


The Post-COVID-19 Economy: Financing Canada's Leadership in Sustainable Energy

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The current federal government returned to deficit spending while the economy was still expanding, which reduced the available fiscal capacity when the COVID-19 pandemic began. With interest rates already near historic lows, current monetary capacity to stimulate the economy is also diminished. Yet while no serious voice would suggest the government stop its current efforts to sustain the economy, the politicians and policy makers who will be tasked with addressing Canada's future fiscal situation likely have not yet begun their careers.

Conventional wisdom would suggest that government budgets should alternate with economic cycles: surpluses during economic expansions and deficits during contractions. In the past, deviations from this approach have led to subsequent fiscal challenges for Canada; profligate federal and provincial spending through the 1970s and into the early 1990s led to debt in excess of 100 percent of GDP and necessitated significant spending cuts in the mid-1990s to reduce the debt and associated servicing costs.¹ The current federal government returned to deficit spending while the economy was still expanding, which reduced the available fiscal capacity when the COVID-19 pandemic began. With interest rates already near historic lows,² current monetary capacity to stimulate the economy is also diminished. Yet while no serious voice would suggest the government stop its current efforts to sustain the economy, the politicians and policy makers who will be tasked with addressing Canada's future fiscal situation likely have not yet begun their careers.

The longer the lockdown and physical distancing measures with the associated economic disruption continue, the more intractable the challenge for the revival of the economy. The impasse is significantly different from previous shocks and bubbles in that it is not credit-, asset- or commodity-driven. Rather, it bears similarities to the cascading northeast electricity blackout of 2003, in the scope and scale of the disruption across that region of North America, although that disruption lasted only two days. If the economy were a train, it was brought to a halt through the month of March, and while financial markets may rebound quickly through monetary policy and fiscal infusions, it may take much longer for the momentum to return and for small businesses and households to recover confidence. In early April, it was reported that the federal deficit would reach \$184 billion,³ and that Canada's largest six lenders had processed mortgage deferrals on 10 percent of their portfolios.⁴ The toll this pandemic will take on public finances and prospects for economic growth is not yet clear.

In this context we ask: is there an opportunity for Canada to pivot to a low-carbon energy economy? What creative approaches and financing mechanisms should be considered to support a concrete plan to evolve Canada's post-COVID-19 economy to a leadership position by developing a clean energy sector that is also in compliance with the government's commitments to reduce carbon emissions under the Paris Agreement and — better still — to meet our aspirational targets?

Acknowledging the Failures

The scientific consensus is clear: climate change is undermining the ecological systems on which all forms of life depend, as well as our social and economic well-being. COVID-19 has been an unwelcome intrusion in our lives; the climate threat will remain central to the debate on how to sustain economic growth without undermining the bio-physical environment. Addressing the climate threat requires a far-

¹ Gordon Thiessen, "[Canada's Economic Future: What Have We Learned from the 1990s?](#)" Remarks to the Canadian Club of Toronto, January 22, 2001.

² "[Canada Interest Rate, 1990-2020 Data.](#)" *Trading Economics*, April 15, 2020.

³ Jesse Snyder, "[COVID-19: Federal deficit projected to reach \\$184B as economic response rolled out.](#)" *National Post*, April 9, 2020.

⁴ Erica Alini, "[Half a million Canadians getting COVID-19 mortgage deferrals: report.](#)" *Global News*, April 3, 2020.

reaching consideration of the value we place on land, natural resources and the existing and emerging industrial infrastructure systems integral to economic activity. We need to build in resilience to ensure we don't get caught flat-footed yet again because we ignored early warning signals.

The carbon-tax versus cap-and-trade debate is an intellectual trap that has drawn needless political heat, including court challenges from provinces unhappy with carbon taxes. A simple, honest question needs to be asked and answered: can relying solely on a price signal address the challenge of climate change mitigation on a massive scale?

For a problem of such a magnitude and national importance, we have allowed ourselves to be imprisoned within a narrow frame of discussion. One dominant view — i.e., “Give me a price on carbon, and the market will yield the right results” — is not the whole story. This view is both correct and incorrect: the evidence on what has been achieved through carbon pricing shows mixed results, if not outright failure.⁵ We need to challenge the efficacy of the two pricing instruments,⁶ even as we move the discussion to additional, complementary measures that could prove helpful. If we are to gain broad social acceptance for the cost obligations of climate mitigation, we need to pay much more attention to the consequential, but unequal, impacts on different segments of society.

We need to expand the range of policy options available to governments.

Mechanisms to Invest

Beyond the context of the immediate “hyper-urgency” of the COVID-19 crisis, the need remains for actions and commitments now to avoid locking today's fiscal capacity into a business-as-usual oil and gas dependency. We identify a number of options to enable an energy transition for Canada.

Several options exist for the government to revive the economy. We might take lessons from policies enacted during the New Deal of the 1930s. The Reconstruction Finance Corporation⁷ is one example of a

⁵ For example, a report by the International Monetary Fund is critical of cap-and-trade for having delivered, at its best, approximately \$2/tonne of carbon dioxide mitigation. See Ian Parry, [“Putting a Price on Pollution.”](#) *Finance & Development*, 56(4), December 2019, 16–19. The evidence from the European Emissions Trading Scheme is, again, less than convincing. See Carbon Tracker Initiative, [“Carbon Clampdown: Closing the Gap to a Paris-compliant EU-ETS.”](#) Carbon Tracker Initiative, April 25, 2018. A carbon tax has clarity and is an administratively simple approach, except it runs up against the challenges of social and political acceptability. The economic models lead some to argue that a \$200 to \$300/tonne tax on carbon would be necessary for rapid mitigation — which may be arithmetically correct, but politically “dead-on-arrival.”

⁶ In France, beginning in late 2018, a small tax increase on diesel — that had inequitable impacts on a small group (i.e., truck drivers struggling to make a living) — saw the formation of the “gilets jaunes,” practically giving rise to a social revolution and undermining the political authority of a president who wants to lead on the climate file. Both a carbon tax and cap-and-trade — through a price on carbon — punish one sector of the economy or another: either producers (large-scale industrial emitters) or a narrow segment of the population in the supply chain (such as diesel truck drivers).

⁷ John Cassidy, [“It's Time to Establish a New Reconstruction Finance Corporation.”](#) *The New Yorker*, March 24, 2020.

Depression-era institution that led the way toward prosperity. A similar Crown corporation, investing public money into private enterprises, with limited political intervention and focusing on prudent capital investments of public money that return dividends to the treasury, should be a primary goal. This would ensure that the return on investments can make a meaningful contribution to service the debt.

Another proposal — a “cap and invest” strategy — involves the creation of an environmental trust, seeded by the government and funded by a nominal consumption tax, that would avoid issues of funding by taxing carbon-intensive production.⁸ This trust would be operated transparently and independently from the government, with clear financial and environmental targets. Unconstrained by cyclical political interference, the trust could take the long view for technology development and industrial investment. As investments mature, the fund could potentially become self-perpetuating, removing the need for a tax altogether. Templates for this type of arrangement exist today: both the Canada Pension Plan and the Government Pension Fund of Norway are examples of solutions to inter-generational obligations and wealth distribution challenges that could be applied to inter-generational climate challenges.

The government might also consider exploring public-private partnerships,⁹ sharing risk with private sector companies as a means to further develop infrastructure. These partnerships could be used for a variety of infrastructure projects similar to transit initiatives and health facilities, but they could also be used to further enhance the electricity grid or to build a network of electric vehicle charging stations, preparing the country for electrification while eventually generating returns for the treasury. Federal loan guarantees on capital-intensive projects form a powerful financial incentive for the private sector to partner with the government while the regulatory environment evolves. Sharing in research, development and construction costs initially opens the door for sharing in design licensing and production profits later.

Beyond Oil & Gas

Looking over the horizon of large-scale capital investments 30 to 50 years out, it is clear that as public and political pressure come to bear on emissions and as consumption patterns evolve (for example, moving away from gasoline to electric cars), the demand for fossil fuels will decline and the longer-term viability of many fossil fuel extraction investments will come into question. While the need for petroleum is unlikely to entirely disappear this century, due to its use in petrochemicals, plastics and fuels for airplanes and heavy machinery, increased electrification around the world and a move toward non-carbon generation will eventually have an impact on demand. It is therefore prudent for policy makers to take a broader view of projects that can be funded. If commitments are made now, these projects are capable of delivering non-carbon-based energy solutions on a large scale within the 2025–2035 time frame.

Viable large-scale renewable energy projects can provide a powerful stimulus to economic activity for remote parts of the country while also expanding the non-carbon generation capacity. The development

⁸ Jatin Nathwani and Artie W. Ng, “A ‘Cap and Invest’ Strategy for Managing the Intergenerational Burdens of Financing Energy Transitions,” *Handbook of Green Finance* (New York: Springer, 2019).

⁹ Office of the Auditor General of British Columbia, [Understanding Public Private Partnerships](#), July 2012.

of the Mackenzie River into a large-scale hydroelectric complex, similar in scale to Quebec's James Bay development, would add 13,000 MW of capacity with a project cost of \$114 billion and an estimated annual return on investment of 16 to 28 percent, depending on the market where the electricity is sold.¹⁰ A pivot toward geothermal energy production could also be achieved in Alberta by leveraging the technical expertise in geology and drilling of the oil and gas industry. A modest diversion of even five percent of the \$40-billion-plus annual deployment of capital in the oil and gas sector, if redirected toward geothermal exploration over a three-year time frame (in the order of \$5 billion), and if matched by the government either as a loan guarantee or a stake in the equity, would lead to the creation of an entirely new industry in Alberta and could become a significant economic engine by the end of the decade.¹¹ An additional near-term benefit of the geothermal option for Alberta is immediate deployment of the oil drilling rigs that are not fully utilized because of a drop in exploration activities driven by current global market conditions.

Canada has made significant prior investments in wind electricity generation; however, challenges with intermittent production have been offset by expanding natural gas production. Taking a greater research and investment interest into companies and universities pursuing larger and higher-efficiency electricity storage technology, including the potential for hydrogen, could accelerate development in these areas and further reduce prices.¹² Research and investments in emerging Generation IV nuclear technology and small modular reactors have the strong potential for meeting diverse needs of industry for process heat as well as electricity supply for remote mining operations and communities. The existing expertise of Atomic Energy Canada Limited could be repositioned to conduct research on any number of designs to expedite their commercial viability.¹³

Other major non-energy projects that could be developed include the Northern Ontario Ring of Fire.¹⁴ This development would bring broad economic impacts to an underdeveloped region and diversify Canada's resource extraction away from oil and gas, while offering employment to many in that industry. At the same time, investments in research and large-scale remediation projects to address deforestation and environmental damage created by mining and fossil fuel extraction projects, as part of the reckoning of the true cost of these activities (estimated for oil sands to be as high as \$260 billion¹⁵), can be addressed as part of a serious commitment to move away from fossil fuel extraction and use.

¹⁰ F. Pierre Gingras, "The Mackenzie River Hydroelectric Complex — Concept Study," in *Canada: Becoming a Sustainable Energy Powerhouse* (Ottawa: Canadian Academy of Engineering, 2014).

¹¹ Jatin Nathwani, "[Resolving the oilsands conundrum.](#)" *The Hill Times*, March 11, 2020.

¹² Pippa Stevens, "[The battery decade: How energy storage could revolutionize industries in the next 10 years.](#)" *CNBC*, December 30, 2019.

¹³ MIT Energy Initiative, *The Future of Nuclear Energy in a Carbon-Constrained World*, 2018.

¹⁴ Northern Ontario Business Staff, "[Ontario, First Nations agree on missing link road to the Ring of Fire.](#)" *Northern Ontario Business*, March 2, 2020.

¹⁵ Emma McIntosh et al, "[What would it cost to clean up Alberta's oilpatch? \\$260 billion, a top official warns.](#)" *The Star*, November 1, 2018.

Toward a Post-COVID-19 Economy

Development in the post-Covid-19 economy should also emphasize sectors beyond the supply equation for the production of commodities. Canada has technical expertise in a variety of areas that include machine learning and artificial intelligence research, and development of new algorithms and heuristics for smart grids that tackle the problems in forecasting, load balancing, storage and reliability, all on a massive scale and featuring millions of participants with their own usage patterns and constraints. Intelligent management of the demand side of the energy equation, whether through improvements in energy efficiency or creative urban planning that optimizes the use of Canada's electric mobility with energy usage in commercial and residential buildings, will create pathways to new economic value and engagement of a highly skilled labour force.

It might be tempting to further expand the oil and gas industry, but this would be a direction away from the arc of history. For example, Western Canadian Select is a heavy crude oil, trading at a discount compared to West Texas Intermediate and Brent. The economic disruption from the pandemic has led to an oversupply of oil and a steep decline in prices. While the immediate effect is temporary, prices may never fully recover, even when countries emerge from lockdown, due to significant changes in consumption habits — for example, the possibility of a permanent expansion of remote work. With a dramatic change in the structure of global economic production — driven by information and communication technologies, combined with a shift to electric mobility — long-term demand for oil will remain sluggish, even with economic recovery. Countries that are able to produce oil at a lower cost — and Alberta's oil is not a low-cost resource — have the competitive advantage for meeting the lower levels of global demand. Consequently, as the world moves away from fossil fuels, resulting in a credible scenario of “demand destruction,” and competitive advantage goes to low-cost producers, there is a very real danger of Western Canada's reserves becoming stranded assets, leaving the industry entirely incapable of paying its remediation costs. Any additional investment to expand the oil sands now is, at best, an irresponsible endeavour. At worst, it is the expansion of a financial and environmental burden that should not be passed on to future generations.

The challenges brought on by COVID-19 present a unique opportunity to pivot the country away from dependence on the oil and gas sector for our economic well-being. The historic stimulus packages currently deployed comprise the first steps in stabilizing the economy and preventing a vicious cycle of unemployment and deflation from taking hold. To hand over to current and future generations a legacy of well-thought-out investments in clean energy technologies would be a decision of minimum regret. By ensuring investments are directed toward deployment of sustainable, low-carbon energy resources and the necessary supporting infrastructure, we can exploit our collective innovation capacity to become global leaders in sustainable energy in the long run.



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