using rights of way that would be dedicated to passenger rail, VIA Rail could immediately tackle many of its operational constraints as well as target the two factors that are most important to passengers when choosing a travel option: frequency and reliability. With its own infrastructure, VIA Rail would control the number of frequencies offered and schedule trains at times where its customers need them. With up to 18 daily departures, passengers could rest assured that there would always be a train about to leave for their destination. That greater flexibility would reduce their reliance on their car. Using a new train fleet capable of running at full conventional speed of 110mph/177kph, trip times would decrease by an average of 28 per cent. Based on current performance on its own rail infrastructure, we should expect on-time arrivals to improve

significantly from the current 64 per cent to above 95 per cent. Finally, one of the greatest benefits would be to the environment. This project would lead to a 98 per cent reduction in our GHG emissions compared to the current operating structure.

VIA Rail owns numerous assets in the corridor: several stations and two major maintenance facilities; an important fleet (although aging); proven technology; an established brand, loyal ridership and goodwill. These, combined with a new fleet and the financial returns made possible by a more commercial exploitation of the corridor, can be leveraged to attract Canadian public pension funds to invest in the build-out of this new infrastructure. Over the past 15 years, Canadian public pension funds have invested in passenger railway operations all over the world. They have developed expertise and they can appreciate the potential presented by this opportunity.

Reasonable projections show that VIA Rail's ridership could grow threefold, which would transform its subsidized business model into a profitable enterprise. By developing a project that can be profitable and, ultimately, self-funding, VIA Rail can aim to minimize the use of taxpayer funds and attract experienced public pension funds to invest in the infrastructure. In fact, the profitability model is such that, over time, VIA Rail's share of profits in the corridor could offset the costs and resulting operating deficits of its regional services, further reducing its burden on Canadian taxpayers.

Modernizing VIA Rail by allowing it to build a green rail transportation infrastructure would stimulate economic growth while lowering carbon emissions and reducing VIA Rail's financial impact on taxpayers. It is a transformational imperative for a new generation of Canadians—the right project, at the right time. **P**

Yves Desjardins-Siciliano is President and CEO of VIA Rail. He can be followed on Twitter @VIARailPrez

La version française de cet article est accessible en ligne au policymagazine.ca

Toward a Low-Carbon Future



If you were asked to name a Canadian company with more than \$5 billion in renewable energy assets that will soon generate enough power to meet the needs of more than one million homes, which company would first come to mind?

What if you were told this company has been in the renewable energy business for almost 15 years, is Canada's largest distributor of low-carbon natural gas, and plans to double its renewable generation capacity in the next five years?

The company we're talking about: Enbridge.

Surprised? You're probably not alone—the Enbridge most people know operates the world's longest oil and liquids pipeline network.

But the Enbridge people are getting to know is a diverse, integrated energy company that is also fast-emerging as a low-carbon and green energy leader. For Enbridge President and CEO Al Monaco, it all comes down to fulfilling the company's purpose.



"Governments, industry, environmental organizations—all citizens—share a common future. That means we also share in the responsibility to shape that future."

AI Monaco PRESIDENT & CEO

Enbridge President and CEO AI Monaco points to five specific areas where action and collaboration can lower carbon emissions.

"Enbridge helps fuel people's quality of life. It's why we exist," says Monaco. "And as the energy needs of our customers change, we change too, investing in the technologies and services that can meet this demand."

Monaco says success in the new energy landscape means working collaboratively with everyone involved in the energy business, from producer to customer.

"Governments, industry, environmental organizations—all citizens—share a common future. That means we also share in the responsibility to shape that future."

Monaco points to five specific areas where action and collaboration can lower carbon emissions.

"First, we need to implement carbon pricing strategies aimed at both supply and consumption. Second, we need to invest and incent the development of more renewable energy. Enbridge's renewable portfolio has grown to \$5 billion in only 10 years. We want to double our renewable generating capacity in the next five years.

"Third, we can reduce emissions by generating electricity and fueling heavy-duty transportation

with natural gas. As a major natural gas distributor, Enbridge is well-positioned to lead in that effort.

"Fourth, we should encourage policies that incent investment in innovation and new technologies that improve the environmental performance of all forms of energy.

"And finally, we need to take further steps to encourage conservation through new approaches to energy efficiency and conservation." Taken together, Monaco believes these actions underpin a strong emissions strategy—a practical plan that can achieve meaningful results. He also credits leadership at the federal and provincial level—including the Alberta Government's recently announced Climate Leadership Plan—for taking action on each of these fronts."

TIMELINE

1987

1992

Path to a sustainable future.

- GLOBAL ACTIONS / MILESTONES
- ENBRIDGE ACTIONS / MILESTONES

On the cover: Enbridge's 300 MW Blackspring Ridge Wind Project in southern Alberta is one of the largest in western Canada.

The **UN Brundtland Commission** introduces the concept of "**sustainable development**", defining it as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."



The first **UN Conference on Environment and Development** in Rio de Janeiro (**the "Earth Summit"**) develops a framework for multilateral agreements on global goals related to sustainable development and climate change, establishing the foundation for the:

- **UN Framework Convention on Climate Change,**
- **1997 Kyoto Protocol, and**
- **2015 Paris Agreement.**

"To fulfill our purpose, grow our business and secure our future, we can show that economic prosperity and a lower-carbon future is possible and achievable if we work together," Monaco adds.

Collaborating with diverse interests to achieve lasting change has long been at the forefront of Linda Coady's work.



Linda Coady
CHIEF SUSTAINABILITY OFFICER

A former vice president for Weyerhaeuser, World Wildlife Fund and the Vancouver 2010 Winter Olympics, Coady has been recognized as an innovator in corporate sustainability in Canada.

She has worked with industry, government and environmental organizations to achieve sustainability solutions. Coady joined Enbridge in 2013 to take on the newly-created position of Chief Sustainability Officer.

"Everyone agrees on the need for energy sustainability," Coady says. The key is to bring people together to find common ground on new solutions.

Enbridge GHG Emissions*

Tonnes of carbon dioxide equivalent (t CO₂e)

"It's critical that Enbridge is transparent and accountable for the actions it is taking to reduce its own emissions."



*2015 GHG emissions data will be available in mid-2016.

"It's critical that Enbridge is transparent and accountable for the actions it is taking to reduce its own emissions."

In 2011, Enbridge reduced GHG emissions for its Canadian operations by 21 per cent below 1990 levels. In 2014, the company's Gas Distribution business cut its emissions by five per cent below 2011 levels.

Good progress, says Coady, but more work needs to be done. From eliminating fugitive emissions to finding opportunities to power pipelines with

renewable energy, Coady's team is working with all of Enbridge's business units to develop multi-year plans for emissions reduction and energy efficiency.

"The point to understand is this: in today's world, strong sustainability measures and goals make good business sense," Coady says. "It translates into access to capital, people and markets."

Few understand that connection between business and the environment better than Lino Luison.

CONTINUED >



Variable speed drive electric motors at pump stations help to reduce the emissions profile of Enbridge's liquids pipelines business.

1995

Enbridge Gas Distribution establishes its first energy conservation and efficiency program providing education, incentives and other resources that help consumers reduce their energy consumption and save money over time.



1999

Enbridge forms its "Pathfinders Group" charged with finding new energy-related technologies that make strategic, long-term sense for investment. Enbridge's current investments in renewable energy—as well as the company's investments in emerging technologies—were all incubated within the Pathfinders Group.

2000

The UN launches three new initiatives that help frame a new global agenda for sustainability: the UN Global Compact (UNGC), the Millennium Development Goals (MDGs) and the UN Millennium Ecosystem Assessment. The UNGC is the world's largest corporate citizenship initiative.

2002

Enbridge invests in the SunBridge Windfarm in Saskatchewan, launching the company's renewable energy investment portfolio.

Enbridge is included for the first time in the Dow Jones Sustainability Index (DJSI). The DJSI is a family of indices that evaluate the systems companies have in place to manage sustainable development issues.



Partners in Innovation

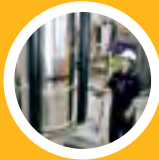
Morgan Solar



What's the future of solar-generated electricity? More energy at a reasonable cost.

Morgan Solar has developed solar technology—called Sun Simba™—that captures and concentrates sunlight in a process that is 100 per cent more efficient than conventional solar panels. It's also 50 per cent smaller for a given power rating, and a fraction of the cost. When the panels are paired with Morgan Solar's revolutionary dual-axis sun tracking system—the Savanna Tracker—they are able to track both the east-west path of the sun and the seasonal changes in the sun's elevation. Together, the two technologies increase energy yields per acre by 25–50 per cent. Enbridge is a partner in commercializing this new technology, helping to bring more cost-effective renewable electricity to the grids that power homes.

Temporal Power



The intermittent nature of wind and solar energy is a challenge for power grids, since an unstable grid is an unreliable grid.

With an investment from Enbridge, Temporal Power's energy storage technology can help put more renewable energy into the homes and businesses of consumers. The intermittency of renewable energy increases the challenges of operating a reliable grid network because grids require perfect balance of supply and demand at all times. Temporal's flywheels use a motor to draw excess electricity from the grid, store it as kinetic energy, and then inject it back onto the grid when required. This technology can respond within milliseconds and output steady power for minutes at a time—ensuring fluctuations in the grid can be managed effectively as renewable generation capacity increases.

CONTINUED



Lino Luison
VP, GREEN POWER, TRANSMISSION
AND EMERGING TECHNOLOGY

A 33-year Enbridge veteran, Luison says it's not just about good intentions. It's about the business case for renewable power.

As Vice President for Green Power, Transmission and Emerging Technology, Luison and his team spend a great deal of time on the road, travelling the world in search of leading-edge green companies, solutions and opportunities that deliver strong financial returns.

"Ten years ago, it was tough to make a business case for renewables," says Luison. "They were expensive, heavily subsidized and often unreliable. Renewable opportunities that delivered good returns to shareholders were few and far between."

Today, that's all changed, says Luison. Growing market demand has triggered a technological revolution in renewables that has brought down costs to the point where they are competitive with the company's traditional business.

"We look at renewable opportunities in exactly the same way we look at pipelines—as low-risk, long-term investments."

TIMELINE

2003

Enbridge begins publicly disclosing its own greenhouse gas emissions through the **Canadian Standards Association GHG Voluntary Challenge and Registry**.

Enbridge becomes a signatory of the UN Global Compact.

2005

Enbridge is included for the first time on the **Global 100 listing of the 100 Most Sustainable Corporations in the World**, which ranks corporations based on their performance on sustainable development indicators.



2006

Enbridge adopts the **Global Reporting Initiative (GRI) Guidelines for Sustainability Reporting** in its Corporate Social Responsibility Report. The GRI is an international not-for-profit organization that developed the world's most widely used framework for sustainability reporting.

Enbridge submits its first response to the **Climate Change Questionnaire of the CDP** (formerly Carbon Disclosure Project). In 2014 Enbridge also began filing an annual submission to **CDP Water** that outlines actions being taken by the company to safeguard water resources.

2007

Enbridge establishes its first **Climate Change Policy**, under which the company commits to reducing its own greenhouse gas (GHG) emissions and energy use, and to working with external stakeholders and decision makers to advance new climate solutions.



Luison is also responsible for looking at new and innovative technologies that will help the energy transition, with investments in companies like Temporal Power. The Mississauga-based company has developed a flywheel storage technology that will help with the reliability of renewable power.

"The sun isn't always shining, the wind isn't always blowing, but Temporal's flywheels are always working. There are real challenges with renewable energy supply and storage that Canadian companies like Temporal are working to solve on an international scale," says Luison.

While investing in turbines and technology is an important way the company is helping make a difference, consumers of energy are increasingly looking for ways to reduce their own energy use and costs—something Enbridge Gas Distribution has been championing since 1995.

With more than two million customers, Canada's largest natural gas utility is already contributing to



In November 2015, Enbridge announced its \$750-million investment in the UK Rampion Offshore Wind Project.

This **24.9% stake** in the project marks a strategic entry point into the European offshore wind sector for Enbridge.

emissions reductions by delivering a lower-carbon fuel to homes and businesses. It is also using its reach to make inroads into conservation, enabling its customers to play a more active role in a sustainable energy future.

"Back in the 1990s, Enbridge Gas was one of the first companies to invest in conservation programs

in Canada," says Enbridge Gas Distribution Vice President of Market Development and Customer Care, Jamie Milner. **CONTINUED >**

Enbridge's renewable investments since 2002

Enbridge has invested nearly \$5 billion in renewable and alternative energy generation projects that are either in operation, planned or under construction. Together, they have the capacity to generate more than 2,700 MW (gross) of zero-emission energy—enough to power more than one million homes.



16 Wind Farms

2,568_{MW}



4 Solar Energy Operations

150_{MW}



1 Geothermal Project

23_{MW}



5 Waste Heat Recovery Facilities

34_{MW}



1 Hydroelectric Facility

2_{MW}

All megawatt figures are gross capacity

2008

— The UN launches the **Principles for Responsible Investing (PRI)** to provide a set of guidelines for investors wishing to use environmental, social and governance (ESG) criteria in their investment decision making. By 2015, PRI signatories represented \$59 trillion USD in investments.

— Enbridge sets its first **GHG reduction target** aimed at reducing direct emissions in its Canadian operations by 20 per cent below 1990 levels by 2010. In 2011, Enbridge reported it had achieved a 21 per cent reduction below 1990 levels, primarily through upgrading facilities and equipment.

2009

— Enbridge accelerates the **expansion of its renewable energy portfolio** in North America with acquisitions in wind, solar and geothermal projects and facilities in the Canadian provinces of Ontario and Alberta, and the U.S. states of Colorado, Oregon, Texas and West Virginia.



2013

— Enbridge Gas Distribution (EGD) reaches two million Ontario residents and businesses, serving customers in more than 100 Ontario communities. EGD is now the largest natural gas distribution utility in Canada, and one of the fastest growing in North America, **providing a low carbon source of energy** that can help replace coal-fired electricity and support improved energy sustainability at the community level.

Renewable Natural Gas

Canada has the potential to green our natural gas grids by supplying communities with renewable natural gas via our existing pipeline networks.

Hydrogenics is working with Enbridge Gas Distribution to develop new Power-to-Gas technology as an innovative renewable energy conservation and storage solution. Power-to-Gas technology uses electrolysis to convert surplus renewable electricity into green hydrogen—or renewable natural gas. This gas can then be compressed and stored in existing natural gas pipelines. Once stored in Enbridge's existing pipeline network, this renewable natural gas can be delivered to consumers as heating fuel, transportation fuel or electricity. Together, Enbridge and Hydrogenics are opening new pathways for the use of renewable energy for consumers.

CONTINUED



Jamie Milner
VP, MARKET DEVELOPMENT AND
CUSTOMER CARE

"We showed our customers that there were real savings to be made in reducing both their energy consumption and their carbon footprint."

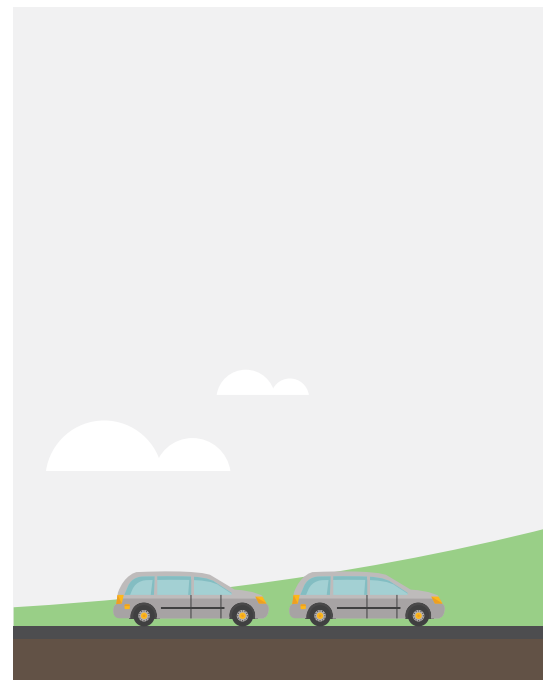
The result: 9.6 billion cubic meters of natural gas has been saved through the programs delivered to customers, reducing emissions by 18 million tonnes.

"That's the equivalent of taking 3.5 million cars off the road for a year, or enough energy to heat 4 million homes for an entire year," says Milner.

Enbridge Gas Distribution provides conservation programs to residential, commercial and industrial customers.

Commercial customers like KI—a global manufacturer of metal office furniture headquartered in Pembroke, Ontario—partner with Enbridge Gas Distribution on projects to improve their energy efficiency.

In conjunction with one of Enbridge's Energy Solutions Consultants, KI was able to identify improvements that resulted in a 60 per cent reduction of their natural gas consumption.



This included undertaking projects that help adjust exhaust flow in their drying ovens, and implementing a new cleaning stage that enables them to eliminate previously required heating energy.

"Significant reductions in process heating requirements made positive contributions to KI's bottom line and reduced energy consumption. It's an example of how both business and the environment can be equally successful," says Milner.

Enbridge's Executive Vice President of People, Planet and Partners, Karen Radford takes pride in those results.

TIMELINE

2014

Between 1995 and 2014, **energy efficiency programs at Enbridge Gas Distribution** save about 9.6 billion cubic metres of natural gas and 18 million tonnes of carbon dioxide emissions. These reductions would be similar to taking about 3.5 million cars off the road for a year or serving approximately 4 million homes for a year. They result in net energy savings to homeowners and small businesses of nearly \$2.5 billion over time.

2015

Enbridge enters the European wind market with the **Rampion Offshore Wind Project** in the UK, bringing total investments in renewable energy to nearly \$5 billion.

The government of Alberta announces a new **Alberta Climate Leadership Plan**. The plan commits to phasing out coal-fired electricity, expanding renewable electricity, improving energy efficiency, reducing methane emissions and putting a price on carbon production and consumption. It also introduces a cap on emissions from Alberta's oil sands; Enbridge is one of several major Alberta-based energy companies that publicly supports the new plan.

2016

The Government of Ontario invests \$100 million in an **Ontario Energy Retrofit Program** partnership with Enbridge Gas Distribution and Union Gas that will help homeowners conduct audits and undertake retrofits that improve energy efficiency. Funding for the program comes from Ontario's new Green Investment Fund, which is recycling revenue from the province's new carbon pricing system back into initiatives that further reduce emissions.

9.6 Billion Cubic Meters of Natural Gas Has Been Saved...

That's the equivalent of taking **3.5 million cars** off the road for a year and nearly **\$2.5 billion** in energy savings for customers



Karen Radford
EVP, PEOPLE, PLANET & PARTNERS

“Our goal is a win-win-win for customers, for our company and for our environment,” says Radford. “It’s one more piece in the larger effort to tackle climate change.”

A biologist by training, Radford joined Enbridge after holding roles in the telecommunications sector. She is responsible for human resources and corporate social responsibility. Radford believes that the skills and talents of Enbridge’s people are the company’s most important assets.

“People are the bedrock of our business,” says Radford. “To become a sustainable energy leader, we need to invest in them and their capacity to innovate and create.”

Enbridge needs to deepen its relationship with customers, Indigenous people, landowners and regulators, she says.

“And we need to stay focused on our shared ambition for a more prosperous, secure and sustainable future.”

“We are rising to the challenge of this generation, building the energy systems of tomorrow.”

But adapting to that future doesn’t mean abandoning the past, says Radford. The success of Enbridge’s traditional business provides the financial and operational foundation to advance new technologies and systems.

Radford’s optimism and passion for the work ahead is palpable. Like CEO Al Monaco, there is purpose in her words.

For more than 65 years, Enbridge has built its business on one simple premise: that the energy it delivers allows people to live their lives to the fullest. Today, as our world confronts the challenge of climate change, those energy needs are changing. But Enbridge’s purpose endures.

“Guided by the principles and values that have always driven us to succeed and grow,” says

Monaco “we are rising to the challenge of this generation, building the energy systems of tomorrow.”

“If we stay focused on our business fundamentals, if we invest in new technologies and long-term solutions, and if we rise above polarization and seek common ground, I believe the sustainable energy future we all seek is within our reach.”



A child stands on a sandy beach, silhouetted against a bright sunset over the ocean. The child is holding a string that leads to a colorful kite flying high in the sky. The kite has a diamond shape with various patterns and colors, and long, thin streamers trailing behind it. The sun is low on the horizon, creating a strong glow and casting long shadows on the sand.

E =

Soaring to new heights. We didn't use it to fly a kite. Or spend an afternoon at the beach with the family. But we did recognize the potential of wind as a source of renewable energy. That's why we invest in renewable energy that helps generate enough electricity to power more than 750,000 homes. When our energy meets the energy from the wind, harnessing the future happens.

 **ENBRIDGE®**
Life Takes Energy™

 **GLOBAL100**



NDP Leader Tom Mulcair after losing the leadership review vote in Edmonton on April 10. "Don't let this very divisive vote divide us," he pleaded in his concession speech. Flickr photo

NDP Crossroads: Leadership and the Leap

Robin Sears

The late Jack Layton ran on the principle that the New Democratic Party didn't have to sell its soul for power...it could have both. Tom Mulcair lost sight of that principle during the 2015 campaign, running a risk-averse strategy aimed at pleasing everyone that, predictably, cost him the election and the party leadership. Veteran political strategist Robin Sears looks at where the party—Mulcair, Notley, the Leapers, the ghost of Jack Layton and all—goes from here.

Canadians have never seen so public an execution of a national party political leader before. It was polite, respectful but in the end astonishingly resolute. No one—including Tom Mulcair—predicted that 52 per cent of New Democrats would say it was time for a change.

The result was one more example of the importance of expectations management in political life. Jack Layton was the first NDP leader to make a public claim on becoming prime minister, but it was Tom Mulcair whose candidacy to succeed Layton was framed by a prom-

ise of government. Tom Mulcair was the first NDP leader to insist the party could plausibly set governing the country as the bar of victory. Failing to meet the bar he set, he was the victim of the party's judgment about that failed dream.

The decisive vote in Edmonton was about more than squabbles about pipelines and the Leap Manifesto. Without the Leapers nipping at hometown Alberta premier Rachel Notley's ankles, Mulcair probably would have ended in the painful shadow zone of 60 per cent approval. In that respect, the tired old Socialist Caucus zealots did him and the party a favour: they helped make the vote decisive.

Viewed through another lens, his rejection was painfully unfair. Tom Mulcair had led the party to its second highest level of popular support, had made it a genuine contender for national power for the first time in its history. He had built, nursed to adulthood, and then protected the party's first-time base in Quebec. All this was acknowledged, and the reaction to his main convention address was warm and positive—interrupted by several standing ovations.

Very few party leaders and even fewer caucus members openly—or even privately—agitated for his defeat. The few foolhardy outliers were quickly smacked for their apostasy. The mood in the hotel corridors on the night before the vote was mixed: little Mulcair enthusiasm, but far from the antagonism that was palpable when Joe Clark was a target, or the angrier rhetoric of the young Turks attempting to unseat Pierre Trudeau toward his end. The mood was more in sorrow than in anger among the most determined change advocates.

So what caused New Dems for the first time in their history to oust a sitting leader?

The scent of power.

Those pundits and liberal place men in the national media already pronouncing Canadian social democracy's demise might re-

“Ironies in political life are common: raising the prospect of victory seriously for the first time, Tom Mulcair set a threshold for leadership success that ended his career. The powerful grace in his exit speech was such that one can almost believe that he will now comfortably slide into the role of party elder.”

flect on this: nearly 1,800 party members, almost double the norm for an NDP convention, do not spend thousands of dollars to merely to oust a leader, let alone prepare their party's funeral. The zeal and determination of the assembled activists was as much about building the next chapter, as it was about delivering judgment on the painful election defeat just passed—despite the foolishness of some peddling aging leftist political fairy tales as the path to success.

No other NDP leader had faced this judgment in convention: sainted Tommy Douglas lost four times—including losing his own seat, not once, but twice. Beloved Ed Broadbent also got four times at bat. And in each case they stepped aside without the humiliation of a convention vote. One difference between them and Mulcair, beyond acceptable thresholds of political success, was their relationship with the faithful. But Tommy and Ed were loved, Mulcair was respected.

Ironies in political life are common: raising the prospect of victory seriously for the first time, Tom Mulcair set a threshold for leadership success that ended his career. The powerful grace in his exit speech was such that one can almost believe that he will now comfortably slide into the role of party elder, as the machinery of a leadership fight gears up.

How did the party get to this unheard-of place, killing the king as a path to power? It began with Jack Layton's astonishing—and widely derided—decision to launch his 2008 campaign with the announcement that he was running to be prime minister. From a position of less than 20 per cent in the polls, and a caucus that was a sliver of

its current strength, it did seem a bizarre, almost delusional claim.

Even among his devoted professional campaign team there was a little skittishness about the bravado of launching an NDP campaign at a \$200,000 orchestrated event, framed by the House of Commons, with rock-star quality staging—and making such an astonishing claim. They were greeted with derision by aging pundits and political opponents grown comfortable with a more modest NDP presentation and aspiration.

But Jack Layton was a brilliant political strategist, one who continued to grow in depth and skill almost until the end—when fate, with stunning brutality, pushed him off the stage just weeks after his greatest political triumph. Even three years earlier, he had begun to put the pieces in place to be able to make his claim less fantastic. Among them was the careful wooing of Tom Mulcair.

Layton forced the party to set a higher bar, and then set about building the party machinery required to meet it. He almost got there. Though it is not clear that Mulcair would have been his chosen successor, it was almost inevitable that he should be. Mulcair understood better than any other leadership contender how hungry New Democrats were to win. They had smelled blood in Liberal waters and they had a Tory opponent openly hated by progressive Canadians.

The party's mistake in 2015 had little to do with being more or less progressive, though Liberals were very clever in successfully making that improbable claim about themselves. Mulcair's strategic error, and one that Layton had sometimes flirted with, was trying

too hard to be comforting to nervous Canadians. The risk aversion of the 2015 campaign was not dramatically greater than Jack Layton's—but the world had changed in the interval.

“Mulcair’s strategic error, and one that Layton had sometimes flirted with, was trying too hard to be comforting to nervous Canadians. The risk aversion of the 2015 campaign was not dramatically greater than Jack Layton’s—but the world had changed in the interval.”

Instead of a pretentious amateur leading Canada’s natural governing party to oblivion, the NDP were challenged by a powerful force of political nature, an undersold, under-appreciated political superstar, one with an inimitable pedigree.

Cicero urged his political juniors never to forget that political life is a pendulum, the position of power is never at rest. Two millennia later, the New Zealand All-Blacks, the world’s most successful professional sports team, added the wisdom that your opponents watch and learn from your previous strategies, so you must always update them. Never bring last year’s winning game to this year’s contest, as James Kerr declared in *Legacy*, his powerful book on the team.

The Tories and NDP forgot the lessons of both the Roman Senate and international championship rugby. They each failed to notice how far the partisan pendulum had swung between elections, and they each brought their old game to the new season. And they each got deservedly clobbered by a new Liberal team, who did almost everything new and well.

The Mulroney-era Tories famously went from an unheard of 211 seats to two. The Liberals went from a Chré-



Alberta NDP Premier Rachel Notley reminds delegates that “pipelines are built by Canadians, using Canadian steel.” Flickr photo

tien high of 171 MPs in 2000 to an Ignatieff low of 34. New Democrats have gone from crushing defeat, to recovery, to defeat over and over. Like the Liberals in the United Kingdom, or the third party in any first-past-the-post-system, they get over-punished when a political high tide rolls in. But parties rarely die, or even fade. They adapt, prepare and wait for the rollercoaster to climb again. In addition to stomach churning rides up and then crashing down, there is another verity unique to Canadian politics:

Liberal governments always break progressive hearts.

And when they do, the NDP is usually the beneficiary. From the progressive promises of Trudeau *père* in 1974, progressives got tough wage controls and sham price controls. In 1980, Canadians got the National Energy Program and then dramatically rising deficits and bitter strikes over wages. In the 1990s the Liberals tried to roll back the debt chasm they had created over most of the previous three decades by downloading the burden onto provinces, cities, and ultimately the poorest Canadians.

There is no mystery about when the NDP rollercoaster will climb out of its latest plunge. It is almost always after the broken dreams of a ‘progressive Liberal government’ meet their electoral reckoning. From 1972 to 1979-80, to 1988, to Layton’s effective re-launch of the party in the last decade, each

upswing came after disappointment with Liberal performance. Political communication masters they indisputably are. Political natural Justin Trudeau demonstrably is, but is there any reason to think the Liberal rollercoaster has come to a stop at this peak?

Unlikely.

The Conservative leadership race may avoid a return to the party’s natural state of perennial fratricide, but history is not on their side. Only twice since Sir John A Macdonald have Canadian Conservatives managed to avoid constant low-level civil war, undermining their leader and their reputation as a potential party of government. The first time, under Brian Mulroney, it was the product of the charm and political skill of the most successful kind of Canadian politician, a bicultural Quebecer able to be seen as a native son on both sides of the Ottawa River.

The second time, under Stephen Harper, it was a product of the type of repression and coercion that often make authoritarian regimes appear surprisingly effective and trouble-free, until the cracks appear. It is not obvious who will be the next Tory Brian Mulroney, but there are several boomer veterans of the last regime who may try the same tricks with whips and chains. Canadians are unlikely to be impressed.

The Justin honeymoon is unlikely to fade until after, at a minimum, an-

other bad winter. But 2019 is already looking a lot like those election years when overreaching partisanship and sub-par governmental performance—and/or a growth-limited Conservative offer—means a strong NDP campaign has lots of running room.

Whether NDP activists' surprising level of agreement on the need for change in Edmonton means the party is ready to make the changes—beyond leadership—that will make it a genuine contender remains to be seen. The party's national campaign was bedeviled by a paper-thin campaign apparatus beyond Ottawa. New Democrats have never wanted to invest in the shift of power and resources that creating strong regional campaign centres—separate from the oversight of their provincial cousins—that were one of the keys to Liberal success. Jack Layton and senior campaign strategist Brad Lavigne started the process, but it had stalled after 2011.

Running 338 riding campaigns, with occasional direction by Ottawa, and a campaign centre limited in its research, intelligence gathering, and operational boots on the ground is not a winning national campaign apparatus. The days of stumbling on the niqab were proof of the organiza-

tion's inability to pivot quickly. Big changes will be required.

“ Rachel Notley's eloquent defence of a progressive economy built on resources' jobs and revenue and governed by environmental principle, did not get great attention in the leadership frenzy. She did lay out the only winning strategy for a national progressive government very elegantly, nonetheless. ”

The temptation of depressed progressive parties to flirt with the self-indulgent side of their tribe's own mythologies was clearly on display in Edmonton, as well. Social democratic parties in defeat frequently flirt with ban-the-bomb, vegan, solidarity-with-the-national-liberation-movement-of-the-month fringe. Bernie Sanders and Jeremy Corbyn are merely this generation's nutty successors to Ralph Nader and Michael Foot. Left unchallenged, the Leapers may do much harm before they are firmly returned to their booths stacked with

smudged leaflets on the outside of the convention hall.

The party is unlikely to make a leap into the political wilderness to its left. The strongest inoculation against a new Waffle is, ironically, the evanescent scent of victory. This flirtation with views certain only to make Liberals happy, does, however, risk hurting the one truly progressive government in office in Canada—Alberta's.

Rachel Notley's eloquent defence of a progressive economy built on resources' jobs and revenue and governed by environmental principle, did not get great attention in the leadership frenzy. She did lay out the only winning strategy for a national progressive government very elegantly, nonetheless. It will be a key indicator of the likely outcome of the 2019 contest if the federal party understands that it needs to take her lead, as it enters this leadership contest.

If they fail to do so, the Layton/Mulcair dream of national power will fade for another generation. **P**

Contributing Writer Robin V. Sears, a principal of Earnscliffe Strategy Group, was national director of the NDP during the Broadbent years and later chief of staff to NDP Premier Bob Rae in Ontario. robin@earnscliffe.ca

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The Battle for the Future of Progressive Politics in Canada

Brad Lavigne

So what does all that happened at the NDP convention in Edmonton mean for the future of the party and progressive politics in Canada?

To answer that question, we need to recognize two important factors at play in Edmonton.

The first is the sheer number and motivation of the delegations.

With 1,887 delegates registered for Edmonton 2016, it had to have been apparent to the party leadership and leader's office in the days leading up to Edmonton that change was coming. Very few people take two days off from work and spend a couple thousand of their own dollars to fly to Alberta to vote to maintain the status quo—six months after a heartbreaking election.

A week prior to the Edmonton convention, over 1,000 people attended the Broadbent Institute's third annual Progress Summit in Ottawa. While there was some overlap, there were a lot of new faces at both. Despite electoral disappointment, progressives are highly engaged in policy work, movement politics and partisan politics.

The cancer for any political party is indifference. Clearly, New Democrats and progressives are far from indifferent.

The second factor is that the culture of winning, so carefully cultivated under Jack Layton's leadership, defined the outlook of activists within the party in Edmonton.

The leadership vote was not just a verdict on the October campaign, but a look ahead to 2019. For the overwhelming majority of delegates, the issue wasn't whether to replace Tom Mulcair before 2019, but *when* before 2019.

The pragmatists did not think he could improve the party's seat count

in 2019, while others felt that he was not equipped to attract new votes without a more solid articulation of the social democratic values of the party. Either way, it was the 2019 election campaign that was the lens through which delegates rendered their judgment.

In other words, this was not a left-right issue or about the NDP settling back into becoming the conscience of the nation instead of vying for power, as some pundits wrongly argued. This faulty conclusion rests on bundling a misreading of the leadership vote with a misrepresentation of the vote on the Leap Manifesto.

The grassroots of the party didn't embrace the Leap Manifesto. Had the party voted on the content of the Leap Manifesto, such a motion would have failed. The authors of the document knew it couldn't win a straight up vote on its content, so they brokered a process motion to have local discussions. "Even though there are problems with the document, who could vote against more discussion?" many said on the convention floor. But even under such circumstances, the motion to debate this document at the local level barely passed.

So what's next?

If the leadership race is to be organized with maximum opportunity in mind, it should not be within the next 16 months. There is no need to rush into a leadership vote. The next election is not for three and-a-half years. Getting the leadership timing right in 2017 is one of the most important aspects to winning in 2019. The party needs to give time for a strong slate of credible candidates to emerge who offer a smart, vigorous exchange of ideas that attracts progressives and puts our issues at the forefront.

During this time of interim leadership, Rachel Notley will become for the progressive forces in Canada what Brad Wall has become for the conservative forces—a provincial leader providing national leadership.

Notley's speech at the Edmonton convention gave voice to the widely held premise that there is no contradiction in the pursuit of and the exercising of power while maintaining the very values that define us. To claim that the debate is between "the movement" and "governing" is to suggest that our values are somehow out of step with Canadians. In fact, the opposite is true.

In the short term, the greatest threat to social democracy at the national level isn't the self-admitted naivety of the "leave it in the ground" crowd. Rather, it's the threat of the Liberals to use their false majority in Parliament to introduce ranked balloting as its electoral reform measure for the 2019 election.

Make no mistake: ranked balloting layered onto Canada's winner-take-all voting system of first-past-the-post will further rig Canada's voting system, ensuring that the Liberals govern in perpetuity and progressives are forever denied an equal shot at 24 Sussex. Ranked balloting is so-called strategic voting on steroids. That's why the fight for proportional representation, where every Canadian's vote will count, must be the unifying focus of progressives in the near term.

Over the next two years, the battle on the left won't be whether to pursue power, rather how to attain it. **P**

Brad Lavigne is the founder and President of Forward Public Affairs, the 2011 NDP National Campaign Director and former Principal Secretary to Jack Layton. brad@forwardpublicaffairs.ca



Column / Don Newman

Back to the Future

The federal New Democratic Party is going back to the future. The pair of decisions taken at its April convention in Edmonton mean the party is going back to where it was 45 years ago; entering a leadership race with policy schism splitting the party down the middle.

Perhaps it is all inevitable. After suffering what was a devastating defeat in the election last October, it was entirely predictable that the party would be plunged into a leadership race that will centre around both who should lead the party and what the party should be.

The fact that Tom Mulcair was unceremoniously dumped as leader should have come as no surprise. The Edmonton convention only did what Mulcair should have done himself before going to bed on election night last October.

Any party leader who loses 50 seats in an election while his party goes from second to third place in the House of Commons, should have had his resignation written even before formally conceding defeat in the electoral disaster he had just presided over. Why Mulcair thought he could continue to lead the NDP and take it into the next election is beyond understanding.

Now the party is facing a leadership race that could take up to two years before Mulcair's successor is selected. And throughout the leadership race the party will at the same time be considering whether it should adopt the Leap Manifesto, the policy proposition that contains the con-

troversial proposal to stop building energy pipelines.

All of this harkens back to the NDP Leadership race in 1971. Way back then, the New Democrats were facing a situation not dissimilar to the one confronting the party now.

A decade after its founding and three elections which produced minority governments in Parliaments where the NDP held the balance of power, the Liberals in 1968 chose a man named Trudeau as their leader and rode that choice to a majority government later that same year.

Tommy Douglas, the former Saskatchewan premier and the Father of Medicare, was faced with the reality that the party was going backward under his leadership. He stepped down as leader and most people expected that the equally talented deputy leader David Lewis would be crowned the new chief at a leadership convention.

But the NDP's disappointing showing in the previous election had triggered the same kind of argument we heard in Edmonton about the future of the party and the policies it should adopt.

A radical group known as the Waffle, advocated strident left wing policies and in April of 1971 its candidate for the party leadership, James Laxer, pushed Lewis to four convention ballots before he finally won the leadership.

Now 45 years later, after the Liberals again picked a man named Trudeau and dashed the NDP's hopes of elec-

toral breakthrough, the party is embarked on another soul-searching leadership review.

Ironically in the 1970s it was the Lewis family, David and his son Stephen, who purged the party of the left wing Wafflers.

This time the left wing Leap Manifesto group is being lead by another Lewis, Avi, David's grandson and Stephen's son.

As this scenario develops Avi may well become a candidate for the party leadership. With no one of major stature federally on the horizon to represent the other side, it may come down to Alberta Premier Rachel Notley to fire away from the provincial capital in Edmonton if the Leap campaign gathers momentum.

Whatever happens, the outlook for the NDP isn't pretty. A fractious leadership campaign that produces a split party, all of this happening in the public eye and the glare of publicity.

At the recent convention, outgoing party president Rebecca Blaikie tried to assure and inspire the delegates that despite the third place election results of 2015, "the NDP," she declared. "isn't going anywhere!"

It is not the way she meant it, but based on the party's recent decisions in Edmonton, her remarks may prove prophetic. **P**

Don Newman is Senior Counsel at Navigator Limited and Ensign Canada, Chairman of Canada 2020 and a lifetime member of the Canadian Parliamentary Press Gallery. donnewman.dnn@bell.net



Premier Brad Wall won re-election in a walk with his Saskatchewan Party taking 51 out of 61 seats in the legislature and 62 per cent of the popular vote. Flickr photo

Saskatchewan's Seinfeldian Campaign

HOW BRAD WALL WON A CAMPAIGN ABOUT NOTHING

Dale Eisler

The Saskatchewan election campaign was a study in lack of contrast. Running for and winning his third majority, Premier Brad Wall pre-empted the change question and defused the devil-you-know cliché with the power of personality in a place that likes his type.

In the rich political history of Saskatchewan, the re-election of Brad Wall and his Saskatchewan Party to a third majority government on April 4 surely ranks as one of the most predictable and, in many ways, most impressive developments. Where it doesn't measure up as memorable is in terms of drama and the clash of big, visionary ideas.

Still, the fact that the result surprised no one, given polls that consistently showed a huge lead in for the Saskatchewan Party, doesn't diminish the significance or scale of Wall's overwhelming election to a third majority govern-

ment. Wall and the Saskatchewan Party steamrolled the Opposition New Democratic Party, winning 51 of 61 seats and more than 62 per cent of the vote. Among the NDP roadkill was party leader Cam Broten, which plunged the NDP into an immediate existential crisis. Often considered the province's natural governing party, the Saskatchewan NDP has never in its history found itself in such a precarious and vulnerable state.

But even acknowledging the scale of Wall's electoral achievement, the campaign still had the feel of an empty vessel. One couldn't help but get the sense that all concerned were going through the motions towards an inevitable outcome. It was an election without character, even purpose. One of those events when you're left asking: What was all that about? The short answer is apparently not much, other than voters were comfortable with Wall and his government, and in no mood for a change. For the Saskatchewan Party in search of its third majority, it doesn't get any better than an election without a defining issue to motivate the public. It hasn't often been this way.

Through the decades, Saskatchewan has carved out an identity as a province where elections are often fought over conflicting opinions about fundamental policy approaches. It began with the election of North America's first democratic socialist government in 1944. What followed were electoral waves defined by the yin and yang of left-right ideological clashes. There was the introduction of universal, publicly funded Medicare in 1962, followed by a dramatic swing to free enterprise and private investment; then a period of nationalization of natural resource development; then a pendulum swing to a wave of privatizations, followed by financial consolidation and health care reform.

Since being first elected in 2007, Wall has avoided the ideological traps that polarized the electoral choices of the past. His Saskatchewan Party government is a coalition of former provincial Progressive Con-

“ Even acknowledging the scale of Wall's electoral achievement, the campaign still had the feel of an empty vessel. One couldn't help but get the sense that all concerned were going through the motions towards an inevitable outcome. It was an election without character, even purpose. ”

servatives and Liberals. While clearly positioned as centre-right on the province's political spectrum, in government Wall has largely steered a pragmatic course. The result has been that no defining issues have emerged to either ignite the anxiety of voters or arm the NDP with serious weapons to attack Wall's government.

“ Wall has avoided the ideological traps that polarized the electoral choices of the past. His Saskatchewan Party government is a coalition of former provincial Progressive Conservatives and Liberals. ”

Coupled with that has been, for the most part, economic good fortune for Saskatchewan during the past decade. A diverse natural resource base and strong global demand for the province's commodities have amounted to a growing economy, low unemployment and a period of steady population growth. All of that has allowed Wall a narrative of growth and progress, which was the foundation for his re-election. The core theme of the Saskatchewan Party platform was “Keep Saskatchewan Strong.”

Wall is in many ways the quintessential prairie populist. He combines his pragmatic instincts with great strength as a communicator who speaks the language of average people. When you add the fact that he inherited from the previous NDP government an economy in the early stages of its boom, it has been a pow-

erful political combination. So potent that over the years Wall has consistently ranked as the most popular premier in Canada.

Not surprisingly then, for the Opposition New Democrats and Broten, the campaign was an uphill struggle. Only three years into his leadership, Broten more than matched Wall in terms of youth, and certainly represented a fresh face and generational change for the New Democrats. But his lower visibility and name recognition put him at a distinct disadvantage against a Premier with a national profile.

The NDP campaign focused largely on what it described as the distorted priorities and fiscal mismanagement of the Wall government. Broten argued the Wall government had squandered resource wealth during the good times, and now, in a period of low oil and commodity prices, was mired in an operating deficit projected to be more than \$500 million. But the precise state of the province's finances was unclear. The government refused to table a budget before the election even though the end of the province's fiscal year was March 31.

To buttress its argument, the NDP reeled off a litany of misdeeds and misspending. It argued the Wall government had burned through a \$1.5 billion rainy day fund it inherited from the NDP. It pointed to a controversy over a complex series of questionable land assembly transactions at the government-owned Global Transportation Hub (GTH) that erupted shortly before the campaign. According to CBC investigative reports, local land owners sold their land to a private investor from Alberta at below market prices, who quickly sold the property

for a multi-million dollar profit to local investor, who then sold it to the GTH at three times the value of the government's own estimates. The NDP also attacked the government for "wasting" taxpayers' dollars, from \$50 million on consultants for cost-cutting in healthcare that was of little value, to \$1.5 billion on a carbon capture initiative with uncertain results.

For the Saskatchewan Party, the counter-narrative was simple and effective, even if it was backward looking and lacked new horizons to conquer. The ballot question, Wall argued, was whether Saskatchewan should continue on its path of growth, or return to the bad old days of NDP government when the province was best known as an exporter of young people to neighbouring Alberta. Even with an economic slowdown driven largely by a collapse in oil prices, Saskatchewan was not facing the full impact of the consequences playing out in "NDP Alberta". A more

diverse resource base—oil, potash, uranium—and a solid agriculture sector had blunted some of the effects of the collapse in oil price on Saskatchewan. What voters sought in uncertain economic times was to take refuge with a tested political hand. Brad Wall fit the mood like a glove, asking voters rhetorically throughout the campaign who they trusted to manage the economy through turbulent times. On election night, the answer could not have been clearer.

What is less certain is the long-term future of the premier himself. There has been persistent speculation that in a year's time, Wall will let his name stand for the leadership of the federal Conservative Party and has been quietly taking French lessons. Wall dismisses the rumours, saying he already has the best job in Canada and has no interest in taking the plunge into federal politics. Perhaps, but people can't help but notice that in recent years, Wall has raised his

national profile, particularly on issues of energy and equalization. Given his most recent political conquest, the idea of Wall looking for a larger stage is not likely to fade away anytime soon.

But when the inevitable does come, and Wall decides it's time to leave, one thing is certain. In almost every respect, Brad Wall is the Saskatchewan Party brand. So much so, that for many of its supporters it's hard for them to imagine the party without him. Not surprisingly then, they prefer to believe him when he insists that he's not going anywhere soon. **P**

Dale Eisler, a senior Policy Fellow with the Johnson Shoyama Graduate School of Public Policy at the University of Regina, is a former assistant deputy minister with the Government of Canada, the author of three books and a former journalist.

dale.eisler@uregina.ca

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The headquarters of the European Commission in Brussels, the capital of Europe, which is in the eye of a perfect political storm. Flickr photo

Too Big to Fail? Europe in a Perfect Storm

Jeremy Kinsman

The European Project was born of a belief that unity among nations on the dispassionate but collectively beneficial business of business would act as a bulwark against the passions that had unleashed two world wars. Veteran Canadian diplomat Jeremy Kinsman writes that, due to a series of unfortunate events, the EU has lost the plot. Can a Brexit be averted?

Is the European Union too big to fail? To break apart? Twenty-eight national governments and their 508 million EU citizens are bound in a system of trade, finance, infrastructure, and common legal and social norms that have made the EU the world's foremost economic power.

But many citizens dislike the very bigness of what seems an impersonal machine detached from their ordinary lives.

The EU Project was, from its beginning, an exercise in thinking big.

Peter Klein was the 40-something desk officer for Canada in the start-up Commission of the European Economic Community, the EU's six-member predecessor, when I went to Brussels in 1968. Klein was German, old enough to have been in the war. His family, childhood home, all his certainties were shat-

tered by history. He dedicated himself to the goal of an end to Europe's wars forever.

The U.S. was torn apart by the Vietnam War, President Lyndon Johnson quit, Martin Luther King and Bobby Kennedy were murdered and cities burned. Generational revolution paralyzed France and terrorism hit Germany. Soviet tanks killed Prague's spring and the Cultural Revolution ravaged China.

I never got Peter to discuss the global fray. I thought a generation gap explained his disinterest. But the gap was mine: his generation had endured Hitler's Germany. Their existential grail was the end of Europe's wars.

The project's founders knew enough to soft-pedal the political goal of leaching nationalism from European psychology. Charles de Gaulle hadn't spent the Second World War fighting for France's political sovereignty just to turn it over in the postwar peace.

The new Europe wouldn't be a federation. Its sovereign peoples would learn the habit of community by working together on functional economic cooperation first. Member states would eventually pool large swaths of sovereignty beyond historic precedent, but retain in their own parliaments the exclusive power to tax citizens and award welfare and other material benefits. Fiscal policies and electoral politics would remain national.

That reality is basic to the EU's woes today. Once citizens grew accustomed to peace among nations, many reverted to their native and competitive selves.

For the first decades, it didn't matter. Ragged things happened—the Algerian War, terrorism of the extreme left and right—but national political ships sailed together on a rising tide of miraculous economic growth that funded a generous and progressive European social model. Citizens enjoyed more peace, prosperity, health, democracy, greenness, and general security than ever in their histories.

The EEC's membership successively widened. Britain's application survived vetoes from de Gaulle, whose

“National political ships sailed together on a rising tide of miraculous economic growth that funded a generous and progressive European social model. Citizens enjoyed more peace, prosperity, health, democracy, greenness, and general security than ever in their histories.”

wartime experience with dismissive and overbearing Anglo-American allies convinced him the British wouldn't live up to a sincere European commitment.

From being just a common market, the project deepened in transnational ambition. After 1985, national border controls disappeared for most member states under the Schengen agreement. The Single European Act (1986) mandated qualified majority voting, greater political cooperation, and the harmonization of laws.

In 1989, cascading events ended the Cold War and made a unified Germany the new giant of a “Europe whole and free,” ready to welcome peoples the Iron Curtain had cut off from their Western cultural home. The buoyant mood raised Europe's supra-national ceiling. The Maastricht Treaty (1992) called for an “ever-closer Union” and established state-like institutions—an enhanced Commission, Parliament, and Court of Justice—and new councils to deepen inter-governmental cooperation in foreign, economic and monetary, and judicial affairs. Brussels would be the seat of real power.

But there were hiccups from the people. A Maastricht ratification referendum in Denmark failed and barely passed in France. Britain opted-out of the treaty's social provisions. The treaty was adjusted, but populist pushback from national identity-based parties would only grow.

Aiming for economic and monetary union, the ambitious Maastricht Treaty accelerated the creation of a common currency, the euro, to reinforce European identity beyond the flag, the Beethoven anthem, and vast programs for student exchange. Everyday sharing of the same money would hopefully galvanize the habit of popular loyalty to the whole historic mission.

Alas, the euro, introduced in 1999, required more than faith; it needed fiscal coordination. But the original cautionary deal at the founding of The European Project reserving for national parliaments exclusive powers to tax and spend meant that national leaders seeking re-election would call the shots in light of their respective electoral interests. Undertakings in the treaty stipulated limits to government deficits, but there was inadequate verification or constraint. Few delighted euro-users traveling in the eurozone felt the need to investigate the true debt-to-GDP ratios of participating countries.

“The euro, introduced in 1999, required more than faith; it needed fiscal coordination. But the original cautionary deal at the founding of The European Project reserving for national parliaments exclusive powers to tax and spend meant that national leaders seeking re-election would call the shots in light of their respective electoral interests.”

A “perfect storm” has come to mean a confluence of unexpectedly negative events, producing a worst-case scenario.

In Europe's case, extended economic downturn made the generous European social model unaffordable for state treasuries. Cutbacks to welfare programs were blamed by national politicians on Brussels. Meanwhile,

some euro treasuries increased debt and, in the case of Greece, misreported the numbers.

EU countries that were in principle “zero immigration” began to experience an immigration problem, due to the EU’s obligation to admit from zones of conflict and poverty refugees whom they did not seek and could not screen for cultural adaptability. In consequence, they integrated them poorly, into succeeding generations. Right-wing identity-based parties sprouted in even liberal member states where it was held that Muslim belief would compromise prior hard-fought battles for gender equality and the separation of church and state.

As post-Cold War negotiations proceeded to enlarge the EU, there was self-congratulation that the EU was delivering democracy in a decisive dose, but for applicants, especially from the east, the qualification process to fit into EU rules seemed humiliating. Across the east, the removal of the Communist canopy exposed old nativist and nationalist enmities.

The terrorist attacks in the US on 9/11 2001 changed the world’s habits and preoccupations. EU countries stood with the US in confronting the jihadist enemy in Afghanistan. When the George W. Bush administration, with British backing launched an unnecessary, dishonestly presented, and ultimately disastrous invasion of Iraq in 2003, eastern Europeans who were courting U.S. support for their security from Russia, backed the invasion against the majority of the “old” EU.

Though divided, the EU launched preparation of an ambitious new constitution. But a turgid and elitist drafting process produced a leaden and bureaucratic document that matched the growing image of a top-down Brussels machine. Referenda in the Netherlands and France rejected the constitution, to the satisfaction of populist identity-based right-wing parties opposed to further erosion of national sovereignty. Conflating anti-Brussels sentiment with an anti-immigration message, they added to the growing storm, as

intimidated national politicians competed in anti-Brussels messaging.

Terrorism at home added to insecurity in July 2005 with murderous attacks on the London Underground by British-born Muslims.

Ten new members joined the EU in 2005. Then in 2007, two more joined; Bulgaria and Romania, whose entry signaled “too much change, too fast” to an EU public struggling with harsher new economic realities.

“ Syrian refugees blew the storm into a hurricane. Germany met this crisis with humane leadership. But opposition from new EU members seemingly threatens the historic achievement of a borderless Europe that needs agreement on strong perimeter defence to survive. ”

A perfect storm needs decisive explosive force. The global financial meltdown in 2008 provided it. As unemployment and deficits soared with economic stagnation and rising unemployment, Greece and other “southern” euro members faced default on debt obligations, amid revelations they had been mis-reporting statistics for years.

The deliberate aversion to fiscal union stemming from the EU’s earliest days enabled such cheating, which was especially resented in Germany—compulsively phobic about public probity and currency stability, and by now the EU’s dominant state. Germany insisted on deep and punishing austerity for Greece. Ultimately, a shocked Euro-zone skated around the crisis and began to reform the mechanics essential for a common currency, retaining public confidence in the euro, while Greeks struggled.

As the urgency of that crisis abated, Syrian refugees blew the storm into a hurricane. Germany met this crisis with humane leadership. But opposition from new EU members seemingly threatened by Muslims jeopardizes the historic achievement of a borderless Europe that needs agreement on strong perimeter defence to survive.

Murderous jihadist attacks in Paris and Brussels, again by Europeans, exposed EU security weaknesses, further feeding the storm.

What a time to have to confront an unnecessary UK referendum on EU membership decided on for political expediency. Though the opted-out UK is unaffected by the euro and refugee issues, the “leave” side draws emotional support from a sense of retro-nationalism that Peter Klein hoped to make obsolete. Can the government make the “remain” argument with comparable enthusiasm, pitching the EU as a place where Britain will prosper, rather than relying on a campaign of fear of dire consequences? If so, the UK will remain.

If not, the EU would survive British defection. It’s doubtful that England would enjoy Scotland’s ensuing secession or the loss of UK influence in Europe.

The EU is used to uncharted waters. If it surmounts this mega-storm, the future of a less supranational Union will clarify. It will not be “ever-closer” though its core members will tighten some ties. Outliers will still provoke occasional delusional episodes like the current kerfuffle over North American visas.

Polls show public support for the EU, despite disgruntled easterners. The future rests with millennials, at ease with multiple identities, avid for jobs in a humanized and diverse EU that they call home.

It’s a future where Peter Klein could find peace. **P**

Contributing Writer Jeremy Kinsman was a longtime Canadian ambassador, notably to Russia and the European Union. He is now on the faculty of the University of California, Berkeley, and Ryerson University in Toronto. kinsmanj@shaw.ca

The Other One Per Cent Problem: Using Innovation to Spur Growth

Kevin Lynch

The new normal of moribund global economic growth has provoked an international debate among economists and politicians on how governments should respond. BMO Financial Group Vice Chair Kevin Lynch argues that innovation is the key, and offers policy prescriptions for Canada's new government.

Most of the public attention to the 2016 Budget was focused on the size of the deficit and the weakness of the economy in the near term. Too little attention was paid to where Canadian growth is headed in the decade ahead and what this means for our future living standards and our long-run fiscal stability.

The 2016 Budget projects 1.9 per cent average real GDP growth over the next five years. Looking at our declining productivity and labour force growth rates, sustained growth under 2 per cent is the most likely prospect for Canada in the decades ahead in the absence of policy change. To put this in context, our average growth rate over the 25 years prior to the global finance crisis was 3 per cent. This loss of at least 1 per cent in annual potential growth has enormous consequences if allowed to compound into the future.

This poses the “1 per cent growth problem”: How can we re-invigorate growth through some combination of innovation, immigration, skills upgrading and strategic infrastructure policies to raise Canadian potential growth by 1 per cent annually. Put more concretely, in a \$2 trillion economy, can we design policies capable of raising Canadian GDP by an

additional \$20 billion, not once but each and every year.

One of the potentially transformative policy commitments in this year's budget will not come to fruition until the 2017 budget, and that is the intent to at least partly address our structural growth weaknesses with a comprehensive Innovation Strategy, the quantitative measure of success for which should be a significant contribution to a reduction in our 1 per cent growth gap.

Numbers aside, the latest OECD report, “The Innovation Imperative,” states unequivocally that: “Innovation is a key driver of productivity, growth and wellbeing, and plays an important role in helping address core public policy challenges like health, the environment, food security, education and public sector efficiency. Innovation-led productivity growth will become even more important in the future to address key challenges like ageing populations and climate.” So, certainly for the OECD, it's clear: innovation matters, greatly, for both economic and societal success.

And yet, how well do we understand what drives innovation in Canada, why are we so innovation and productivity challenged, and what can be done to put innovation on steroids

in Canada to seriously help meet the 1 per cent growth challenge?

Someone once quipped that “research is turning money into knowledge, and innovation is turning knowledge back into money.” In other words, research and innovation are not the same thing, and we need to be excellent at both. Moreover, by this somewhat off-beat definition, innovation is all about solving problems that matter to customers, and this requires processes, the “secret sauce of innovation”, that bring “problem identifiers” together with “problem solvers, the innovators.”

Walter Isaacson, drawing on his research for *The Innovators*, argues that most innovation comes out of collaborative processes and teams. Harvard's Clayton Christensen worries that our economies are too orientated to efficiency and sustaining innovations whereas the jackpot is found in disruptive innovations. Bill Sahlman, another Harvard thought leader on innovation, stresses the crucial role of entrepreneurship in the innovation process.

What all innovation experts agree on is that addressing the innovation challenges and opportunities in dynamic, young start-ups is different than how we stimulate more research and innovation in larger, established firms. Again, both are important to overall innovation success. And the solutions may be distant cousins.

A third avenue to greater innovation propensity is attracting innovation-intensive foreign companies to set up research centres in Canada with global product mandates. Google Canada, which has established a research centre in Waterloo with

global mandates, and GM Canada's recent pivot to attract more of the design, development and production of the "smart parts" of the next GM cars to Canada are examples that we should multiply.

The scale and scope of disruptive innovation today is remarkable—it is the combinatorial of multiple new technologies, rather than the diffusion of a single new technology; it is their platform nature, extending across the physical, digital and biological worlds. But the pace of innovation and diffusion is equally incredible. Reaching 50 million consumers—the definition of a mature breakthrough technology or product—took the telephone 75 years, radio 38 years, television 13 years, the internet 4 years, Facebook 3.5 years and Angry Birds 35 days. The challenging question for business, government and educators is: Are we equipped for working, managing, governing, educating and living in an Angry Birds pace-of-change world?

How is Canadian performance on in-

“Reaching 50 million consumers—the definition of a mature breakthrough technology or product—took the telephone 75 years, radio 38 years, television 13 years, the internet 4 years, Facebook 3.5 years and Angry Birds 35 days.”

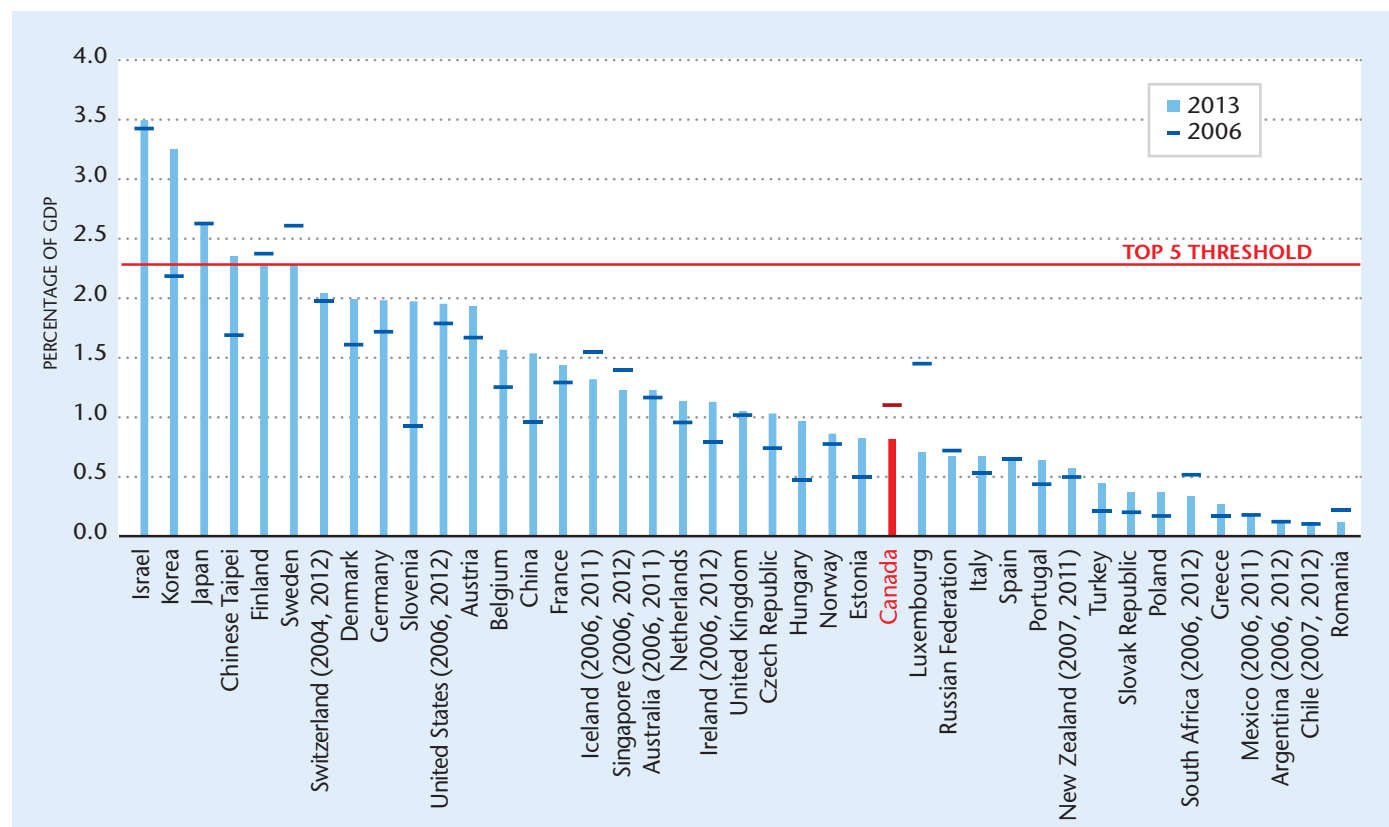
novation and productivity faring in this new environment? The magnitude of our challenge is evident in a cursory examination (see Figure 1) of Canada's ranking on private sector innovation capacity (26th), private sector spending on R&D (26th), science and technology occupations in the workforce (22nd), private sector investment intensity in ICT (13th) and business productivity performance (17th). And, the Canadian results for business spending on research and development are worsening, not strengthening. To state the obvious: we have an innovation problem.

This is despite having a number of strong innovation precursors—a highly educated general population, public investment in R&D in higher edu-

cation (HERD) in the top 10 of OECD countries, very generous research and development tax incentives, competitive corporate taxes (well below the US) and relatively low capital gains taxes (slightly above the US), Canada is an innovation laggard, not a leader among OECD countries.

“the Canadian results for business spending on research and development are worsening, not strengthening. To state the obvious: we have an innovation problem.”

Figure 1: Canada's Business Spending on R&D (BERD)



Source: OECD, Main Science and Technology Indicators, January 2015.

In creating innovation ecosystems, while Canada appears to do “the macro” reasonably well, we come up well short on “the micro.” According to the OECD, as important as it is to get the “macro conditions” right, it is not a sufficient condition for sustained innovation success. To be clear: there is no silver bullet for innovation, no elusive tax incentive, no reclusive venture capitalist, no single government program that can turn on the innovation spigot.

But there is much that is missing in our innovation ecosystems: there is no national innovation strategy; there is inadequate competition in many sectors; there is a lack of a global orientation in most SMEs; there is little focus on entrepreneurship in our education institutions; and, there is a large and static gap in most sectors between the best-in-class innovation-intensive firms and the class average.

So what can be done? Let’s start with government. According to the OECD, based on extensive cross-country and cross-sector research, government should concentrate its innovation support in four areas:

1. Sound governance and an open and competitive business environment—One that encourages investments in new technologies, one that does not favour incumbents as this reduces innovation, one that encourages experimentation with new business models, and one that supports risk management, not risk aversion. This means getting the business environment and its incentives right for an economy that requires innovation to grow.

2. Effective skills strategies—Innovation depends on human talent with the technical knowledge, the flexible skills and the entrepreneurship culture to generate new ideas—new ways of doing old things. This means rethinking our traditional educational models to prepare people for the jobs of tomorrow,

and rethinking our approach to attracting the world’s best talent as part of becoming an innovation nation.

3. Public investment in an efficient system of both knowledge creation and its diffusion—

Publicly financed basic research has been at the root of most of today’s disruptive technologies and, if Canada wants to play, it has to pay for basic research. But, as research by the U.S. National Academies demonstrates, knowledge diffusion also requires business investments in applied research and innovation. This means a public toolkit where government provides support to basic research and also assists applied research-diffusion in the private sector.

The current Canadian innovation support model relies more on passive, tax-based assistance than almost any other country, with very disappointing results (Figure 1). In contrast, the OECD recommends that: “Support for business innovation should be well-balanced and not overly rely on tax incentives,” where “well designed, competitive grants complement tax incentives, can be better suited to the needs of young innovative firms, and can also be focused on areas that have the highest impact.”

4. Access to, and participation in, the digital economy—Innovation and digital technologies go hand in hand, whether it is big data or machine learning or cloud computing. Algorithms have been described as the weapons of the digital age, and data the ammunition. This means an open Internet, high-speed networks, modern data infrastructure and structures to address privacy and security risks.

The pivotal question to help meet the 1 per cent growth problem through innovation is: can we build Canadian ecosystems of the density found in Silicon Valley or Boston and at the

same time move well up the value-added curve through innovation in what we manufacture, what we harvest and what we extract rather than being a commodity producer?

The answer is that we have most of the ingredients for innovation success in Canada but we seemingly lack the recipe and the chefs. We also suffer from a measure of complacency, partly a hangover from the commodity super-cycle, and a tinge of short-termism, neither of which breeds a culture of long-term investment and innovation.

Building upon the OECD core prescriptions, what more must we do to stimulate innovation in Canada in a non-linear rather than incremental fashion, and do so consistent with the speed of change inherent in the Fourth Industrial Revolution? While recognizing that the impediments to innovation do not lie solely or even predominantly within the purview of governments, government can play a key role in shaping an innovation strategy for Canada, in convening and aligning the private sector, investors, capital markets and educational institutions around this strategy, and in catalyzing change.

Elsewhere, Communitech CEO Iain Klugman and I have written about the importance of building one or several Canadian innovation ecosystems that have the density capable of driving our national growth and productivity. It requires an incredibly intensive interplay among world-class university research, targeted government support for technology development, industry-led R&D, venture capital and astute early adapters of the new technologies and innovative products and services.

Perhaps most importantly, it requires the political will to concentrate resources to build world-class and world-scale innovation centres for the national interest, rather than sprinkle subscale resources hither and yon. Features of such an innovation ecosystem (Figure 2) would include:

Figure 2: Innovation Super Ecosystems

REALITY: SILOS	OPPORTUNITY: SUPER-CONNECTIVITY
<ul style="list-style-type: none"> ✗ Under-connected research universities ✗ Inadequate connectivity (speed of networks, data infrastructure, transport links) ✗ Subscale ecosystems, poorly linked ✗ Missing critical mass ✗ Access to risk capital limited, few IPOs, exits ✗ Local market not global orientation 	<ul style="list-style-type: none"> ✓ Networked research universities in key faculties ✓ High speed connectivity (high speed networks, excellent data infrastructure, good transport links) ✓ Critical mass of tech talent and population ✓ First mover supports: more risk capital, more IPOs, more exits, more strategic procurement ✓ Global mindset, global networks, global competition, global talent

- Innovation supercentres with the critical mass, depth of talent, richness of ideas and access to markets with discerning customers to compete for global talent, global venture capital and global research facilities. The Toronto-Waterloo Innovation Corridor concept is Canada's best opportunity to compete with the likes of Silicon Valley, New York, Boston, London-Cambridge and Tel Aviv-Haifa to name a few.

- A civilian DARPA (Defense Advanced Research Projects Agency) technology vehicle to support the applied research and development of new transformative technologies with possible commercial applications as part of the rebalancing of our business assistance for research and innovation away from an excessive reliance on passive tax support.

- A strategic innovation procurement program by governments that would break through the inherent risk aversion in government procurement that both penalizes young innovative firms and saddles governments with mediocre technologies. Without early markets for their new products at home, start-ups and their investors will relocate elsewhere. Without the capacity to scale-up quickly, start-ups will sell out early and Canada misses

out on spawning “unicorns”. The same challenge of risk aversion in procurement exists in large established firms and institutions throughout Canada, and these private sector behaviours equally make Canada a less attractive spot to scale up an innovative start-up.

“The Toronto-Waterloo Innovation Corridor concept is Canada's best opportunity to compete with the likes of Silicon Valley, New York, Boston, London-Cambridge and Tel Aviv-Haifa to name a few.”

- A re-orienting of government support to SMEs towards firms that are trade-focused, invested in technology and innovation, and engaged in ongoing worker re-skilling. These filters were suggested by the Jobs and Prosperity Council of Ontario to prioritize limited government support to firms with the greatest chance of sustained growth. We need new SMEs to develop new products and new markets. IRAP would be a good candidate for

these filters at the federal level.

- A data-driven innovation initiative that recognizes the crucial role that the “platform” aspect of big data and data analytics plays in driving innovation, new products and productivity in many sectors. A possible area of Canadian focus could be “Govtech”, which would utilize many of the same platform technologies and big data smart analytics as Fintech but applied to government operations, and would have a global market.
- A specific focus on new markets through trade agreements and trade promotion, and on attracting global leaders in high tech to establish research centres and talent hubs in Canada with global mandates.

Finally, all of this has to be anchored in the reality of a world facing disruptive change: across countries, sectors and traditional business models and skill sets.

Innovation must play a major role in meeting our growth challenge, but can only do so if we are willing to go big in ambition, go bold in measures and go deep in critical mass.

Go big. Go bold. Go deep. Go innovation, Canada. **P**

Contributing Writer Kevin Lynch is Vice Chair, BMO Financial Group, and former Clerk of the Privy Council.



Prime Minister Trudeau talks to Toronto area families about how they will benefit with Canada's Child Benefit implemented in Budget 2016.
Adam Scotti photo

Tackling Inequality: The Under-Explored GAI Option

Patrick Gossage

Since the 2008 collapse of the global financial system and the subsequent popular blowback—manifested in the Occupy Wall Street movement—against unfettered wealth, the problem of inequality has become part of the political lexicon with the term “One per cent.” Veteran Liberal strategist Patrick Gossage says the Trudeau government’s budget does not go far enough in addressing the problem.

The 2016 Federal Budget speech was not very forthcoming on one of the overriding issues of our era—continuing high levels of poverty and inequality in modern Western societies.

Barack Obama, in his last State of the Union address, was direct on the issue. He said that the world is in the midst of extraordinary change that is reshaping the way people live that can either “broaden opportunity or widen inequality.” As he had previously, he named inequality as the first of four “big questions” facing the country.

The Liberal government in its 2016 budget could be seen to be agreeing with this basic analysis, but took baby steps in addressing it. The new Canadian Child Benefit is touted as lifting 300,000 families out of poverty. The

generous non-taxable cheques for up to \$6,400 per child for a family with income under \$30,000 will make a huge difference. The rich will pay more taxes, the middle class less—a constant theme in the election. (As Pierre Trudeau's finance minister, Allan MacEachen once said, "We don't need the bankers' vote!")

But it remains to be seen if the overall impact of an "investment" budget, while demonstrably helping the target of the budget—the middle class, will indeed help families working hard to join it. In some respects, we will have to trust the new government to achieve its stated goal: "The investments in Budget 2016 help to extend opportunities to more Canadians, and will help to build a healthier, more creative, more generous and *more just Canada*". Justin Trudeau's father's "just society" updated.

Poverty advocates have been modestly pleased with the changes, and it would appear that Ottawa will try and persuade the provinces not to end social assistance for the poor on the basis of the new income from the CCB.

However, the clouds of a growingly unequal society will not be blown away by this budget. Dystopian predictions will continue, like this one in the *London Review of Books* in February:

Nick Hanauer, an American entrepreneur and multibillionaire, who in a TED talk in 2014 confessed to living a life that the rest of us "can't even imagine," said, "What do I see in our future today you ask? I see pitchforks, as in angry mobs with pitchforks, because while ... plutocrats are living beyond the dreams of avarice, the other 99 per cent of our fellow citizens are falling farther and farther behind."

How soon we forget the "Occupy" movement. The Canadian, anti-consumerist, pro-environment group/magazine *Adbusters* initiated the call for a protest on Wall Street and it quickly spread to 81 countries. It dramatically focused the world's attention on income disparity in modern capitalist societies. The 2008 Wall Street bank crisis and subsequent rescues was the trigger and shone a

“Simply put, poverty, at its most basic level, is about having too little money. It is almost intuitive to solve this by simply giving poor people more. That is what a basic income for all is about.”

spotlight on the unfairness of a system in which affluent bankers were bailed out whereas ordinary folk lost their houses and jobs. In Canada, giant compensation for bank executives still fuels the 99 per cent fire, as do recent revelations of how the rich move assets offshore.

Noam Chomsky wrote in 2013: "The idea of the 1 per cent and the 99 per cent has become common. The Occupy movement succeeded in tapping attitudes and understandings that have been hidden below the surface. It brought them out. It exploded. Occupy lit a spark, and it has changed the substance and tone of national discourse on crucial issues."

Canada does not escape the curse of inequality: Canada still gets a "C" grade and ranks 12th out of 17 peer countries. The top 20 per cent of Canadians now account for 70 per cent of the total wealth in this country. New Statistics Canada data show a deeply unequal Canada in which wealth is concentrated heavily in the top 10 per cent while the bottom 10 per cent hold more debts than assets. This is staggering.

The lasting power of these damning analyses of the rich getting richer and the poor getting poorer has recently provoked a revived interest in a holistic solution—the Guaranteed Annual Income (GAI).

Simply put, poverty, at its most basic level, is about having too little money. It is almost intuitive to solve this by simply giving poor people more. That is what a basic income for all is about. Admittedly, this budget takes a stab at that.

Ironically, Pierre Trudeau joined with Manitoba in 1974 to mount the most extensive study of GAIs ever. It was called *Mincome*. The project was cut short in 1979 without much analysis.

Ten thousand residents of Dauphin, Manitoba took part. Evelyn Forget of

the University of Manitoba recently unearthed and finally analyzed the data. She found very positive results. Among these, hospital and family doctor visits plummeting by 8.5 per cent compared to a nearby town, and a high-school graduation rate among teenage boys increasing significantly. GAI works.

There has been GAI noise in many jurisdictions. Ontario announced a pilot project in its last budget. There is action in several European nations. Finland will launch a GAI experiment in 2017, and the Dutch city of Utrecht began a GAI project in January. Swiss voters will go to the polls in June to vote on a generous GAI that would give 2,500 Swiss francs (C\$3,350) a month to every citizen.

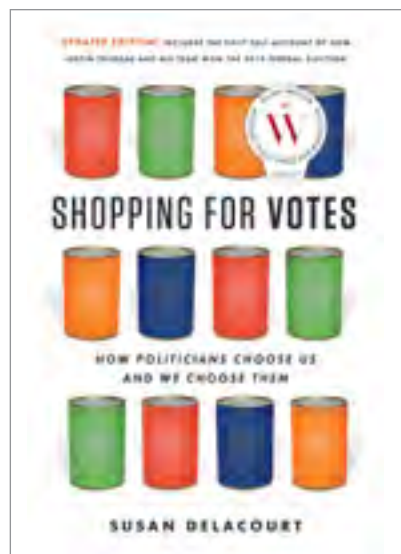
GAI's future under this government is clouded, even if Jean-Yves Duclos, federal minister of families, children and social development, has shown interest, and has a mandate to come up with a Canadian poverty-reduction strategy.

Conservative finance critic Lisa Raitt—a potential leadership candidate, has expressed interest. Imagine GAI as part of a Conservative platform. Several mayors, including Calgary's popular Naheed Nenshi, support the idea. But it would appear the Liberals have gone as far as they are going to in directly addressing inequality.

Folding all manner of social support programs—federal, provincial and even municipal into one basic income plan would be a monster undertaking. The current government has enough grand reforms on its plate to make this an early priority. But the public's gnawing concern about income inequality will not go away. **P**

Patrick Gossage, founding chairman of Media Profile, was press secretary to Pierre Trudeau and author of Close to the Charisma.
patrick.gossage@mediaprofile.com

Spring List



It Wasn't the Hair: How Canadians Chose Trudeau

Susan Delacourt

Shopping for Votes: How Politicians Choose Us and We Choose Them, 2nd edition. Toronto: Douglas & McIntyre, 2016.

Review by Geoff Norquay

Originally published in 2013, Susan Delacourt's *Shopping for Votes: How Politicians Choose Us and We Choose Them*, was a tour de force on how Canadian political parties have adopted the principles of advertising and marketing to change the relationship between themselves and voters.

Over the past 50 years, this process has gradually transformed voters into consumers and political parties into shoppers, in which the parties have come to know so much about voters, their views and preferences that they can create policies for niche sectors of the populace and market directly and effectively to them.

Stephen Harper and his advisers perfected and rode this approach to nine years of Conservative rule, but in October 2015, Canadians opted decisively for a different political brand, Justin Trudeau's, and Delacourt has added two new chapters on the 2015 federal election to explain how this happened.

That's the starting point for Delacourt's new material, which begins with the challenges faced by the Trudeau team as election 2015 began. These included a party firmly in third place and a leader being pilloried in the effective "just not ready" Tory job interview TV ad—the one that ended with the mocking line "nice hair, though."

As Delacourt describes, when Trudeau and his team took over the leadership of the Liberal Party in 2013, they found an institution that was virtually flying blind, with no voter data or analytical capability. In contrast, by election day in 2015, Liberal volunteers had knocked on more than 12 million doors across the country, delivering a gold mine of data to the party's Console system.

What happened in between was that campaign chair Katie Telford poked and prodded the party into developing both the data and the sophisticated analytics necessary to enable voter knowledge and social media to drive the leader's message delivery.

As the campaign began, the Liberals also quickly recognized that the traditional niche approach would not work for them, that they needed to cast their net much more widely. As Dan Arnold, the Liberal loyalist running their data and digital strategy told Delacourt, "...we needed a much broader message, something that would appeal to most Canadians. We also had a much larger pool of people who were open to the Liberals."

This latter point is key, because it was Stephen Harper's special gift to the Liberals. Harper had not only been elected through niche campaigning, but it had also guided the way he governed. First came the boutique tax credits, followed by a number of "dog whistle" initiatives on crime, national security, citizenship and the environment.

The problem was that this approach created a zero sum result: the more

Harper appealed to the niches that made up his base, the more he alienated large swaths of the electorate, which in turn created the significant appetite for change that was the principal backdrop for the 2015 election. This set the table for the Liberals to broaden their appeal and prospect in the much larger pool of voters willing to consider the Liberal alternative.

As Delacourt describes, it wasn't just the decision to choose broad casting over narrow casting that gave the Liberals their electoral success in 2015; it was also the huge success of their digital outreach program.

Their data and analytics ultimately enabled them to target broad societal groups with particular policy interests and predispositions: those who would benefit from urban transit investments, the middle class tax cut and the Canada Child Benefit. And their outreach on Facebook stretched ultimately to about 13 million voters—up to four million on a single day.

By far the most interesting insights in this expanded edition come from Delacourt's interview with Prime Minister Trudeau following the election. Noting that "No prime minister in 21st century politics can afford to be indifferent to the art of imagery and the science of data-driven campaigning," she argues that in a digital age, the potential to be both a consumer *and* a producer of images becomes possible.

Trudeau seized this challenge.

Armed with his unique appreciation of the importance of the data, he took Harper's studied image as prime minister—as the loner alone working late in a shadowed PMO and turning off the lights when he went home—and turned it into the sharp contrast of a leader eager to engage in the bright sunlight with new and risky ideas, building out instead of retreating inward, and ready to take Canadians on a path they were more than ready to take.

Nice hair though, indeed. **P**

Contributing Writer Geoff Norquay is a principal of Earncliffe Strategy Group. geoff@earncliffe.ca

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Ottawa ↔ Québec	2	482 km	5 h 23 min	4 h 39 min	488 \$	44 \$ ¹	444 \$
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