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Standing Committee on Environment and Sustainable Development  
Sixth Floor, 131 Queen Street  
House of Commons  
Ottawa ON K1A 0A6  
Canada

By email: ENVI@parl.gc.ca

**Subject: Toyota submission to the ENVI Committee Zero Emissions Vehicle Study**

Toyota appreciates the opportunity to provide our recommendations to the ENVI Committee on its study of zero emission vehicles (ZEV) in Canada. The Federal government has set ambitious targets for ZEV adoption as part of its commitment to the Paris Climate Change accord: 10% ZEV sales by 2025, 30% by 2030, and 100% by 2040. While we already have zero emission vehicles in the marketplace and will bring more to market in the near future, we believe that any policy focused on the adoption of zero emission vehicles – while largely ignoring other emissions mitigation strategies – will not achieve the Government’s carbon reduction objectives and will cost far more per tonne of carbon reduction than other readily available alternatives.

Toyota is committed to the electrification of the transportation sector. In 2015, we announced our Toyota Environmental Challenge 2050 – where we committed to moving toward a society where people, nature, and cars can coexist in harmony. Toyota’s objectives go beyond the vehicle as we plan for our global operations – including our manufacturing plants and our supply chains – to be carbon-neutral by 2050. For the vehicles we produce and sell, the goal is a 90% reduction in GHG from 2010 levels. In order to meet this challenge, we’ll be introducing a full suite of electrified vehicle options including Hydrogen Fuel Cell Electric (FCEV), Battery Electric (BEV), Plug-in Hybrid (PHEV), and Hybrid (HV). In Canada, we are aiming to offer an electrified version of every vehicle we sell by 2025.

Toyota has more than 20 years of experience producing electrified vehicles. We’ve sold more than 16 million hybrids globally – more than all other companies combined – since first introducing the Prius back in 1997. We currently make every major type of electrified powertrain (FCEV, BEV, PHEV, HV), and our operations are global – we compete in every market. Because of this, we have extensive experience operating within various policy environments focused on GHG reduction, and we have observed which policy environments have been successful, and which have not.



We believe that Zero Emission Vehicle mandates are a well-intentioned policy mechanism that are focused on a proposed solution – increasing the uptake of zero emission vehicles - rather than looking at the underlying problem, which is reducing cumulative emissions across the entire Canadian vehicle on-road fleet. We believe that focusing only on one proposed solution could result in missing other more effective and less costly options to reduce overall GHG emissions. In fact, there is evidence to suggest that ZEV policies can actually encourage the deployment of larger, less efficient vehicles by altering fleet GHG averages.

Based on our experience in other jurisdictions and our 20-years of success producing and selling electrified products across the globe, we'd like to offer the following observations and advice.

### **Consideration 1: Focus on the Objective, not the Means**

Today, there are more than 23 million vehicles for personal transportation on Canadian roads. These vehicles range from very low (or zero) emissions, to very high. They also vary in age, from brand new to more than 20 years old. The oldest vehicles on our roads were compliant to GHG emissions standards from more than 20 years ago. Over time, our combined GHG reduction efforts have resulted in much more stringent standards – which is good for all Canadians.

If we were to look across the Canadian on-road fleet and perform an analysis on sources of emissions – from high-mileage, high emitting vehicles to infrequently used zero or low emission vehicles – we would likely find that the most effective place to focus our energy would be high-mileage, high emitting vehicles. This is because they present the best opportunity for improvement. Removing an already low-emitting vehicle and replacing it with a ZEV is much less effective. The challenge is that highest emitting vehicles tend to be large SUVs and trucks, and these are more difficult to replace with a low-emitting vehicle. Currently, while companies are developing electrified (and even zero emission) options for large SUVs and trucks, none of these are currently available in the marketplace. When they become available, they are likely to be very expensive and out of reach for most Canadians.

So, what should we do? While Toyota believes the problem we're trying to address is the cumulative emissions of the Canadian on-road fleet, the activity should be focused on reducing "Carbon Kilometers Travelled". Simply, this is the rate of emissions of a vehicle x the distanced travelled. There are two factors that need to be addressed – reducing the rate of emissions, which could be addressed by migrating to more fuel-efficient vehicles (particularly in commercial, taxi or ride hailing fleets) - or by reducing the number of kilometers travelled, which could be addressed through a variety of means including such things as energy pricing, tiered licensing or insurance, or increasing the availability of mass transit. The two factors can be addressed individually or together.

A ZEV mandate does not adequately address either of those problems for the reasons explained below.

## **Consideration 2: ZEV programs, on their own, do not work**

There are many global jurisdictions, ranging from national to sub-national (and even local) – where effective policy has seen an increase in ZEV uptake and a decrease in overall emissions. While some of these jurisdictions have set a goal for an ICE ban ranging from 2035 to 2040, they are not focusing only on one potential technological solution. For example, the EU is focused on stringent annual increases in carbon emissions from the tailpipe and are seeing an overall increase in electrification of their fleet -including promotion of hybrids and low emission ICE vehicles - in the absence of a ZEV mandate. Or at a subnational level, the City of London introduced congestion pricing model to enter the city as an alternative means to address traffic delays and GHG emissions. The policy exempted light duty vehicles that emits 75 g/ km CO<sub>2</sub> or less, including ZEVs, and meets EURO5 emission standards. This resulted in a 10% reduction in traffic volume and a reduction of 11% in kilometers travelled from the baseline.

Any policy must consider many variables – not only the emissions rate x kilometers travelled. The policy must take into consideration product cost, input cost (i.e. fuel), excise taxes on high displacement vehicles and the cost of compliance. Addressing product costs to consumers - there is a clear gap between the cost of the product you are proposing to promote through a ZEV mandate and the cost that (the average) consumer is willing to pay. From our experience, that gap will not disappear as quickly as some more ambitious forecasting being pushed by environmental NGOs. If the policy merely makes it more expensive to replace any older vehicle with any newer one, that will have negative consequences for both the environment and Canada's manufacturing economy.

With respect to Quebec, the province brought into force its provincial ZEV mandate in 2019. Over that time, consumer trends have continued to veer towards large (and greater emitting vehicles) such as pick-ups and SUVs - vehicle segments that currently do not have an adequate ZEV solution. Additionally, the population and therefore vehicle ownership - new and used - has continued to grow. In our estimation, overall emissions from vehicles in the province of Quebec have increased since the program started, as consumer trends have continued to veer toward larger vehicles and the on-road fleet has continued to grow. Because the on-road fleet in Quebec was previously dominated by small, fuel efficient cars the shift to EVs has produced a comparatively small reduction in GHG emissions as cars were replaced with full electric vehicles. At the same time, Quebec has been rapidly catching up with the rest of the country in changing consumer preferences toward AWD trucks and SUVs. With an expanding on road fleet, it is clear that the current approach of focusing on potential solutions rather than the root cause of the problem is not working as intended.

Given the recent announcement by the Province that they are reviewing program targets – and likely looking to make them more aggressive – it could be an acknowledgement that the program is not effective, as designed. If the approach is to double down on the current methodology, making targets more stringent without addressing the broader challenges of the on-road fleet (rate x kms travelled), it is unlikely to produce very different results from the current formula.



### Consideration 3: Supply and Demand

One of the more frustrating aspects of a ZEV mandate – from the point of view of an OEM – is the focus on the act of selling a specific vehicle technology. Consumers buy our vehicles in a highly competitive marketplace. With hundreds of different makes and models available to them, it is Canadian consumers who determine the composition of the on-road fleet, not manufacturers. We offer appealing products at an attractive price point, but we can't dictate what technologies consumers choose. That is why Toyota remains committed to offering a full suite of electrified options to consumers.

This approach has grown out of our 20-year history selling hybrid vehicles across the globe. When we started selling them in North America, they garnered pop-culture status with celebrity endorsements and recognition from the environmentally conscious. At the time, we commissioned our own survey of Canadians' purchase intent, which indicated a high percentage of consumers (90%) would buy a hybrid as their next vehicle. Sadly, that never materialized. This year, approximately 25% of our sales in Canada will be hybrids – an incredible achievement – but it's taken us 20 years to get there. The biggest barrier to the acceptance of hybrids has been cost. The initial gap between a hybrid and its equivalent ICE counterpart was too great for most consumers to accept. As that cost gap has decreased – today it stands at around \$2,000 – more consumers have been willing to buy hybrids.

Today, consumers are similarly indicating a high percentage (90%) will buy a ZEV as their next vehicle. However, the price gap between a ZEV and a similarly sized sedan – most ZEVs are sedans – is much greater than when we introduced hybrids. Consumers may say they wish to buy a ZEV as their next vehicle, but once they factor in the purchase cost – or more accurately their monthly payments – they will make the decision based on their wallet. Simply put, intent does not equal outcome. Equally importantly, unlike hybrids which could be fueled at the same neighborhood gas stations Canadians were used to visiting, these new ZEVs (BEVs, PHEVs and FCEVs) require additional infrastructure investments (charging stations or hydrogen fueling stations) in order to work. The result is that not only is the initial purchase price of a ZEV usually considerably higher than a comparable ICE vehicle, it is more limited in its use or requires additional investment to be able to offer a similar use cycle to an ICE car or truck.

Governments have stepped in to try and reduce this cost gap using purchase incentives. The Federal government's first program, the EcoAuto Incentive - back in 2008 - was technology neutral. However, purchase incentives are expensive - the current program has consumed almost \$300 million in two years - and they don't provide a great return on investment. To illustrate this point, extrapolating forward, the Federal Government would need to spend over **\$14 billion** to achieve its target of 30% new ZEV sales by 2030, using the current incentive rate. Additionally, if the BC and QC were to maintain their current incentive levels, that would be an additional \$1.7 billion (BC) and \$7 billion (QC) to achieve their targets.

Furthermore, government incentives on particular vehicles distort the marketplace. We can't plan for incentives because we can't guarantee they will always be there. It takes 3 – 5 years to design a vehicle, and in that time we need to decide what the vehicle is going to be (sedan / SUV / truck etc.), how much we can sell it for, and how many we need to manufacture to meet our expected demand. We then install production capacity and hire people to build them. We cannot plan on the presence of incentives, because they can disappear based on government priorities. For example: Ontario introduced a ZEV incentive program in 2016, changed the rules in 2017 and then eliminated it entirely in 2018. The Provincial incentive quickly increased ZEV purchase intent and when withdrawn, sales decreased. In both instances, consumers were left frustrated. If we were to plan our production – in this case – based on the presence of incentives, we'd end up with people out of work and plants underutilized. Similarly, we cannot quickly adjust to the sudden presence of incentives. Do incentives help change some purchase decisions – yes, but those who take advantage of the incentives are often early adopters who might be predisposed to buying a ZEV in the first place, despite the vehicle cost.

A recent study commissioned by Transport Canada – the Dunsky Report - concluded that EV adoption was negatively impacted by tight availability of vehicles on dealership lots. The study indicated some provinces were better served than others, and in many places the dealerships did not have a single EV offering on-hand. The main contention was that supply was limiting sales, and that overall sales were being negatively impacted by companies choosing not to have vehicles on hand. Notwithstanding the fact that the current leader in ZEV sales does not use a traditional dealership model – so, has zero inventory on hand – some vehicles in the study had over 10-month's supply on dealership lots. That's not a lack of inventory, that's an oversupply condition. As for why certain Provinces have a better supply condition than others, one could easily conclude that there is a direct relationship to the presence of Provincial vehicle incentives, Provincial ZEV mandates, and population. As for other regions of the country where availability of ZEVs in dealership lots is sparse, it's likely because customers aren't asking for them. Dealers order vehicles from distributors, with the implied confidence that they can be sold. If that confidence doesn't exist, the dealer would be unlikely to carry the product. Finally, the timeframe covered by the report coincided with the first year of the federal purchase incentive, which had driven consumer demand to unexpected levels, well beyond previously planned production. Perhaps the best demonstration of how difficult it was to predict this emergent, incentive driven demand, the federal program essentially ran out of funds two-thirds of the way through its projected life. The fact that those incentives were taken up at that accelerated rate merely serves to prove that the industry had more than ample supply in the market based on pre-incentive levels of demand. Incentives were not issued if vehicles were not purchased or leased by Canadians.

## **Consideration 4 – Impact to the Middle Class**

It bears repeating that the average transaction price of a ZEV across Canada in 2019 was around \$56,000 (before incentives). The average transaction price of an ICE sedan in Canada was \$28,000 over the same period. Nearly all ZEVs sold in Canada are sedans: this is largely driven by the cost of batteries influencing overall vehicle cost, and larger, heavier vehicles requiring much more



storage capacity. In other words, the average ZEV is double the transaction price of the average conventional vehicle. Purchase incentives – which range from \$5,000 to \$13,000, depending on the Province – are helpful for those at the high end of the market, but they don't resolve the cost gap for the majority of Canadians, nor do they ensure that the vehicles are comparably equipped to their conventional counterparts (Canadians prefer all-wheel drive but most EVs, to date, have been front or rear two wheel drive).

That is not to say that the costs of a ZEV won't decrease over time. They absolutely will, but perhaps not at the speed people are hoping. It is well known that the cost of a ZEV is driven by the cost of the battery and due to consumer preference (and requirements) batteries are getting larger to accommodate more driving range. Various independent analysts have estimated current battery costs at approx. \$200 kWh. From our real-world experience, it's more than that. It took 20 years to reduce the cost gap between hybrids and their equivalent ICE versions, and we think it's an overestimation to think the cost gap between ZEVs and their equivalent ICE vehicles will resolve itself quickly.

Additionally, some jurisdictions (including Quebec) are looking at prohibiting the sale of new cars with internal combustion engines as early as 2035. This is more aggressive than China – a command economy. If ZEVs achieve cost parity with an ICE by 2035, this may not be an issue. If they don't - and a certain segment of the population can't afford them - the likely scenario is one where the wealthy can purchase a new vehicle and those who can't afford them are forced into the used vehicle market or keep their higher emitting vehicles on the road for longer. This is counterproductive.

### **Consideration 5 – Competing Policy Objectives:**

Recently, the Canadian government renegotiated NAFTA, creating a new agreement (CUSMA) which is being celebrated as an opportunity to onshore more production, and parts. This is good for Canada, assuming we can be competitive. The challenge with CUSMA is Regional Value Content (RVC) compliance is much more challenging than NAFTA and will require significant investments from all companies if we wish to export vehicles across a border tariff-free. Vehicles with a high degree of electronic content – in Toyota's case hybrids and Lexus – are the most challenging to achieve compliance. Battery electric vehicles – those with the largest batteries - are significantly more challenging. The easiest solution – and least costly - is to not have the vehicles cross a border. For our export-driven industry, that's a problem.

Canada has a large vehicle manufacturing industry - located in Ontario - which employs hundreds of thousands of Canadians, both directly and indirectly. Toyota is the **largest** manufacturer in Canada. All Canadian assembly plants are reliant on exporting vehicles to the United States. Electrification has made this harder and localizing key components would certainly help – assuming the electronic components qualify.





But Canada has also entered agreements with other trading blocs (CETA & CPTPP) which makes it easier to import vehicles from overseas – potentially at the expense of vehicles made here. Electrification mandates have and are likely to continue to force companies to import vehicles from other regions to meet compliance targets.

### **Summary and Recommendations:**

While Canada's high-level priorities are aligned with Toyota's – a mutual goal to increase electrification and decrease GHG emissions from our automobiles – we recommend a more wide-ranging and balanced set of policy objectives rather than a singular focus on ZEV adoption. ZEVs are one potential solution, but there are many others. We again return to the notion of "Carbon Kilometers Travelled" and ask you to consider the following recommendations:

1. Broad based emissions reduction strategies that target all segments of the on-road fleet, and not focused solely on a small percentage of future sales.
2. Remain technology-neutral and focus on overall emissions reduction strategies. All emissions reduction strategies should be considered. So should mass transit.
3. Recognize that Canadian trade policy and a desire to manufacture (more) electrified vehicles in Canada are currently in direct conflict.
4. Listen to the experts in industry, not only special interest groups.

Thank you for providing the opportunity to submit our recommendation to the committee for consideration. We are open to discussing this further with the entire committee or with individual members.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott MacKenzie".

TOYOTA CANADA INC.  
Scott MacKenzie  
Senior National Manager



### **About Toyota**

Toyota Canada Inc. (TCI) is the exclusive Canadian distributor of Toyota and Lexus vehicles. Toyota has sold over five million vehicles in Canada through a national network of 287 Toyota and Lexus dealerships. Toyota is dedicated to bringing safety, quality, dependability and reliability to the vehicles Canadians drive and the service they receive. TCI's head office is located in Toronto, with regional offices in Vancouver, Calgary, Montreal and Halifax, and parts distribution centres in Toronto and Vancouver. Toyota operates two manufacturing facilities in Canada. Having produced more than nine million vehicles, popular Canadian models built at these facilities include Toyota RAV4, Toyota RAV4 Hybrid, Lexus RX 350 and RX 450h hybrid. Recent investments at its facilities in Ontario will allow for increased production of the top-selling Toyota RAV4 and RAV4 Hybrid models.