Environmental Non-Government Organization (ENGO) Delegate Consolidated Report on the Development of Canada's Motor Vehicle Fuel Consumption Regulations

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Introduction

This report presents the views of ENGO delegates to Transport Canada's Motor Vehicle Fuel Consumption Regulations Consultations on the important topic of regulating fuel consumption levels of new motor vehicles in Canada. These views do not necessarily reflect the views of all environmental groups across Canada. From a policy perspective, regulation of vehicle fuel efficiency has been very thoroughly investigated and analyzed. Our understanding of the topic is informed by more than 30 years of U.S. experience with fuel efficiency standards and, more recently, similar actions by governments in Europe, Japan, China and Australia. The subject matter is rich and cuts across the domains of technology, economics, environmental sustainability and consumer behaviour. Government agencies, academics, experts and non-government organizations have all contributed to a growing body of knowledge on this important topic.

In fall 2006, the Government of Canada announced plans to design and implement Canada's first-ever regulations on motor vehicle fuel consumption, as detailed in the Canada Gazette (Vol. 140, No. 42 – October 21). Then, in spring 2007, Environment Canada's Regulatory Framework for Air Emissions was released, stating the regulated fuel consumption standard "will be designed for Canada to maximize our environmental and economic benefits". Later, in fall 2007, the government took the next important step by proclaiming the Motor Vehicle Fuel Consumption Standards Act, which provides the legal framework for the government to establish regulations to enforce standards for improving vehicle fuel efficiency levels.

Our organizations welcome these actions as progress towards an effective strategy to reduce greenhouse gas (GHG) emissions. Increasing motor vehicle fuel efficiency is only one component of a broader, more integrated strategy to address climate change, but it is very important and deserves aggressive action by regulators, industry and drivers.

The views of our organizations on the issue of fuel efficiency standards for Canada are consolidated in this report and are organized into three main messages:

1. Regulating motor vehicle fuel consumption is **good government policy**.
2. The standard regulated by the Government of Canada should be the **leading, most stringent vehicle standard in North America** respecting fuel consumption, fuel economy or GHG emissions.
3. A thorough **cost-benefit analysis** of the regulatory options, using the best available information and evidence in a Canadian context, and **benchmarking against other leading standards**, is the appropriate next step in deciding the standard.

This report does not make specific recommendations relating the cost-benefit analysis or the regulatory impact assessment as described in Transport Canada's issue brief, *A Better Canada – A Cleaner Environment: The Development of Motor Vehicle Fuel*

Consumption Regulations, to which individuals and organizations were invited to submit comments by March 15, 2008. Rather, this report details our organizations' views on the need for stringent regulations on motor vehicle fuel efficiency standards for Canada, not only for Transport Canada's Task Force, but also for the public at large.

Note to reader: In this document, improvements and increases in fuel efficiency or fuel economy are analogous to reductions in fuel consumption, and references to such improvements are used interchangeably for the purpose of clarity or context.

1. Regulating vehicle fuel consumption is good government policy

The government is right to implement regulations requiring new vehicle fleets sold in Canada to meet higher standards for fuel efficiency. There are many valid arguments for this, but the most relevant are (1) the failure of the market to value improvements fuel efficiency, (2) the need to address climate change, and (3) the responsibility of the government to act in the best interests of Canadians.

Market Failure

The case for market failure is well established. It is very difficult for consumers to accurately assess the potential future benefits of improved vehicle fuel efficiency against the present added cost of fuel-saving technology. In most cases, consumers don't even conduct a rudimentary payback estimate (Turrentine and Kurani, 2004). Furthermore, consumers demonstrate what economists refer to as "loss aversion", meaning they would rather underestimate the benefits of improved fuel efficiency and forego the potential gains, than overestimate the benefits and risk a loss on their investment (Green, German and Delucchi, 2007). If consumers are unwilling to risk the "fuel efficiency bet", why would automakers incur the expense of making the improvements?

Even if the information needed for a cost-benefit analysis was readily available (and it is not), consumers tend to heavily discount future fuel efficiency benefits, probably due to a series of conservative estimates of the future price of fuel, amount of driving, resale value, etc. (Delucchi, 2007). This means that consumers would only consider total fuel savings for the first few years, and ignore the fuel savings over the entire life of the vehicle. In other words, consumers seem to be indifferent to the potential fuel savings because the perceived economic reward is simply not large enough.

However, though the gains may seem small to individual consumers, the gains for society are very large. One reason is that the society places more value on future benefits than do individual consumers. Gerard and Lave (2003) show that society discounts future benefits of reduced fuel consumption by about 4%, whereas the private purchaser discounts future benefits by 20%. In addition to the economic benefits of fleet-wide reductions in fuel consumption (which accelerate over time as new, regulated vehicles replace existing stock), society attaches significant value to the proportionate

reductions in GHG emissions. Finally, society averages the benefits across all vehicles and their drivers, sharply reducing the risk of the "fuel efficiency bet" (Plotkin, 2007).

It is also important to note that while society values the accumulation of avoided fuel consumption and avoided GHG emissions, due to their environmental and economy-wide benefits, the consumer tends to weigh personal cost against personal gain.

Critics of fuel efficiency standards say they encourage people to drive more, thus negating the benefits (known as the "rebound effect"). But recent studies indicate the rebound effect is in decline in the U.S. For example, Small and VanDender (2004) assess the effect of a 10 per cent reduction in per-mile fuel costs (due to improved vehicle fuel efficiency) would lead to a 1 per cent increase in driving. The critics also point to low-priced fuel as the main issue undermining efforts to improve fuel efficiency. While higher fuel prices might address the rebound effect, it has no bearing on the case for regulating fuel efficiency, which, for the reasons explained above, is effective regardless of the price of fuel. Consider that regulations are being implemented in the European Union despite fuel prices that are two-to-four times as high as in North America. This is consistent with the conclusion of various economic studies (Stern 2006, NRTEE 2008) that the transportation sector is not efficiently responsive to fuel pricing strategies and that more targeted measures are required.

Climate Change

Climate change presents us with unprecedented challenges. According to Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, reductions in GHG emissions on the order of 25-40 per cent below the 1990 level by 2020 and 80-95 per cent below 1990 by 2050 will be required of developed countries in order to achieve a fair chance of avoiding dangerous climate change, widely accepted as being a 2°C increase in temperature above the pre-industrial level. These levels of emission reductions are based on stabilizing the atmospheric GHG concentration at 450 parts per million CO_2e, which corresponds to about a 50% probability of respecting the 2°C limit.

Furthermore, the cost of inaction increases with delay. The Stern Review on the Economics of Climate Change (2006) projects a 5-20% loss in global GDP each year if no action is taken. Whereas, reducing emissions through mitigation actions is considered the pro-growth strategy, impacting annual global GDP growth by about 1%. Stern says this is a "significant but manageable cost", and that "[w]eak action in the next 10-20 years would put stabilization even at 550ppm CO_2e beyond reach – and this level is already associated with significant risks."

The light-duty vehicle fleet in Canada contributes 12-13 per cent of Canada's total GHG emissions (Environment Canada, 2006) – a substantial share. Less ambitious targets for the auto industry will require other sectors of the economy to bear a greater share of the burden of reducing GHG emissions.

Estimations of the GHG abatement costs associated with improved vehicle fuel efficiency vary depending on the degree of technology advancement. McKinsey & Co (2007) calculated negative abatement costs for incremental improvements in conventional vehicle technologies (i.e., the improvements were cost-effective, paying for themselves in fuel savings). Advanced technology improvements, such as hybridizing vehicles, can achieve more reductions, but the abatement cost is higher (as they are for many other measures, including nuclear power, solar power and carbon capture and storage). A high abatement cost does not mean a measure should be avoided; however it does indicate that some form of government intervention may be needed. For example, the Government of Canada has already implemented several policies with relatively higher GHG abatement costs, including tax credits for transit passes and support for biofuels. It is assumed that in these instances, the government considered the benefits of these measures to outweigh the higher costs per tonne for GHG reductions.

Motor vehicle fuel efficiency standards are an important part of any comprehensive plan to address climate change. The auto industry is naturally concerned about the costs that aggressive regulations might impose on their operations. However, given the magnitude of the climate change problem, which threatens severe and lasting global environmental and economic damage, timid measures to reduce GHG emissions could end up costing society much more in the long run.

Government's Responsibility to Act

The failure of markets to value improvements in vehicle fuel efficiency and the need to address climate change, as discussed above, are clear reasons for governments to mandate improvements in vehicle fuel efficiency. The Government of Canada has acknowledged its responsibility to act on behalf of all Canadians by committing to implement vehicle regulations. However, our organizations are concerned that vested interests could dominate the decision-making process. We are, therefore, pleased that Transport Canada has committed to conduct a thorough cost-benefit analysis and benchmarking study, the outputs of which are supposed to inform the government's decision on what level of standard to regulate.

2. The standard to be regulated by the Government of Canada should be the leading, most stringent vehicle standard in North America respecting fuel consumption, fuel economy or GHG emissions

Canada outperforms other North American jurisdictions on fleet-average, new vehicle fuel efficiency levels. This is mainly a result of the more fuel efficient mix of vehicle models sold in Canada (some of which are sold in Canada but not available in the U.S.), as well as the tendency of Canadians to purchase models with smaller engine configurations (e.g., a base model four-cylinder model as opposed to a larger six-cylinder option). Both of these issues are probably related to lower disposable income levels among Canadian consumers relative to those in the U.S., historically speaking.

Canada has an opportunity to set standards that are higher than those developed for the U.S. or California, without necessarily compromising technology and product compatibility with those regulatory jurisdictions, and without compromising the trade of products across borders, which is a concern expressed in the context of an integrated continental auto industry (see Minister of Industry address to the Toronto Board of Trade on February 29, 2008).

Setting an appropriately higher standard is a desirable outcome for several reasons, including: (1) it is achievable in Canada, (2) it addresses concerns about provinces pursuing separate standards, and (3) it focuses attention on complementary measures to support compliance.

Higher standards are achievable in Canada

The government should set high expectations for improvements in fuel efficiency and the consequent reductions in GHG emissions. Historically, government analyses have tended to overestimate the costs of regulatory measures for vehicles (Hwang, 2006). In other words, if the government's regulatory analysis shows that a higher standard in Canada is achievable (compared to federal U.S. fuel economy or State of California GHG emissions standards) then the government should select that option. This is consistent with the direction expressed in the *Regulatory Framework on Air Emissions* that the mandatory fuel efficiency standard "*will be designed for Canada to maximize our environmental and economic benefits...*"

The Canadian new vehicle market already significantly outperforms Canada's voluntary equivalent of the U.S. corporate average fuel economy standards (CAFE). Setting a standard that, at minimum, preserves the current performance delta going forward would be consistent and compatible with the degree of technical improvement required in the U.S. market. Doing less than this would risk Canada losing its fuel efficiency advantage relative to the U.S., along with all the environmental and economic benefits associated with that surplus.

Impacts to the auto industry should be considered in the context of our consumer market. Close to 90 per cent of the vehicles built in Canada are exported, and are not subject to the fuel consumption regulations for cars sold in Canada. In contrast, more than 80 per cent of the vehicles sold in Canada are imported from other countries (Pollution Probe, 2007). Thus, the impact of Canada's fuel consumption regulations on the domestic auto industry is likely to be minimal. The main impacts on Canada's auto industry are more likely to come from regulatory decisions in the U.S. Note that in Budget 2008, the federal government chose to invest in an innovation fund to support auto industry competitiveness in a global market that demands more fuel efficient products and technologies. This funding commitment complements a higher Canadian standard by helping automakers innovate technological solutions to achieve a higher level of fuel efficiency performance.

Despite arguments for setting a higher standard in Canada, the auto industry is advising government not to set standards higher than those in the U.S. as they believe this could

negatively impact their operations. If the government were to decide it was in the nation's interest to assist a specific company or industry group, then targeted measures such as the aforementioned innovation fund, are far more effective in doing so than a general easing of environmental standards. The danger inherent in lowering environmental performance standards in order to accommodate those least capable of improvement is that it removes the incentive for more innovative and competitive companies to invest in maximizing their own potential for improvement. This ultimately undermines the future prospects of the industry to be profitable, create wealth and generate benefits for society consistent with the principles of environmental sustainability.

Representatives of the auto industry also say that the fuel efficiency regulations currently being implemented in North America could not come at a worse time, given the challenges some automakers face relating to oversupply and profitability. Our organizations take the opposing view: this could be the *best time* for government to set aggressive goals for industry. Currently, in North America and around the world, the auto industry is undergoing significant restructuring and rationalizing of its operations to become more competitive in a future where the demand for fuel efficiency will only increase. *Now* is the time to provide automakers with the certainty of long-term targets for improvement, as they are engaged in planning their capital investments, product developments and technology pathways. Failing to set stringent standards today will only delay the inevitable improvements that will be required, making it even more difficult for companies that designed their products with the expectation of a lower standard.

The Government of Canada should also recognize that it is not "going it alone" on fuel efficiency standards. Many major automotive jurisdictions around the world (the European Union, Japan, China, Australia and a number of U.S. states led by California) are either in the process of implementing relatively aggressive standards or have done so already. Even a very stringent standard for Canada would still only place us in the middle of the pack (ICCT, 2007).

Importantly, the majority of the Canadian public supports government action to increase vehicle fuel efficiency (Leger Marketing, 2005, and Decima Research, 2006).

<u>Concerns about provincial standards</u>

Several provinces have announced their intentions to adapt the California Air Resources Board's (CARB) regulated standard for vehicle GHG emission rates. These standards roughly equate to 36 mpg in 2016. There are potential negative implications for other provinces if the Government of Canada implements a less stringent standard at a national level. Chiefly, this could lead to a significant bifurcation of the Canadian vehicle market, which is what industry says it wants to avoid.

Consider a hypothetical example in which provinces representing half of all new vehicle sales adopt the CARB standard, which by 2020 increases to, say, 40 mpg. Next, suppose that the federal government adopts the lower U.S. CAFE standard, which is 35 mpg in 2020. Assuming the standards are binding on automakers, they will comply with

the 40 mpg standard in the provinces where required, but in the remaining provinces they will only need to reach 30 mpg. This is because the automakers need to deliver 35 mpg *on average* across Canada. If half the fleet is required to meet 40 mpg (in those provinces following the CARB standards), then the other half needs only to reach 30 mpg in order for automakers to successfully comply with the national fleet-average target of 35 mpg.

In other words, unless the federal government sets a standard at least as stringent as highest provincial standards, then those provinces that do not regulate fuel efficiency could suffer with lower performance levels than even the U.S. CAFE standards require. One might assume that because Canada's fleet-average fuel efficiency level has often outperformed the U.S. CAFE standard in the past, we would continue to do so in the future, but this prediction is far from certain. Better to ensure we continue to maintain our edge by setting higher standards.

Complementary measures are important

Complementary measures can be designed to help to align consumer demand with regulatory compliance strategies on the part of automakers. If consumers valued the use of technology to improve fuel efficiency as much as (or more than) the value they assign to other vehicle attributes, then market demand and regulatory compliance could be closely aligned, benefiting industry and the environment.

Complementary measures also help to more thoroughly engage the public, consumers and government in the challenge of reducing vehicle fuel consumption and emissions. In a sense, they become supporting partners with industry, sharing the challenge of improving the fuel efficiency of Canada's fleet, as well as adopting other fuel-saving practices. Complementary measures can include support for industry as well, if the need for this to protect Canada's international competitiveness is clearly demonstrated. This could include supporting the development of fuel-saving technologies and incentives to draw these technologies into the market.

The government has already announced funding for two such measures (a vehicle retirement program and an automotive innovation fund). Unfortunately, an industry and consumer incentive program (the ecoAuto Rebate) is not to be renewed for 2009.

3. A thorough cost-benefit analysis of the regulatory options using the best available information and evidence in a Canadian context, and benchmarking against other leading standards, is the appropriate next step in deciding the standard

Cost-benefit analysis

Our organizations believe a thorough cost-benefit analysis is a crucial element in informing government's decision on Canada's motor vehicle fuel consumption standards. We urge government to carefully consider the results of a thorough analysis,

being mindful of the regulatory framework's stated goal to *maximize our environmental and economic benefits*. As explained in the introduction, this report does not make recommendations relating to specific factors in the cost-benefits analysis. However, our organizations are generally supportive of Transport Canada's efforts to develop an appropriate analytical process for estimating the net benefits of various regulatory options.

Numerous studies have been conducted on the level of fuel efficiency improvement that would be cost-effective (i.e., the fuel savings over the life of the vehicles would pay for the added cost of fuel efficient technology). Plotkin (2007) reports the cost-effective level of improvement ranges from 30-50 per cent, assuming no compromise in vehicle safety or performance, by about 2020. 50-100% is possible in the longer term (2025-2030) assuming some potential trade-offs in horsepower levels and significant cost reductions in the production of hybrid drivetrain components. These estimates can serve as a guide to judging whether the results of Transport Canada's analysis are producing the expected results. At minimum, our organizations would expect 40-45 mpg in 2020 to be justified in the cost-benefit analysis.

In fact, much higher levels are technically feasible, but would probably require a concerted effort on the part of industry and government to rapidly develop and introduce cutting-edge technologies and materials. The pace of this improvement would involve a higher cost, but concern over climate change may provide the justification.

Benchmarking, harmonization and industry integration

Benchmarking Canada's regulatory options against other leading standards is an important exercise. Benchmarking is a tool whereby an organization measures its performance or process against other organizations' best practices, determines how those organizations achieved their performance levels, and uses the information to improve its own performance. In the context of fuel efficiency standards, benchmarking will help to ensure that best practices are not overlooked in the development of Canada's standard.

It is also important to note that benchmarking against other standards does not imply copying those standards. Canada should take the best elements of other standards and regulatory processes and adapt them to our own, where applicable and appropriate. Harmonization on environmental policies may be ideal under ideal conditions, where the goals of two jurisdictions are equal. However, in the case of U.S. CAFE standards, the objective is to shield the U.S. economy from risk associated with its dependence on foreign oil supplied by a petroleum cartel. This is quite a different policy objective from that described in Environment Canada's *Regulatory Framework on Air Emissions*, which is to address climate change and air pollution.

Canada should develop a standard based on its own unique fleet mix, technology baselines and policy objectives. The standard can be set at a higher level than U.S. federal or California standards and yet be compatible with the level of technological improvement occurring in those jurisdictions. This means Canada could implement a

standard that is leading among North American jurisdictions, yet is reasonably achievable without compromising the conditions of integration the auto industry seeks to preserve.

Modeling the total impact of fuel consumption standards

Our organizations request that, for each of the regulatory options developed, a simulation of the gross effects of the standard on Canada's GHG emissions from light-duty vehicles and from the total emissions inventory (to approximately 2030) be modeled and shared with the public. This should help to quantify the challenge that remains, after fuel efficiency improvements have been worked into the fleet, in reducing personal transportation emissions through other means (e.g. active and public transportation).

Conclusion

This development of Canada's first-ever regulated standards for new vehicle fuel consumption presents Canada with an opportunity to demonstrate its leadership on the environment with strong action. Our organizations will fully support the implementation of a standard that is, at minimum, equal to the level of stringency required by the California GHG emissions standards, which are already being adopted at the provincial level. Ideally, a Canadian standard would be set at a level even higher than the California standard, corresponding to the higher level of fuel efficiency performance we already achieve.

Environment Canada's *Regulatory Framework for Air Emissions* provides explicit direction for the development of a standard: one that "*maximizes our environmental and economic benefits*". Our organizations agree with this directive and are supportive of a cost-benefit analysis conducted in this context. As shown in the Stern Review and the recent NRTEE report, *Getting to 2050: Canada's Transition to a Low-emission Future*, dealing with climate change is fundamental to a strong economy in the future, and strong action early on reduces the cost impacts in long run.

Our organizations also believes that the auto industry will be better served by clear, unambiguous long-term targets than by weak, vacillating measures that serve to delay the necessary decisions. Complementary measures can play an important role in engaging consumers, other levels of government and the general public in the transition to a highly fuel efficient vehicle fleet in Canada.