THE NEED FOR ENERGY ALTERNATIVES – INVESTING IN NUCLEAR TECHNOLOGY

Opening Statement

Climate change reduction policy based on targets have been implemented on an international scale. The BC Government has created a plan to become net-zero in terms of emissions produced in BC by 2040. Globally, the energy-sector's carbon emissions grew by more than 40% over the past 18 years. There is a need for a diversification of energy production by utilizing a method that is both emission-reducing, and safe – nuclear power.

Background

In 1980 following the Chernobyl disaster, the British Columbia government introduced a seven-year ban on uranium and thorium exploration and mining. This ban was renewed until 2009 when the B.C. government established a "no registration reserve" under the *Mineral Tenure Act* for uranium and thorium. The ban ensured that no thorium and uranium deposits would be mined or explored.

Canada is the world's second largest producer of uranium with 15% of global production in 2012, has 20% of the world's deposits, and exports nearly 84% of its uranium product.[2] The value of uranium produced is approximately $1.2 billion. The majority of uranium processing and nuclear industry is centered in Ontario and Quebec.

Due to the climate crisis, many governments are endeavouring to reduce emissions. In 2019, the current B.C. Government led by the New Democratic Party has undertaken endeavoured on an initiative to become carbon neutral. On the international level, renewable energy contributed to 36% of power delivered to German consumers, and 34% of power delivered to United Kingdom consumers.[1] The difference being that the German government shut down its nuclear power stations, resulting in a higher CO2 emission whereas the U.K. maintained its nuclear capacity.[3]

Nuclear power is a relatively safe and efficient way to reduce reliance on high-emission products such as oil and gas.[2] The Convention on Nuclear Safety was adopted in Vienna in June 1994 that asks each participating state to provide a report outlining the measures in place to assure safe operation of nuclear power plants. In Canada's seventh report, it was outlined that various measures are in place including: robust nuclear regulatory framework; a mature and effective regulator, and; licensee organizations that are fully committed to nuclear safety.[3] As a result of the Fukushima incident, Canada highlighted an action plan to improve safety based on lessons learned from the Fukushima Daiichi nuclear accident in 2015.

It is notable that the construction of large-scale nuclear power plants is not cost effective. Innovative renewable energy projects are exponentially invested in and are the waves of the future.; however, Canada has seen many designs for small modular reactors (e.g., Candu) that could provide safe, clean, and economic energy to the world.[4]

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1 https://about.bnef.com/blog/liebreich-need-talk-nuclear-power/
2 https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/safety-of-nuclear-power-reactors.aspx
3 http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads/Canadian-National-Report-for-Convention-on-Nuclear-Safety-Seventh-Report-eng.pdf
4 https://www.aecl.ca/science-technology/small-modular-reactors/

Commissioning small modular reactors (SMRs) and allowing uranium and thorium surveying and extraction is an effective mechanism of reaching carbon-neutrality. Nuclear CO2 emissions over the lifetime of a plant has a mean value of 66 tonnes CO_2e/kWh.[5] Comparatively, coal, oil, and natural gas emission rates means come in at approximately 888, 733, and 499 tonnes CO_2e/kWh.[6]

SMRs may be located on sites that differ from where traditional nuclear power plants have been built. For example, SMRs may be established on small grids where power generation needs are usually less than 300 megawatt electric (MWe) per facility and at edge-of-grid or off-grid locations where power needs are small – in the range of 2 to 30 MWe.[7]

Electrical utilities, industry groups and government agencies throughout the world are investigating alternative uses for SMRs beyond electricity generation such as producing steam supply for industrial applications and district heating systems and making value-added products such as hydrogen fuel and desalinated drinking water.[8]

New infrastructure projects are economic activity generators. To drive the economy forward, we need to look at utilizing our existing natural resources. Without the ability to explore uranium and thorium deposits, new investment in the region will be sparse. In 2014, the BC Chamber of Commerce had advocated for a policy requesting that the BC government lift the ban on the exploration of uranium and thorium and reduce our reliance on carbon-emitting products such as oil and gas. The BC Chamber has been a proponent for uranium, which is a key fuel for nuclear electricity. Ontario and New Brunswick already utilize Uranium[9] and Saskatchewan has most of Canada's reserves.[10]

THE CHAMBER RECOMMENDS

That the Provincial Government:

1. Lift the ban on uranium and thorium exploration; and

2. Work with Federal Government and international regulators on studying the commission of small module nuclear reactors.

Submitted by the Surrey Board of Trade

5 Sovacool, Benjamin, K. "Valuing the greenhouse gas emissinos from nuclear power: A critical survey." *Energy policy,* vol. 36, no. 8, 2008. https://doi.org/10.1016/j.enpol.2008.04.017.
6 http://www.world-nuclear.org/uploadedFiles/org/WNA/Publications/Working_Group_Reports/comparison_of_lifecycle.pdf
7 https://nuclearsafety.gc.ca/eng/reactors/research-reactors/other-reactor-facilities/small-modular-reactors.cfm
8 https://nuclearsafety.gc.ca/eng/reactors/research-reactors/other-reactor-facilities/small-modular-reactors.cfm
9 http://www.bcchamber.org/policies/uranium-and-mineral-exploration
10 https://www.nrcan.gc.ca/energy/energy-sources-distribution/uranium-nuclear-energy/uranium-canada/about-uranium/7695