**Discussion Paper – Carbon Pricing in Nunavut**

**July, 2017**

**Senator Dennis Patterson, Senator for Nunavut**

**Introduction**

On December 9, 2016, Nunavut signed the Pan-Canadian Framework on Clean Growth and Climate Change[[1]](#footnote-1) in Vancouver during the First Ministers’ Conference. To understand why the territorial government would agree to tax diesel, something that every community in the territory relies on heavily in the absence of alternative energy and heating sources, one must consider the fiscal relationship between the territory and the federal government.

Nunavut is a jurisdiction reliant on federal transfers; Budget 2017-18 shows that almost 89% of its budget expenditures will come from the federal government[[2]](#footnote-2) so Nunavut must be wary of “biting the hand that feeds”. It is also important to note that the federal government promised during those talks to accommodate the northern territories, recognizing their unique challenges in transitioning to low-carbon economies.

Many were surprised by the initial announcement of a nationwide carbon-tax regime made at a meeting of environment ministers from across the country on October 3, 2016, including the Hon. Joe Saviqataaq, Minister of the Environment, who said he was “caught off guard”. Min. Saviqataaq told reporters that while "[the] environment ministers have acknowledged that the North is unique, and there should be special circumstances… [Nunavut] can't be asked to take on any more financial burden than we already have."[[3]](#footnote-3) With no roads linking any of the 25 fly-in only communities, Nunavut already has the highest cost of living in Canada. According to Statistics Canada, as of June 2017, Nunavut had an unemployment rate of 16.3%[[4]](#footnote-4) in a jurisdiction where the average cost of chicken is $16 per kilogram as opposed to an average cost of $7 per kilogram throughout the rest of Canada.[[5]](#footnote-5)

The three northern territories are all unique due to their location in cold climates north of 60, but Nunavut is particularly unique amongst the three territories because of its 100% reliance on diesel power generation. By contrast, NWT generates approximately 76% of its electricity from hydro[[6]](#footnote-6) while Yukon generates just shy of 95% of its total power from hydro[[7]](#footnote-7). Nunavut is also the only territory with no road connection to southern Canada, so the territory faces higher costs to transport fuel.[[8]](#footnote-8) Both Yukon and NWT can deliver LNG or compressed natural gas via highways to Whitehorse’s new LNG auxiliary power plant and to Inuvik’s natural gas-powered generators.

In 2015, the Standing Senate Committee on Energy, the Environment and Natural Resources released a report entitled, “Powering Canada’s Territories”. While the committee recognizes that there are more affordable renewable energy solutions, and that there are vast untapped hydro power resources in the North, it also states that “Nunavut communities are more widely dispersed and isolated across an immense territory with very limited transportation access. Its climate is colder and its terrain is entirely above the tree line. There has been virtually no penetration of renewable energy technologies.”[[9]](#footnote-9)

**What is Carbon Pricing?**

Carbon pricing is a mechanism meant to alter behaviours of consumers by making it cheaper to use alternative sources of energy rather than diesel and other energy forms that emit greenhouse gases. It is also aimed at lowering the cost for goods and services that are less ‘carbon intensive’ in their production and provision. The federal government touted the measure as a way of “helping Indigenous Peoples and remote and northern communities reduce their reliance on diesel by connecting these communities to electricity grids and implementing renewable energy systems.”[[10]](#footnote-10) However, in Nunavut it’s not that simple. Due to the climate, Nunavummiut cannot always cycle to work instead of using a car or truck. The sun is absent for part of the year and there are several barriers to wind power. Dr. Tim Weis, representing the Canadian Wind Energy Association, in his presentation to the Senate Standing Committee on Energy, the Environment and Natural Resources on October 20, 2014, enumerated some of these unique barriers for remote communities such as: financial capacity for accessing the upfront capital; ownership opportunities; human capacity; logistics; and economies of scale.[[11]](#footnote-11) Due to Nunavut’s widely scattered, remote communities with small populations, economies of scale are challenging to justify the cost of alternate energy systems, even as the costs and technology of wind and solar systems are dropping dramatically.

Last April, during a presentation to the Iqaluit Chamber of Commerce, Iqaluit Mayor Madeleine Redfern related how the city had spent $100,000 installing solar panels which saved $6,000 per annum on electricity costs. The Hamlet of Kugluktuk paid $95,000 to install solar panels which are expected to save $9,000 per year in energy costs. That is a cost recovery of 17 and 11 years respectively. Whether that rate of cost recovery is good, bad, acceptable, or unacceptable continues to be debated.

**Total Emissions and Usage in Nunavut**

In order to properly contextualize conversations about Nunavut’s potential carbon pricing regime, it is important to understand where Nunavut stands in comparison with other jurisdictions.

*Consumption*

The GN and municipal governments are huge consumers of fuel and electricity. Outside of a few mining companies that bring in fuel for their own consumption, all petroleum products are imported by the GN’s Petroleum Products Division. Companies such as Kitnuna and Uqsuq operate under a GN contract to lease and operate the bulk storage facilities and pipeline distribution systems, but the GN is ultimately the sole buyer and vendor of fuel in Nunavut. Under carbon pricing regimes, when the GN buys petroleum through southern Canadian suppliers, there is or will already be a carbon price built into the cost of that fuel resulting in a potential double taxation on the fuel as it is then distributed throughout Nunavut.

According to the Nunavut government’s description of the energy issue:

Nunavut is completely dependent on imported petroleum products to support everyday living. The four main products shipped are 114 million litres of diesel P50 for heating, 33.4 million litres of diesel for electrical generation, 17.8 million litres of gas for vehicles and 43.8 million litres of jet fuel for aircrafts. Petroleum products are shipped to communities in the summer months and stored in tank farms for distribution and use throughout the year.

The GN pays for this energy use both as a consumer and through subsidies to Nunavummiut. The GN spends a significant portion of their budget on energy.

The GN energy strategy sets out several measures for controlling costs, reducing usage, and promoting greater self-sufficiency in energy. These include exploring alternate electrical power production on a large scale, such as hydro electricity, and solar and wind power generation on smaller scales. Finally, the GN is also exploring energy conservation initiatives to reduce energy consumption to reduce overall dependency on oil.[[12]](#footnote-12)

Due to heavily subsidized rates, it is difficult to get a clear picture of what that means in terms of cost. The clearest breakdown of costs by the GN, QEC and Nunavut Housing come from the GN’s Climate Change Secretariat’s Ikummatiit (“Power”) website, a website dedicated to the GN’s energy strategy, and they are based on data from 2012/13 fiscal year:

* The Petroleum Products Division purchased approx. $195M in fossil fuels
* QEC purchased approx. $42M for electricity
* NHC purchased approx. $43M for heat and electricity
* GN spent approx. $21.6M for electricity and $6.7M on fuel from PPD
* Total expeditures by GN and all related parties estimated at $338M[[13]](#footnote-13)

That $338M is approximately 25% of the $1.34B 2012/13 budget.[[14]](#footnote-14)

*Greenhouse Gas (GHG) Emissions*

In 2013, Canada was responsible for 1.6% of global greenhouse gas (GHG) emissions[[15]](#footnote-15). Nunavut represents a fraction of that total, making up 0.0008% of Canada’s total GHG emissions. According to the Ministry of the Environment and Climate Change Canada, Canada emitted 721.8 megatonnes of carbon dioxide.[[16]](#footnote-16) Based on the Ministry’s figures for emissions by province or territory, Nunavut emitted 0.6 megatonnes, second only to Yukon with 0.3 megatonnes.[[17]](#footnote-17) Canada ranks lower than bigger emitters such as China and the United States, which rely on GHG -generating coal to generate electricity due to the fact that Canada produces 60% of its energy by clean hydro power while another 3% of total energy consumption is generated by “non-hydro renewable energy sources such as biomass, wind, tidal and solar.”[[18]](#footnote-18) Conversely, the US and China produce 30%[[19]](#footnote-19) and 73%[[20]](#footnote-20) of their electrical energy from coal sources respectively.

**Alternative Energy Sources in Nunavut – Potential and Challenges**

As the Senate study found, Nunavut is only starting to examine the feasibility of properly transitioning from its reliance on diesel to other forms of energy.

*Social and Financial Barriers in the Face of Political Will*

The Hon. George Hickes, Minister of Health and the Minister responsible for Suicide Prevention, spoke to Vice about the need to invest in more alternative energy sources: “What I'm thinking is if we invest in things that are going to save us money in the long-run, or offset some of our fuel expenditures and greenhouse impact, it's a win-win.”[[21]](#footnote-21) Min. Hickes cited issues such as “poor infrastructure and a low level of financing…not to mention pretty serious competing interests such as food security, health centres, waste treatment and management, and a severe lack of housing”[[22]](#footnote-22) as key barriers to investing in alternative energy.

The statistics that support this claim are shocking: Nunavut is still very much a public sector economy with high rates of unemployment and a heavy reliance on social housing and income support. According to the Nunavut Housing Corporation’s presentation to the Standing Senate Committee on Aboriginal Peoples, the rate of unemployment in Nunavut is twice the national average with 52% of Nunavummiut living in social housing and 80% of social housing tenants making less than $23,000 per year.[[23]](#footnote-23)

*Exploring Viable Alternatives*

On September 15-17, 2016, WWF-Canada, in partnership with the Government of Canada, the Government of Nunavut, and Qulliq Energy, hosted the Arctic Renewable Energy Summit in Iqaluit. Government and community representatives met with dozens of policy, utility, and legal experts to discuss the feasibility of moving Arctic communities from their reliance on diesel to renewable energy sources.[[24]](#footnote-24)

There were many announcements, including the GN’s net-metering initiative, the creation of a territorial Climate Change Secretariat, and Qulliq Energy’s decision to allow renewable energy to be added to the grid in Spring 2017. There was also a discussion of several pilot projects in Nunavut; WWF-Canada has a goal to see community-scale renewable energy projects in at least 3 northern communities by 2020.[[25]](#footnote-25)

Encouraged by the success of international jurisdictions such as Alaska and Russia in making a move from diesel to renewables, WWF-Canada commissioned the Waterloo Institute for Sustainable Energy to “predict what the use of renewable-energy sources in northern community grids could achieve”.[[26]](#footnote-26) The result was the identification of 5 Nunavut communities that would be strong candidates for pilot projects. A feasibility study was done to examine the potential impacts and benefits to Sanikiluaq, Rankin Inlet, Baker Lake, Arviat and Iqaluit[[27]](#footnote-27). Arviat has already indicated that they are open to exploring the possibility of powering their community via wind energy. Keith Collier, then Director of Community Development in Arviat stated that, “The savings to be had there in both environmental costs and cash costs as well could be substantial.”[[28]](#footnote-28)

A fund for habitat-friendly renewable energy training for Arctic communities was established with $25,000 in seed-funding from the WWF and another $5,000 was donated anonymously. [[29]](#footnote-29)

Currently, the International Institute for Sustainable Development is attempting to ascertain the true, pre-subsidy cost of diesel to support WWF-Canada’s assertion that the investment in renewable energy is not as staggering an amount when one considers the non-subsidized cost of purchase, delivery, storage and power-generation of diesel for remote Arctic communities.

Canada has made commitments that would help fund these efforts in Budgets 2016 and 2017 such as the Green Infrastructure Fund and the Canada Infrastructure Bank. INAC, for example, has been granted $84 million to study alternatives to diesel in the off-road communities of provinces and the territories[[30]](#footnote-30). Nunavut is represented in the working group, but so far progress seems limited.

Canada has a lot more investing to do in alternative energy before an effective carbon-pricing regime can be instituted in Nunavut.

With regards to hydro power options, for instance, the Senate report states that:

QEC highlighted two potential hydroelectricity sites to help reduce the territory’s dependence on diesel generation. First, the Iqaluit Hydro Project, which has been considered for a number of years, has already been subject to several studies including baseline environmental and feasibility reports. The site is attractive because Iqaluit consumes roughly one third of all diesel burned in the territory. The project proposes two sites: 1) the

Qikiqgijaarvik (Jaynes Inlet) site with an installed capacity of 10 to 14.6 MW; and 2) the Tungatalik (Armshow South) with an installed capacity of 6 to 8.8 MW. It was anticipated that both plants would be connected to the same transmission line. The Qikiqgijaarvik (Jaynes Inlet) plant was expected to be built first.

The committee was told the Iqaluit hydro project required $6 million in further feasibility studies and that the Government of Nunavut decided to postpone the project and instead focus its limited resources on replacing, upgrading and maintaining existing diesel generation across the territory.

The second hydro site is in the Kivalliq region where several rivers could potentially serve nearby communities such as Baker Lake and Rankin Inlet, although it was also recognized that transmission costs would be extensive. The committee was told both projects would pay for themselves in the long term, but that capital costs were too prohibitive for the territory to be funded on its own.[[31]](#footnote-31)

Interestingly, neighbouring northern jurisdiction, Greenland, derives 70% of its energy from hydroelectric dams, demonstrating what kind of alternative energy potential significant federal investment could unlock.[[32]](#footnote-32)

As companies strive to close the gap between northern and southern operational costs, corporate innovation has yielded important lessons for communities going forward. The Diavik Diamon mine in the Northwest Territories, for instance, spent three years exploring wind as an energy alternative option. While making a presentation to the Standing Senate Committee on Energy, the Environment, and Natural Resources, it was revealed that, at a cost of $32M, a small windfarm was created to service the mine site. However, due to the extreme weather, specialized technicians were required to come on site, repair the turbines and make alterations to the windfarm. Heating mechanisms were added to keep the turbines from freezing; an engineer from Germany was brought in.[[33]](#footnote-33)

2013 brought less wind, while 2014 brought in 3 gigawatt hours more than anticipated by the company. According to Chris Bertoli, Superintendent of Power Distribution and Surface Electrical for Diavik Diamond Mines Inc., “Diesel is [the mine’s] primary generation of power. Wind is supplemental. If there's no wind, yes, it is going to be variable. When it's there we use it. We don't have any storage, so if it's windy on any day, at 100 kilowatts or over a megawatt, we will use every last bit of it.”[[34]](#footnote-34)

In response to questions from Senators, Mr. Bertoli outlined the need for specialized personnel to manage the windfarms and stated clearly that in-depth study is needed before a windfarm is constructed,

The challenge is scalability. Most of the communities have very low loads. Our load factor at Diavik is equivalent to Yellowknife’s. So to find economic options for wind can be challenging in the smaller communities. Not impossible. Most importantly, the message we gave to the government was ensuring that the wind study was done ahead of time so that you have a viable resource. The second thing was continuing to look at the technology. It has advanced so much in the last couple of years that it is viable now in the North. As Chris mentioned, not having the gear up at the nacelle -- you don't need a large crane always on site, but you still need some of that technical expertise and those abilities to check in on the turbines regularly, so it is not impossible. It is probably one of the options to look at in the North, but, again, then it is also synchronizing it with diesel generators that exist already in communities because wind wouldn't be able to supply the whole energy requirement for a community.[[35]](#footnote-35)

**Senator Patterson’s Interventions in Ottawa**

During Question Period in the Senate, Senator Patterson asked two questions on these issues, focused on the potential impacts to people and industry in Nunavut.

The first question was to Minister McKenna on December 14, 2016, less than a week after the Framework was signed. He asked the Minister for details on the accommodations and support that the Government of Canada would be providing in order to implement this new federal directive. Minister McKenna responded by acknowledging the “economic insecurity and acute poverty” in the territory and spoke of her personal commitment to ensuring that the government is not “asking people who have very little money, and who are feeling the huge impacts of climate change already, to pay more.”[[36]](#footnote-36)

On the issue of potential impacts to businesses, Senator Patterson attended an insightful presentation by Agnico Eagle’s President, Mr. Ammar Al-Joundi, at the Nunavut Mining Symposium this past April. There, Mr. Al-Joundi gave a welcome announcement of a further investment in gold mining operations in Nunavut of a significant $1.5 billion, which will increase their northern workforce from 1,100 to 2,000 in this region with the highest unemployment in Canada.

Mr. Al-Joundi also told the symposium that while the company wants to reduce the burning of fossil fuels and understands the importance of the imposition of a carbon price in Canada designed to encourage the use of alternative energy sources like natural gas, solar, wind or hydro-power-generated clean electricity, he told the symposium, “If you say I’m going to penalize you for using fossil fuels where there is no alternative, that’s not a policy. That’s a tax.” He said that the carbon tax, as proposed, would cost the company $20 million a year by 2023[[37]](#footnote-37), which would jeopardize the viability of this mine in a remote area with no infrastructure and in a region where the cost of mining can be two and a half times greater than a southern counterpart.[[38]](#footnote-38)

And this potential impact is not relegated to the mining sector. Nunastar shared statistics with me based on their 2015 and 2016 operating costs for their hotel and rental apartment operations in Iqaluit. Thanks to their willingness to share information about their operations, it was discovered that their costs for energy in the north is over three times higher than the costs for similar operations in the south. According to Nunastar, “Taxes based on consumption or price paid for energy both put the north at a significant economic disadvantage for having to deal with climatic circumstances for heating and electricity especially in the extremes of northern winter conditions.”

This information about industry was included in the preamble of a question Senator Patterson asked of the Government Representative in the Senate, Senator Peter Harder, followed by a question on the status of the government’s promised analysis of the potential impacts of carbon-pricing in the north. After conferring with the responsible minister, Senator Harder later responded that “a study to assess the implications of carbon pricing for the territories is expected to be launched this spring and completed in the fall.”[[39]](#footnote-39)

As of this writing, the Government of Nunavut has confirmed that such a study is currently underway. Such an analysis must first be done before the federal and territorial governments can adequately determine how to accommodate Nunavut and other northern and remote jurisdictions with no current viable alternatives to diesel.

**Conclusion**

As the government moves to complete these studies and explain how they propose to keep their promise to accommodate the territory, time is running short. A territorial election is looming and 2018 is just around the corner. It will not be easy to create and implement a new tax regime based on the findings of these studies. This needs to be sorted out before any potential change in leadership on the Nunavut side so that Nunavummiut and those who do business in Nunavut can go forward secure in the knowledge that whatever carbon-pricing regime is implemented will have been adapted to the realities of the Nunavut. Otherwise, an exemption and extension on the date for compliance should be issued for Nunavut in order to allow for the new administration to properly assess the situation and decide on a way forward.

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