Canada's Vulnerabilities in the Case of a Rapid Energy Transition

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Issue

The world is in the midst of a global energy transition that could take many forms and consequently have a range of geopolitical implications for Canada. Canada should take concrete steps now to prepare for the geopolitical fallout of an energy transition.

Background

The Transforming Energy System

The way the world produces energy is changing. Renewable and clean energy technologies make up an increasing share of global energy production (Bloomberg NEF 2019). Oil companies are expanding their portfolios to include green technology, and renewable energy sources are seeing a boom (International Renewable Energy Agency [IRENA] 2019). Solar, wind and battery technology are in a period of rapid development, buttressed by massive growth in investment. This has resulted in steep cost reductions for the technologies (Ritchie and Roser 2018).

Renewable energy stands to disrupt the status quo of an energy geopolitics dominated by the oil trade. What this geopolitical disruption will look like is heavily dependent on the nature (the timing, speed and linearity) of the energy transition. The COVID-19 pandemic is a perfect example that demonstrates the uncertainty of the transition. Canada must be prepared for whatever form the energy transition takes and its geopolitical consequences.

The First Scenario: Conventional Wisdom

The dominant perspective about the energy transition is that it is slow. The International Energy Agency (IEA) publishes the benchmark energy model for global energy production. It predicts that with current policies, growth in oil demand will slow before plateauing in the 2030s (IEA 2019). The demand for oil is a useful metric for the energy transition because to decarbonize our energy system, demand for oil has to decrease. Thus, the peak demand for oil can be a stand-in for when the transition happens. In this IEA scenario, renewable energy production increases significantly, but fossil fuel demand does not peak and instead plateaus. This is the path that Canada is prepared for with a diversified domestic energy grid and a capitalization on existing fossil fuel assets. In this scenario any change is slow, and thus the geopolitical disruptions during the transition are less severe than in a rapid transition.

The Second Scenario: The Unexpected Transition

There is a second scenario where the peak demand for oil happens sooner than expected. The trends discussed below are not enough individually to precipitate the peak of fossil fuels; however, they reflect current realities that could coalesce to produce a fast transition.

In the wake of the 2015 Paris Agreement, some signatories began taking steps toward decarbonization; however, many countries are still failing to meet their commitments. Meanwhile, an increasing number of subnational actors are driving energy transitions, regardless of national government priorities. For example,

California has invested in electrification to support its climate change and clean energy targets, despite the United States pulling out of the Paris Agreement (*California v U.S. Department of Energy* 2020).

Around the world, subnational actors are implementing bold decarbonization policies; they are becoming key actors in the energy transition and cannot be ignored. Clean technologies are changing the system beyond the expectations of prominent observers. The rapid growth of many renewable energy technologies has made them cost competitive with new installations of fossil fuel sources (Lazard 2019). With falling costs, predictions suggest that it will be cheaper to build new renewable sources than to run existing fossil fuel infrastructure within the next five to 10 years (Landale 2020). Despite consistent and exponential growth of renewables over more than a decade, many energy models have failed to predict this growth. For more than a decade, the IEA's yearly energy model has grossly underestimated the meteoric rise in photovoltaic additions (Hoekstra, Steinbuch and Verbong 2017). Even energy models produced by more progressive outlooks, such as Bloomberg New Energy, have underestimated the rise of electric vehicles (Stevens 2019).

The final trend to consider is that the continued demand for oil is not a certainty. There is a group of institutions including the Organization of the Petroleum Exporting Countries, the US Energy Information Administration, and the IEA that have ingrained institutional biases that favour the fossil fuel industry. The IEA was established with the purpose of ensuring that oil demand would grow, and as such it has a history of overestimating oil demand (ibid.). It is unsurprising then that the IEA would underestimate the growth in renewables. Moreover, its institutional bias results in a continued overconfidence in the demand for fossil fuels. Because the IEA is seen as the gold standard for energy models, it is difficult to explore alternative scenarios where demand for oil peaks sooner. The most compelling evidence for fossil fuels' near-term demise is the financial community's recent moves. Major investment and financial companies are losing confidence in the continued demand for oil and are preparing their portfolios for a quicker transition. Consultant companies, such as McKinsey, and investment corporations, such as BlackRock, are recognizing that the energy system is undergoing significant and fast change (ibid.).

The trends highlighted above are disparate, and they may not align to produce a decarbonized energy system. However, they illustrate the potential for a transition that happens much sooner than anticipated. Decarbonization becomes a possibility as green policy, growth in renewable energy and weak oil demand combine toward a tipping point. The final consideration is what happens after the peak in demand for fossil fuels. Decarbonization models compatible with the Paris Agreement all present a rapid uptake of renewable technology and a long, slow decline in fossil fuel use (IRENA 2019). However, these trends and unexpected developments could not only cause the demand for oil to peak soon, but could also trigger a feedback loop that results in a steep decline in fossil fuel use. For example, a fall in the demand for oil would significantly hurt government revenues for key countries in the Middle East, leading to unrest that would undermine the security of the world's major oil supply. To mitigate against high prices and uncertainty, oil-importing countries would be likely to move away from oil faster, further pushing down demand (Stevens 2019). This is just one aspect of the possible feedback loop; other reinforcing factors such as the rapid uptake of electric vehicles would only push it along.

Impacts of COVID-19 on Global Energy Transitions

The current COVID-19 pandemic highlights the serious plausibility of the second scenario. Countries that rely on oil as a main contributor to their national economies have experienced a concerning decline in oil demand, and Canada is no exception to this. Global disruptions such as COVID-19 unveil the price volatility of fossil fuels and lend weight to the possibility of an earlier energy transition. Efforts from Alberta Premier Jason Kenney to initiate another round of investments in the Keystone XL Pipeline have come at a time when Canadian crude oil is trading at an all-time low of less than $5 per barrel (Lawrynuik 2020). Typical boom and bust cycles are destabilizing and, even as pandemic travel restrictions ease up, demand for oil will take time to return and may not even reach pre-pandemic levels (Bakx 2020). Other energy exporters, such as Saudi Arabia and Russia, are also struggling with this new reality, as seen in their recent price war, thus raising questions about oil's longevity in the era of an inevitable energy transition (Carrington, Ambrose and Taylor 2020). Meanwhile, countries such

as China stand to benefit from record-low energy prices as its energy demand returns to pre-pandemic levels (Meliksetian 2020).

Infrastructural adaptations to the COVID-19 pandemic make the future of oil demand highly uncertain. There is a potential post-pandemic scenario in which people solidify new lifestyles that rely less on fossil fuels. For example, increasing opportunities and capacities for employees to work remotely could lower the number of single-occupancy vehicles in use. There is already a global trend of cities reallocating urban spaces to accommodate safe social distancing for pedestrians and cyclists; Milan and Paris have expanded sidewalk space, closed roads and opened up more cycling lanes (Vanderbilt 2020). Governments may choose to facilitate energy transitions away from fossil fuel systems through swift public policy measures during the post-pandemic recovery (Hazan, Marteau and Fassenot 2020). The COVID-19 pandemic is the type of unexpected event that could be a tipping point for the move away from fossil fuels. It is an important lesson in how fast global systems can change. The abrupt shift in fossil fuel demand illustrates the need for Canada to prepare for an energy transition that could be slow and steady or fast and volatile.

Geopolitical Implications

In an energy system dominated by fossil fuels, geopolitics revolve around oil trade routes and each country's ability to access the fossil fuels they need to ensure security and prosperity. Renewable energy entails much different geopolitics. Energy resources will no longer be concentrated in the hands of a few countries. Rather, each country will be able to ensure its own energy security with the renewable sources within their borders. Essentially, mass reliance on renewable energy will have a stabilizing effect on global geopolitics (IRENA 2019).

The energy *transition*, however, will destabilize global geopolitics. The degree of destabilization depends on the nature of the transition. If the second scenario takes place, geopolitics will become very intense. Disruption in government oil revenues for countries such as Saudi Arabia, Iraq and Iran create the potential for regional destabilization. Given the reliance of these governments on oil revenue, any significant drop in revenue has the high possibility of sparking domestic unrest and even military conflict. This instability would have second-order effects on global geopolitical dynamics (Stevens 2019).

Moving forward, Canada must carefully consider its allies and its relations with key countries. Given the current domestic political context of the United States, it is difficult to say how US foreign policy would react to an abrupt and volatile energy transition. However, it is clear that at the national level, the United States has little interest in making the switch to renewable energy. At the other end of the spectrum, China is the undeniable leader in renewable energy and currently stands to gain the most in a world run on green energy. Their investment in technological innovation and manufacturing has positioned them to massively benefit from the transition to renewable energy (IRENA 2019). Whether the transition is slow and steady or unexpected and volatile, China will most likely have a secure position in the new world of renewable energy geopolitics.

In times of turbulent geopolitics, there is much opportunity for Canada to strengthen its economic position and global leadership. The COVID-19 pandemic, for example, opens doors for Canada to increase green investment and solidify itself as a strategic player in the long-term renewable energy market (*The Economist* 2020). Moreover, the energy transition will hit emergent economies the hardest. If Canada can develop robust renewable energy capacity, then it can support the energy transition of emergent economies. In terms of global leadership, Canada can leverage its membership in the IEA to raise awareness of the advancing renewable market and high probability of a fast and unexpected energy transition. Through these measures, Canada can safeguard its economic standing against oil demand volatility while also proving itself a leader in global climate governance.

Recommendations

1. **Canada should invest in the energy transitions that are happening in emergent economies**. A world run on renewable energy will be more geopolitically stable than an extractive, fossil fuel-based economy. Helping emergent economies build renewable capacity will be beneficial in terms of counterbalancing the disruptive effects of the energy transition on Canada's economic allies. In addition, it will reduce emissions and help prevent the worst effects of climate change.

2. **Canada should re-evaluate the trade potential of the domestic fossil fuel sector.** The COVID-19 pandemic has exposed the price volatility and instability of

fossil fuel demand. Canada's role in the fossil fuel sector should be re-evaluated with considerations of Canada's economic vulnerability in the event that the second scenario happens.

3. **Canada should invest in renewable energy trade.** China is currently the leader in renewables. Investment into the production and export of renewable energy technologies and products that align with the key sustainability priorities of Canada's natural resources base will help Canada become a strategic player in the industry as it continues to grow.

4. **Canada should forge connections with subnational actors to navigate the uncertainty of the energy transition.** Subnational actors are pursuing serious green energy policy, regardless of national government priorities. Diversifying Canada's network to include collaboration with subnational actors will promote regional energy stability and a strong domestic renewable sector. This will help Canada navigate the uncertainty of the energy transition.

5. **Canada should pressure the IEA to re-evaluate its assumptions about renewable energy and fossil fuel demand**. As a member of the IEA, Canada can advocate for the IEA to improve its renewable energy predictions and explore the second scenario of a fast and volatile transition. The IEA is the most trusted voice for energy predictions; governments and companies base investment decisions on its energy models. Consequently, there is a great danger if it does not recognize the second scenario as a possibility.

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