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Canadian Energy Security in an Age of Existential Threat

by Joseph Ingram

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POLICY PERSPECTIVE

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In a publication earlier this year, I laid out the stark choice facing governments in Canada. A choice between following the pleas of climate activists or advocates of fossil fuel corporate interests. Since that publication, circumstances have sharpened the battle lines as the threats facing us have intensified. As this paper will argue, tomorrow's assumed security blanket – being among the world's top producers of crude oil, natural gas and coal – has itself become the primary threat to energy security in Canada.[1] If it is to address the existential threat posed by climate change, the Government of Canada must adopt a coherent national strategy that accelerates trade diversification, funds research and development for renewable alternative energy, incentivizes reduced energy consumption through increased energy efficiency, and mobilize itself and the Canadian public for addressing the extraordinary and rapidly growing threat of climate change.

The Canaries in the Coal Mine

The prospect of a second wave of COVID-19 (and its attendant impact on the planet's economic and social welfare) looms ominously in the upcoming flu season. However, this summer's record heat in North America, Europe, Africa, the Middle East, Australasia and the polar caps (2019 was the second hottest year on record) should give us even deeper cause for concern. In May of this year, sensors in Hawaii measured an atmosphere of 417 parts per million CO_2, "higher than anything in at least the last 3 million years"[2] and significantly higher than the 315 parts per million in 1958. Moreover, in the last few weeks, the highest temperature ever recorded – 54°C – in the Middle East, was exceeded in Death Valley, California where the temperature reached a sizzling 54.4°C. Meanwhile, wildfires consume large swaths of forest and whole communities in the Western U.S. Indeed, this year dozens of heat records have been broken in North America, the Middle East and parts of Asia and Africa. In June of this year, the Arctic recorded a record high of 38°C. And as Lynas has pointed out, all of this is happening on a planet where the global average temperature has risen by only 1°C above its level before the Industrial Revolution.

In Paris in 2015, governments agreed it was imperative to keep the rise in the Earth's temperature to no more than 2°C, and preferably below the 1.5° considered a tipping point beyond which irreversible damage could threaten the liveability of large parts of our planet. Unfortunately, subsequent studies which incorporate the costs that radical transformation of our economic, social and consumption patterns will require – costs reflected in the commitments signatories made to the 2015 Climate Accords – reveal a temperature rise of about 3.5°C later this century. Other scientists are predicting an average temperature rise of more than 4°. A study on the impact of the heating of tropical soils, published in the journal *Nature* this month, has added weight to the concerns of the more pessimistic. The study suggests that the release of greenhouse gases (GHGs) from tropical soil would increase almost exponentially, substantially undervaluing

[1] According to Natural Resources Canada's Energy Factbook, in 2017 Canada was the fourth largest global producer of crude oil and natural gas and the 13th largest coal producer.
[2] Mark Lynas, *Our Final Warning: Six Degrees of Climate Emergency* (London: 4th Estate, 2020).

emission estimates to date.[3] Such an increase in the average global temperature would dramatically affect human civilization as we know it.

Indeed, in an econometric study published early this year in the *Climate, Disaster and Development Journal*, evidence accumulated in 155 countries over the last 46 years clearly connects climate change with a significant increase in the frequency and intensity of hydrometeorological disasters,[4] a reality being felt in virtually every part of the planet today. Therefore, this requires a massive and high-speed shift away from the use of carbon-emitting energy. As the economist Martin Wolf has put it, "We must move beyond them almost completely."

The Security Blanket

So where does this place Canada? In 2019, over 60 per cent of the energy we produced was from fossil fuels (oil, gas and coal)[5], producing over 81 per cent of Canada's GHG emissions and leaving Canada in 2017 as the third highest contributor per capita of CO_2 emissions.[6] In fact, between 2000 and 2017, Canadian GHG emissions from oil and gas production increased 23 per cent because of a 46 per cent increase in production, largely from the oilsands.[7] As a 2010 federal government report described the situation, on the face of it we would appear to be in a secure position in terms of energy supply. Rich in our diversity of sources, both renewable and non-renewable, Canada is the sixth largest producer of primary energy with three per cent of global production, and is among the top five exporters of crude oil, natural gas, uranium and electricity. In addition, the report cited market transparency, continued investment in energy, our impact on the environment and favourable geopolitics as elements contributing to our energy security. Only energy intensity was then considered a "negative".

In projecting forward to 2030, the report concluded that every constituent component of our energy security would by then be either "positive" or "neutral". Certainly a reassuring picture, subsequently endorsed by a 2017 paper from Petra Dolata of the University of Calgary that proposed Canada use LNG as the prime energy source bridging the gradual shift to a carbon-free economy. The problem with this more gradual approach is that today, a decade before 2030, key components of our security – as defined by the government of Canada's report – have become "negative", threatening both Canadian and global efforts to rapidly reduce fossil fuel dependence.

[3] Gabriel Popkin, "Global Warming Could Unlock Carbon from Tropical Soil," *New York Times*, August 12, 2020.
[4] Ramon E. Lopez, Vinod Thomas and Pablo A. Troncoso, "Impacts of Carbon Dioxide Emissions on Global Intense Hydrometeorological Disasters," *Climate, Disaster and Development Journal*, Vol. 4, Issue 1, January 2020.
[5] "Energy and GHGs," *Canada's Energy Fact Book*, Natural Resources Canada, 2019.
[6] "Each Country's Share of CO2 Emissions", Union of Concerned Scientists, May 11, 2020.
[7] "Energy and GHGs," *Canada's Energy Fact Book*, Natural Resources Canada, 2019.

A False Sense of Security

With respect to our energy mix, although some 80 per cent of our electricity comes from carbon-free sources (hydro, nuclear and other renewables), 61 per cent of the energy we produce is carbon emitting and only 3.5 per cent is from wind, solar and waste.[8] Europe has recently issued a Hydrogen Strategy for a Climate Neutral Europe, backed by robust research and development funding to commercialize the use of electrolysers. However, the Canadian report makes no mention of hydrogen as a potential energy source. Though the federal government pledged to double public investment in clean energy[9] R&D to $775 million by 2020, this amount pales in comparison to the European Union's €5.9 billion for clean energy research and innovation under their Horizon 2020, a program that is also intended to lay the basis for tens of thousands of new jobs in the clean energy sector.

In addition, the Canadian report estimated that today, in 2020, some 15 per cent of our electricity generation infrastructure would be over 40 years old and require upgrading or replacement if it were to keep pace with growing demand. Yet in 2018, capital expenditures in Canada's energy sector were 38 per cent lower than their peak in 2014 at $73 billion, with oil and gas extraction constituting the largest share of new investment at almost $37 billion.[10] The report – almost wilfully ignoring the threat from climate change – projected a continued rise in the price of oil, thereby rendering a picture of Canada's future oil production as highly profitable. In fact, the contrary has happened with the current price of Brent crude now down to $40 per barrel, well below the level that would make much of Canadian production economically viable. As recently reported, "In Canada, only 42% of reserves can be produced with Brent at $60 a barrel, a share that falls to 16% at $40. The energy needed to extract and refine Canada's thick bitumen makes its oil sands even less appealing."

Canada's Achilles' Heel

At the same time, both investors and oil and gas firms globally are divesting themselves of oil and gas assets with many of the majors selling billions of dollars in resources. The world has entered an era of low oil prices – thanks to both oversupply in the short term and falling demand in the longer term regarding long term demand projection). *The Economist* calls this an era in which we are seeing "a collapse of the petrostates." The paradox is that today, Canada's continued dependence on fossil fuels has become a significant threat to our energy security.

Adding to this asymmetry in the exploitation of our resources is the very real risk that our principal trading partner, the U.S., under President Donald Trump, is no longer the secure trading partner it has been. We export over 90 per cent of our oil and gas to the U.S., constituting almost

[8] "Energy and GHGs," *Canada's Energy Fact Book*, Natural Resources Canada, 2019.
[9] Clean energy is defined as energy derived from renewable, zero-GHG emissions sources, as well as energy saved through energy efficiency measures.
[10] Ibid.

25 per cent of our total goods exports.[11] With some 18 per cent of its oil and gas imported from Canada in 2018, and with fracking and "America First" as its driving impulses, the U.S.'s threats to shut down pipelines between the U.S. and Canada reveal just how much wishful thinking prevailed in the government of Canada's 2010 Energy Security report. In its discussion of "energy security through free trade", the report blithely concluded that "… the status quo will remain and Canadian energy exports will overwhelmingly find a reliable market in the United States." Today, with those threats to close down key pipelines between the two countries – which would be critical, for example, to the economic health of the city of Sarnia – that very security of trade is evaporating, leaving vulnerable those parts of Canada that rely on imports of oil and gas. This is not even to speak of U.S. tariffs on the imports of Canadian aluminum and steel, ostensibly to protect American security.

With the current energy mix contributing over 10 per cent to Canada's GDP, 11 per cent of all operating revenues earned by industries in Canada, around eight per cent of all industrial tax revenues and almost 850,000 jobs nationally, our energy security no longer justifies the complacency expressed in those earlier government assessments.[12] Today, we are facing the stark consequences of past failures to diversify both our trade and consumption patterns as well as the policy instruments and sources of growth that have driven the Canadian economy through the last century and into the 21st. Much as in the case of COVID-19, however, we risk framing our policy dilemma as a binary choice between investing in our planet's liveability versus the economic and energy stability we have benefited from until now. It is not, however, quite that simple.

A Clear Path to Security

Indeed, the federal government's 2018 Generation Energy Council Report, which based its conclusions on the views of 380,000 Canadians, concludes that Canada requires an unprecedented transition in how and from where we source our energy, a transition numerous international experts and political leaders have equated in its magnitude with the Industrial Revolution. The difference, however, is that unlike that transition, this one is not impelled by economic or mercantilist impulses, but rather by an existential threat. It cannot be left to the same market forces that got us here in the first place to drive the transition at a pace determined by private financial and industrial interests.[13] Globally, the approach is changing, with the major reinsurance companies paying out larger cheques as a result of the massive costs generated by more frequent and severe weather events. Many of the oil and gas giants, such as BP, are beginning to realize that their business model must support sustainability if they do not want to end up as the dinosaurs of our age. However, in Canada we are not yet at that point. A lack of consensus between the federal and provincial governments on both the pace and the policy content of the transition is causing us to fall behind. Rather than a leader we are a laggard.

[11] NRCAN Energy Fact Book, 2019-20.
[12] Ibid.
[13] Derek Burney and Fen Osler Hampson, *Braver Canada: Shaping Our Destiny in a Precarious World* (Montreal and Kingston: McGill-Queen's University Press, 2020).

As in the case of the current pandemic, we need an all-in government effort driven by science, expert knowledge and best practices. Rather than the leisurely transition over the next two decades suggested by the federal government's 2018 Generation Energy report, the latest data on climate change make it abundantly clear that we require an accelerated shake-up of today's energy mix that ensures we retain affordable and reliable sources, devoid of GHG emissions. This will necessarily mean stranding oil, gas and coal assets, as well as a short bridge to non-GHG emitting technologies. It will also require that Canadians, as people are doing in parts of Europe and Asia, create a more resilient economy by reducing energy consumption with appropriate investments in new and more efficient transport modes, as well as revised building codes and energy-efficient heating\cooling systems. These developments would not only generate tens of thousands of well-paying jobs, but would also attract from international investors the currently available and affordable financial capital.

All levels of government will need to ensure that the financial incentives and disincentives are in place to make this happen sooner rather than later. This would include transferring the substantial fiscal subsidies currently extended directly to the oil and gas industry instead to labour-intensive R&D activities in renewable energy, including carbon capture and sequestration, and hydrogen. Those subsidies were estimated in 2016 to be $6.3 billion annually, which is the second highest level per unit of GDP among the G7 countries. Embracing an industrial policy that supports Canadian companies which have both the high-tech engineering and systems management skills – such as the aerospace sector – pursuing research and development into alternative energy sources would be a start as would rethinking how we distribute renewable energy, including hydro, between Eastern and Western Canada. When one considers that according to the International Monetary Fund, Canada's post-tax subsidy to the fossil fuel industry from both public and private sources in 2015-16 was estimated at $43 billion, equivalent to about 20 per cent of the 2015 federal budget,[14] such a shift in resources is not only doable, but would be highly effective in inducing fossil fuel energy companies to switch more readily to the production of clean energy.

In doing so, we would be able to meet, with minimal disruption, the International Energy Agency's definition of energy security as "... the uninterrupted physical availability of energy, at a price which is affordable, while respecting environmental concerns". We would be aided by the fact that Canada theoretically is in a position of being able to make this transition without excessive short-term cost to the overall economy. If governments have the political will – and it is a big if – they must adopt a coherent national strategy that has at its core, accelerated trade diversification, massive government funding for R&D into renewable alternatives using public resources diverted from fossil fuel subsidies, and a science-driven energy strategy that addresses immediately and head-on the existential threat that climate change poses. Indeed, there is no other viable choice.

[14] "Global Fuel Subsidies Remain Large", IMF Working Paper, WP\19\89, May 2019.

About the Author

Joseph Ingram *currently serves as Chairman of Capitalis Partners, a South African based private equity group structuring investments in alternative energy and biotech in southern Africa. He is also an Expert-Advisor with the Global Growth Dialogue, a U.S.-based group of prominent economists and senior public officials dedicated to identifying best-policy options to sustain more inclusive and sustainable growth. He has advised the Government of Canada on a number of policy initiatives related to the western Balkans.*

In 2006 Mr. Ingram retired from a thirty year career at the World Bank, where he served in a variety of senior management positions in Nigeria, Cameroon, Bosnia and Herzegovina and Washington DC, and from 2003-2006 as The World Bank Special Representative to the UN and the World Trade Organization (WTO) in Geneva. During this period, Mr. Ingram represented the Bank on the UN Human Rights Council and was a member of the Global Task Force on the Right to Development. For a number of years he also served as Deputy Director of The World Bank Institute.

From 2010-2013, Mr. Ingram served as President/CEO of The North-South Institute (NSI) in Ottawa. Prior to joining NSI Mr. Ingram worked on behalf of CIDA and the World Trade Organisation as Senior Advisor to the Integrated Framework Program on Trade Facilitation in Francophone Africa and the Middle East. During the same period he also served as a consultant on human rights issues for the World Bank and for the Office of the UN High Commissioner for Human Rights. His work has focused on international trade, growth and employment issues, fragile states and structural reform, post-conflict reconstruction and development, human rights and public health. He has published numerous articles and scholarly papers on issues relating to post conflict development and counter insurgency in Afghanistan, as well as on global development and Canadian foreign and development policy. He has testified before the United States Senate Committee dealing with international development and U.S. commerce and before Canada's House of Commons Standing Committee on Foreign Affairs and Development. Mr. Ingram was recently named a 2020 Fellow of the Canadian Global Affairs Institute. He is a regular contributor to iPolitics and to The Hill Times.

Canadian Global Affairs Institute

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