

Recommendations:

1. Use a technology neutral outcomes-based approach in developing policies that encourage low emissions vehicles for the medium- and heavy-duty transportation sector. Ensure a full life-cycle approach is used to determine emissions reductions – tailpipe emissions alone will fall short.
2. Retool the Green Freight Program to provide significantly more funding – up to \$1 billion – and to use a technology neutral approach. Funding gaseous fuel vehicles is not a subsidy to the oil and gas industry.
3. Retool public transit funding to include net zero emissions buses through the use of low carbon intensity and renewable natural gas in addition to use of hydrogen and battery electric buses. These technologies are complementary and are not competitors with battery electric buses.
4. Provide funding support for the use of LNG in marine applications, including enlarging the scope of the Clean Fuel Regulation to include maritime fuel use of both domestic and international vessels.

The Canadian Natural Gas Vehicle Alliance (CNGVA) is a member-based organization that supports cost-effective emissions reductions for Canadian fleets. CNGVA's members represent a full value chain that covers the gamut from energy providers, equipment suppliers, consultants, to fleets. With a focus on gaseous fuels for transportation, CNGVA's members primarily support market ready and proven technologies. For more than three decades CNGVA members have developed a wealth of experience and knowledge that is key to successful cost-effective emissions reductions for Canadian fleets.

The medium- and heavy-duty transportation sector accounts for a significant proportion of transportation emissions – 58 Mega Tonnes of annual GHG emissions – and is an economically exposed sector. Gaseous fuel technologies are being used to reduce emissions in every segment of the medium- and heavy-duty transportation sector – marine, rail, off-road and on-road vehicles. CNGVA members are currently delivering at scale, commercial emissions reductions using liquefied natural gas in Canada's marine sector and in Canada's on road trucking sector through the use of natural gas and low and negative carbon intensity gases. Development of related gaseous fuel technologies will continue to extend emissions cost-effective reductions opportunities for medium- and heavy-duty transportation, that will include use of hydrogen and that will support vehicle electrification.

Gaseous fuel use in Canada's medium- and heavy-duty transportation sector have been contributing to emissions reductions for over three decades. Transit agencies in Canada pioneered the use of natural gas vehicles in the late 1980s and are leading today with the use of negative carbon intensity Renewable Natural Gas (RNG) in providing net zero and greenhouse gas negative emissions. More recently Canada's refuse industry has embraced significant use of natural gas vehicles to reduce greenhouse gas emissions and are now piloting the use of RNG to support net zero emissions operations. A small number of leading for hire Class 8 fleets have also led in the use of natural gas vehicles to reduce the emissions intensity of goods transportation in Canada. Using the Clean Fuel Regulation's default values, in total these natural gas vehicles are reducing GHG emissions by more than 80,000 tonnes each year. Using RNG in these vehicles would require about three percent of potential 2030 production and would increase GHG emissions reductions to more than 400,000 tonnes each year – equivalent to 133,000 EVs. Similarly, leading Canadian marine fleets have been deploying LNG powered vessels for almost a decade. These have delivered both air quality improvements and greenhouse gas emissions reductions, with fleets exploring options for additional emissions reductions through the use of low and negative carbon intensity gases. A recent joint industry-government study of the Arctic shipping region found that use of existing LNG technologies in the Arctic region could result in a 20 percent reduction in related greenhouse gas emissions.

To date the federal government's approach to emissions reductions in the medium- and heavy-duty transportation sector has fallen short of the challenge. To put this in context, according to the most recent National Inventory Report, Transportation is the second largest source of GHG emissions. However, the specific case of medium- and heavy-duty transportation sits in the middle of the fourth to sixth most significant GHG emission sectors: 4) heavy industry – 12 percent; 5) agriculture – 10 percent; medium- and heavy-duty transportation – 8 percent; and 6) generation of electricity – 8 percent. Use of gaseous fuels in transportation is already playing a role in reducing agricultural GHG emissions with the use of low and negative carbon intensity renewable natural gas, which has the potential support a one-third reduction in the sector's emissions. Policy support for the transportation sector includes the following: increased costs due to carbon taxes; a limited clean fuel regulation; and less than \$700 million in funding support – in the form of the Heavy-Duty Zero Emissions funding and the Green Freight Program.

The national carbon tax is particularly corrosive to the commercial shipping industry – the lions share of which use medium- and heavy-duty vehicles. Energy is the second largest expense, after labour costs, in the commercial transportation sector; most of which is subject to the carbon tax or carbon pricing policies. In this sector carbon taxes are a pass-through cost: they are ultimately paid by the consumer or hurt Canadian companies competing in a global marketplace. Canada’s carbon tax exposed (NS, NB, ON, SK & AB) medium- and heavy-duty transportation sector consumes an average of 8 billion litres of diesel per year and have contributed more than \$3.6 billion in carbon tax revenues as of 2022. The tax itself has had little or no impact on diesel consumption – registering a decline of less than 1 percent between 2018 and 2021 with 2021 consumption at 1.3 percent above the previous five-year average. Diesel consumption continues to mirror the overall economic health of the country – use rising as the economy grows. While much higher carbon taxes will apply at the end of the decade – producing an estimated \$4 billion in annual revenues. In order to make this tax revenue neutral for the commercial transportation sector, more direct funding is required to support immediate cost-effective emissions reductions. The current funding deficit, taking into account current programs, stands at \$2.9 billion and is poised to grow significantly as this tax will increase by almost 200 percent over the next seven years.

The Clean Fuel Regulation, which came into force last year after more than half a decade of policy development, provides limited opportunities for emissions reductions in the commercial transportation sector. About one-third of the GHG emissions reductions targeted by this regulation will directly impact the sector. However, the regulation will increase fuel prices by 17 cents per litre; a 9 percent increase based on 2022 record diesel prices of \$2 per litre. Unlike the carbon tax, the CFR will give some fleets an opportunity to reduce these costs by deploying lower emissions technologies to generate credits under the regulation that can be used to offset emissions reduction obligations. It is a very complex system, but it does create some incentive for action, and it uses a life-cycle approach to emissions reductions. Unlike the tailpipe only approach, life-cycle accounting covers emissions that begin with the energy source, include processing, transportation and final combustion – well to wheels/wake analysis. There is room for improvement in the current life-cycle CFR modelling, for instance carbon intensity deficits of battery and vehicle manufacturing related to electric vehicles are not yet included. Overall, the approach of a technology neutral, life-cycle based policy instrument is good; however, the commercial transportation sector needs much larger opportunities to monetize emissions reductions to remain globally competitive.

There is a tendency in government policy –not unique to Canada – to conflate electrification with emissions reductions. This is a dangerous and misleading approach. While significant steps have been taken in developing light duty battery electric vehicles, these will only deliver low emissions outcomes if key factors fall into place. When the Minister of Natural Resources states that by 2035 internal combustion engines will be phased out in Canada, it is clear the federal government is focused primarily on the potential for light-duty electrification. Success in getting to net zero emissions in the light duty transportation sector – 13 percent of total GHG emissions – relies on a number of developments that are by no means assured. These include a full life-cycle accounting of the “zero emissions” vehicle ecosystem, a significant build out of new energy infrastructure (2 to 3 times the current systems), and integration with other emissions reductions policy objectives. Vehicle mandates for the medium- and heavy-duty transportation sector should **not** be contemplated. Recently California’s Advanced Clean Truck regulations were poised to impose a zero emission sales mandate next year – 2024 – but this mandate was recast when it was abundantly clear that it could not be met by vehicle manufacturers or California’s energy sector. Low emissions technologies for medium- and heavy-duty transportation are being developed by the gaseous fuels industry. Commercially available gaseous fuel technologies will

be increasing their reach in 2024 – with the potential to reduce more than 3 million tonnes of GHG per year by the end of the decade.

CNGVA members have endeavoured to work with the federal government, both at the political and professional level, to provide insights into policy approaches that will deliver real and tangible emissions reductions in the medium- and heavy-duty transportation sectors. We are committed to emissions reductions, but are increasingly frustrated with a policy approach that favours electrification and that does not recognize alternative paths to meeting long-term emission reduction objectives. The costs associated with medium- and heavy-duty transport are increased by the carbon tax and clean fuel regulations, but not enough funding is being provided to the sector to develop and deploy low emissions alternatives. A more neutral approach is required – one that places a premium on delivering emissions reductions today and that uses a comparable life-cycle emissions in determining emissions reductions achievements.

Recommendations:

1. Use a technology neutral outcomes-based approach in developing policies that encourage low emissions vehicles for the medium- and heavy-duty transportation sectors. Ensure a full life-cycle approach is used to determine emissions reductions – tailpipe emissions alone will fall short.

Working with leading truck and engine manufacturers to develop and deploy emissions reductions technologies, including those developed by the gaseous fuel industry through NGIF, can go a long way to ensuring viable cost-effective emissions reductions pathways. In Canada's transportation sector, it is not the case that electric vehicles currently meet net zero GHG emissions, and these may not be the most cost-effective pathway to long-term emissions reductions objectives.

2. Retool the Green Freight Program to provide significantly more funding – up to \$1 billion – and to use a technology neutral approach. Funding gaseous fuel vehicles is not a subsidy to the oil and gas industry.

Significantly more funding is required and warranted; **all** commercially available emissions reductions technologies should be included.

3. Retool public transit funding to include net zero emissions buses through the use of low carbon intensity and renewable natural gas in addition to use of hydrogen and battery electric buses. These technologies are complementary and are not competitors with battery electric buses.

The cost of deploying battery electric and hydrogen buses is at least seven times greater than using low and negative carbon intensity renewable natural gas.

4. Provide funding support for the use of LNG in marine applications, including enlarging the scope of the Clean Fuel Regulation to include maritime fuel use of both domestic and international vessels.

Canada can play a leading role in reducing global shipping emissions through the responsible and effective use of gaseous fuels in the marine sector. A small investment can produce big global emissions reduction results.