Canadian Natural Gas Vehicle Alliance
Federal Budget Submission
August 2016

Introduction

The Canadian Natural Gas Vehicle Alliance (CNGVA) represents Canada's natural gas vehicle industry. Natural gas vehicle technologies provide proven, commercially available transportation solutions that reduce emissions while using lower cost fuel. The CNGVA's membership includes leading Canadian companies involved in research, manufacturing, fuel and infrastructure supply, vehicle conversion technology and installation, consulting, and international project management. Our mission is to promote the sustainable growth of natural gas vehicles, refueling infrastructure, and renewable gaseous fuels for the benefit of Canada's economy and environment.

1. What federal measures would help Canadians generally?

Canada has been a leader in natural gas vehicle technologies for more than three decades. Today's medium and heavy duty natural gas engine and fuel tank technologies made by Westport, Luxfer and Agility, were developed and designed in Canada, and are sold around the world. Similarly, Canadian compression and gas polishing equipment made by Clean Energy Compression, Kraus and Xebec support refueling stations here in Canada and abroad. As an innovative clean technology Canada's natural gas vehicle sector is already supporting Canadians, and has the potential to have a much greater positive impact.

In Budget 2016, the Government of Canada made the most significant investment in alternative fueling infrastructure in over two decades. Canada's natural gas vehicle industry has risen to the challenge, and offered compelling projects that will support lower emissions natural gas vehicles and improve air quality, and the lives of Canadians. Medium and heavy duty vehicles are critical to the complex supply chain that Canadians rely on in their daily lives. These vehicles are very productive, but they also generate the highest emissions on a per vehicle basis. Supporting key new clean infrastructure development will make a significant difference.

The Government of Canada has a long history in supporting the deployment of natural gas vehicles. Natural Resources Canada supports the *Natural Gas for the Transportation Sector Deployment Roadmap,* implemented in partnership with industry. Transport Canada has studied Liquefied Natural Gas (LNG) as an emerging clean marine fuel. Almost two decades ago, Innovation Science and Economic Development Canada supported innovative Canadian companies in developing the technologies that are used today. Continued support natural gas as a vehicle fuel can help Canadians by reducing fuel costs for the transportation of goods and people; and by reducing emissions from the transportation sector – which account for 25 per cent of greenhouse gas (GHG) emissions in Canada.

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Canada's Transportation Sector

The transportation sector accounts for $70 billion per year in economic activity.[1] Marine and Rail transport are $9 billion of this activity; while truck transportation and transit are each $19 billion of the total. The sector employs 900,000 Canadians. It is also an economic sector that is subject to considerable government regulation and that ultimately generates relatively small margins and return on investment. The governments needs to support this industry given the key role it will play in reducing emissions.

Similarly, industries that support the transportation sector rely on volume sales, resulting in small margins and rates of return. More importantly it does not leave the sector with the available investment capital required for deploying alternative fuels. The transportation support sector, including repair facilities once again is a sector with relatively small profit margins and with limited financial ability to invest in upgrades to accommodate new fuels and vehicle technologies.

Encouraging innovation in the transportation sector through significant government funding of low emissions technologies will make the sector cleaner while delivering value to Canadians. The Government of Canada's leadership in fostering innovation in transportation will ensure that this sector continues to grow and given its key role in moving goods, and people; policies that keep transportation costs low, will ultimately help keep goods purchased by Canadians affordable.

Recommendation:

Help Canadian families and small businesses by:

- Allocating $650 million over five years to help de-risk the upfront cost of natural gas vehicles (NGV) through incentives that cover a portion of the incremental cost of natural gas vehicle, marine, or rail engines to encourage deployment.

- Allocating $200 million over five years to provide clean energy infrastructure funds to develop a robust natural gas refueling infrastructure across Canada. Encouraging private investment in natural gas refueling infrastructure will facilitate greater use (CNG, RNG & LNG) as a transportation fuel, but also enable the strategic location of natural gas across Canada for use in applications such as power generation, space and water heating and other uses in remote and off-pipe communities.

- Providing certainty around maintaining the current federal fuel tax exemption on natural gas (LNG and CNG) as a transportation fuel until natural gas vehicles have a viable share of the fleet market.

[1] All economic data sourced from Statistics Canada – National Accounts

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2. What federal actions would assist Canada's business meet their expansion, innovations and prosperity goals and thereby contribute to economic growth in the country?

Transportation is a shared federal-provincial jurisdiction. Provinces play a significant role in regulating the road transportation sector, while the federal government sets fuel and vehicle emissions standards. Other modes of transportation, like rail and marine are almost exclusively federal jurisdictions. A considerable collaboration in policy development will be required in order to find ways to reduce emissions without fundamentally undermining our economic position.

De-risking investments in emissions reduction technologies like natural gas vehicles and renewable natural gas production will be critical. The following are specific examples:

- Match provincial deployment incentives to cover the incremental costs of natural gas powered trucks – between $15,000 to $65,000 per vehicle;
- Work with Canada's marine vessel owners to de-risk vessel retrofit costs to support implementation of natural gas powered vessels;
- Work with Canada's rail industry to de-risk locomotive retrofit costs to support implementation of natural gas powered freight locomotives travelling on Class I and II railways in Canada; and
- Ensure federal regulations effectively support safe and efficient use of natural gas in Canada's marine and rail industries.

In Canada there are about one million medium and heavy vehicles owned by a few thousand firms that are looking at ways to reduce both emissions and fuel costs. They are already working with their provincial governments to implement some solutions. The federal government has been supportive, but there is more that could be done to amplify their efforts, particularly when it comes to assisting with the up-front costs associated with fuel switching.

Canadian flagged marine vessels are for the most part engaged in a North American inland waterway trade. They are subject to new environmental standards under the Environmental Control Area (ECA), and are beginning to convert their fleets to meet these requirements. In total, a small number of firms own relatively few vessels – about 100 in total – that account for as much as 10 per cent of Canada's total marine trade. Unlike international vessels, these are subject to the ECA during their entire voyage. The cost of retrofits on a per vessel basis is high – $2 to $10 million depending on the type – but on a per tonne of cargo basis these retrofit costs are in line with the incremental cost for trucks. An average Great Lakes vessel carries the equivalent cargo of 65 class 8 trucks.

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Similarly, Canadian port facilities will need to support natural gas bunkering – typically LNG – with new infrastructure. Two Canadian ports, Vancouver and Montreal, have nearby liquefaction facilities that can supply both Canadian and international vessels powered by LNG. However, in the Great Lakes and the Port of Halifax, there are more significant challenges and risks to these facilities if they cannot provide LNG.

Canadian railways are part of a North American network where decision making in the United States has a significant impact on Canada's industry. U.S. railways are looking to natural gas as a way to reduce emissions currently associated with diesel locomotives. Canada's two largest rail companies rank among the top ten in North America, but they have significantly more activity and facilities in the U.S. than they own and operate in Canada. That means our rail industry develops in tandem with the US industry – and natural gas powered freight locomotives will soon be deployed in the U.S.

Canadian rail facilities will need to look at adding natural gas as a fuel, as natural gas locomotives will increasingly be traveling into Canada. Strong interconnection between rail, marine, and trucking facilities are clear. In Saskatchewan and Manitoba multimodal inland ports like the Global Transportation Hub and Centre Port Canada, are locations where natural gas for rail and trucks could be deployed. While port facilities on the Great Lakes and in Eastern Canada, could link rail and marine LNG bunkering and other natural gas infrastructure.

Natural Gas Vehicles – A Canadian innovation clean technology leader

Canadian companies lead in development of natural gas vehicle engine technology, in gas compression and in liquefaction. There are more than 40,000 medium and heavy duty natural gas vehicles operating in North America that use Canadian technology in their engines, fuel systems and in their fueling. Current natural gas vehicle technologies are delivering significant emissions reductions – on a lifecycle basis these reductions range from 12 to 19 per cent. However, on an energy equivalence basis, natural gas emits 25 per cent less than diesel. Making up this difference will come from investing in next generation technologies that will improve natural gas engine efficiencies.

Deployment of engine technologies that support high horsepower applications is critical to Canada's transportation network. Canada's trucking industry is at risk of not having cost effective options to reduce emissions from high horsepower engines if next generation natural gas technologies are not demonstrated and deployed in Canada.

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3. What federal measures would ensure communities throughout Canada enable residents to make their desired contribution to the country's economic growth?

In June of 2016, Canada's natural gas distribution industry announced two ambitious goals for blending renewable natural gas (RNG) into Canada's natural gas supply network. This renewable fuel is identical to traditional natural gas and can easily be used by consumers. These technologies are well proven, but there are a couple of constraints that have kept RNG in the demonstration phase. The first constraint is in getting enough scale of production, RNG facilities need to be in areas with enough population density. The second is that many of the waste streams that can be converted to RNG are either owned by municipalities or are subject to municipal contracting.

Municipal governments account for ten per cent of total Canadian government spending. On a practical level, municipal governments do not have the financial room to directly support innovation. To date, the majority of RNG projects in Canada have relied on either federal or provincial funding. Municipal infrastructure agreements will need to include development of RNG capacity. The federal government will also need to provide additional demonstration and deployment funding specifically targeted to municipal governments.

Recommendation:

Support innovation by:

- Allocating $100 million over five years to support natural gas vehicle technology innovation to support research, development and deployment of natural gas solutions to challenges that are unique to the Canadian transportation market.
- Allocating $50 million in clean energy infrastructure funding to partner with natural gas utilities and municipal and provincial governments to increase the development of new RNG facilities and match provincial funds to bolster the supply of this clean fuel
- Amend Canada's Renewable Fuel Regulations to include RNG as a compliance option (when used as a transportation fuel) as is currently allowed in the United States under the Renewable Fuel Standard.

Supporting Canadian clean technology innovations will be essential for the Canadian government's aspirations to harness our intellectual resources. In the case of Canada's natural gas vehicle industry, we lead the world in technology development. We now have an immediate opportunity to adopt these technologies in Canada for the betterment of our economy and environment.

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