
Cars and climate change

Quebec's auto regulations will yield more harm than benefit

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THE government of Quebec is preparing to impose the most stringent regulations on auto emissions in Canada. Officials claim the new standards are necessary to combat climate change and spur development of "eco-energetic" automobiles (Quebec, Department of Sustainable Development, the Environment and Parks, 2007a). Regardless of the intent, this sharp turn of policy will not fulfill its stated purpose. It is far more likely to endanger the public than to protect it.

The regulations would, if enacted, require automakers to reduce average fleet-wide emissions of carbon dioxide by 30% between 2010 and 2016 (Quebec, Department of Sustainable Development, the Environment and Parks, 2007b: 11). The requirements mirror standards first proposed by California, which, if implemented, would establish a US precedent for stringency.¹

The fundamental premise of the regulatory regime is dubious. Contrary to the claims of environmental alarmists, there still exists considerable scientific uncertainty about the interplay between greenhouse gas emissions and climate change. But even assuming that man-made emissions are warming the planet, the Quebec regulations would have no effect.

Quebec emits a mere 0.3% of annual greenhouse gas emissions worldwide. Transportation-related releases account for an even smaller fraction (Quebec, Ministry of Transport, 2007). Indeed, emissions from passenger and light-

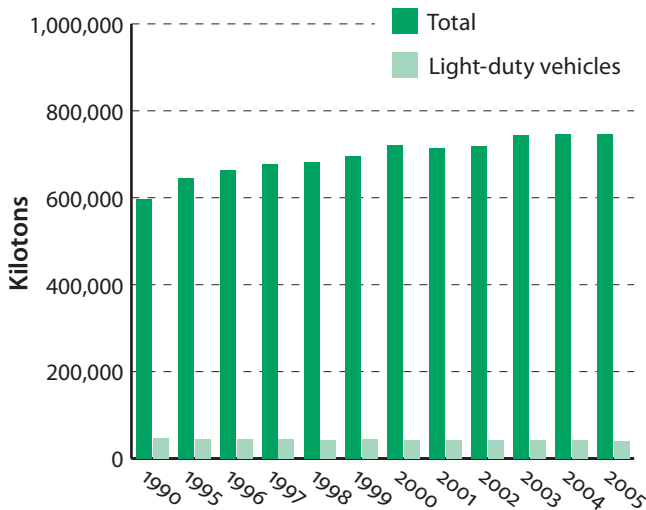
duty vehicles across Canada are dwarfed by other sources.

Consequently, total elimination of emissions in Quebec would barely register. And because CO₂ emissions from vehicles disperse throughout the troposphere, neither the province of Quebec nor the rest of Canada would gain any meaningful measure of the purported benefits of reduction despite incurring huge regulatory costs.²

As it now stands, automakers are already operating under voluntary emission reduction standards negotiated with Ottawa. The most recent agreement, signed in April 2005, commits the industry to a reduction in annual greenhouse gas emissions of 5.3 metric megatons³ by 2010. Thereafter, federal officials are proposing to mandate tighter standards beginning with the 2011 model year. Minister of Transport Lawrence Cannon announced in January that Canada will implement standards "at least as stringent" as those in the United States, i.e., 6.7 liters per 100 km (or 1.769 gallons per 62 miles) by 2020, or a 20% reduction from the current average of 8.6 liters per 100 km (or 2.227 gallons per 62 miles).

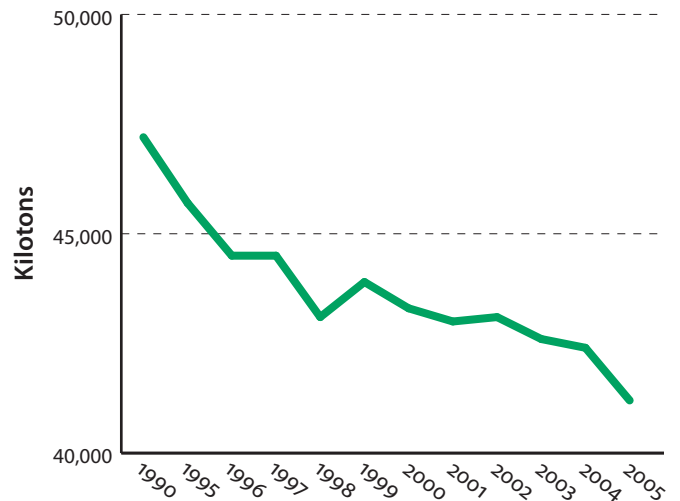
Carbon dioxide is a by-product of automotive combustion. There is a direct correlation between the amount of fuel burned by a vehicle and the volume of CO₂ released. Thus there are four primary ways to reduce CO₂ emissions from vehicles: a) drive less; b) drive slower; c) substitute low-carbon fuels for conventional gasoline; and d) improve fuel efficiency.

Figure 1: Carbon dioxide emissions in Canada from light-duty vehicles compared to total CO₂ emissions, 1990, 1995-2005



Source: Environment Canada (2007: Annex 8).

Figure 2: Carbon dioxide emissions in Canada from light-duty vehicles, 1990, 1995-2005



Source: Environment Canada (2007: Annex 8).

Years of government nagging have largely failed to induce drivers to forego their cars for a bus or to slow their speed for a hypothetical risk. Meanwhile, billions of dollars in subsidies already are supporting the development of so-called renewable fuels. But petroleum substitutes are hardly environmentally benign, and they remain too expensive to replace conventional gasoline.

Fuel efficiency already has increased measurably over time, a consequence of improved aerodynamics, reduced engine friction, direct fuel injection, and front-wheel drive, among other advances. For example, the maximum fuel efficiency of passenger vehicles traveling at 60 miles per hour was 17.5 miles per gallon in 1973; by 1997, the maximum efficiency exceeded 31 miles per gallon (US Department of Energy, 2008).

Reducing the overall weight of a vehicle delivers the most significant fuel savings, but it also entails the most dire risks. A variety of studies have documented that smaller, lighter vehicles increase the risk of fatalities in crashes—

and not just crashes with larger vehicles. According to the National Academy of Sciences (2002), the “downweighting” and downsizing of autos likely resulted in an additional 1,300 to 2,600 traffic fatalities in 1993 alone.

Researchers at Harvard University and the Brookings Institution likewise found that, on average, for every 100 pounds shaved off new cars to meet Corporate Average Fuel Economy (CAFE) standards, between 440 and 780 additional people were killed in car accidents, or a total of 2,200 to 3,900 lives lost per model year. Using data from the National Highway Traffic Safety Administration (NHTSA) and the Insurance Institute for Traffic Safety, *USA Today* calculated that size and weight reductions of passenger vehicles undertaken to meet CAFE standards resulted in more than 46,000 deaths.

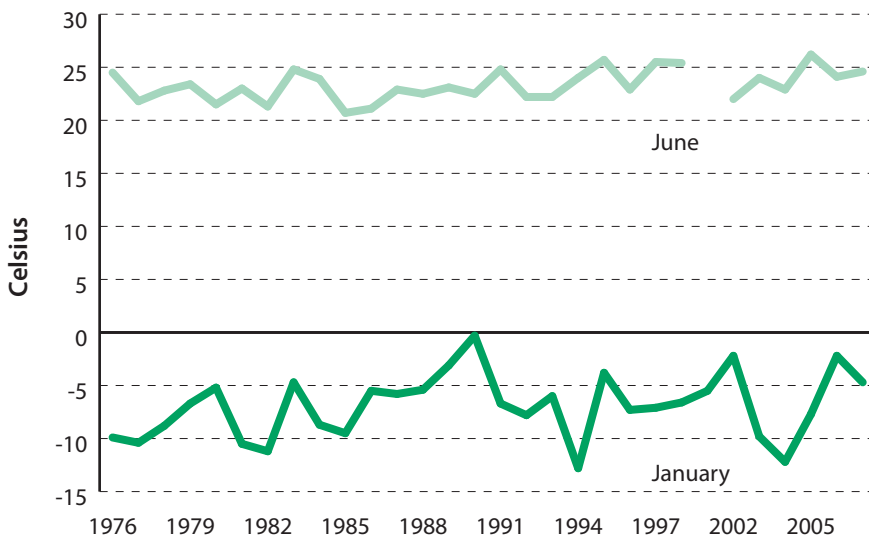
There have been other unintended consequences to regulating fuel efficiency. For example, stricter standards allow drivers to travel farther at less cost. Consequently, the number of ve-

hicle miles traveled actually increases overall when fuel efficiency is improved, resulting in no net reduction in fuel consumption or emissions. Meanwhile, to the extent that the regulations increase the sticker prices of new vehicles, consumers tend to delay a new car purchase, which keeps older, less fuel efficient vehicles on the roads for longer periods of time.⁴

Quebec officials apparently have also failed to consider the additional emissions that would be generated by the manufacture of vehicle components from lightweight materials such as aluminum, plastics, or composites needed for downsizing. According to a recent study by the National Academy of Sciences (2002), “while increasing [fuel efficiency] standards might reduce greenhouse gas emissions from automobile tailpipes, these reductions would be offset by increases in emissions from the new technologies needed to produce more efficient cars.”

Since 1992, the government of Quebec has pledged allegiance to United

Figure 3: Mean maximum temperatures in Montreal (January and June), 1976 to 2007



Source: Environment Canada (2002b).

Nations' regulatory schemes to mitigate climate change. Yet greenhouse gas emissions in the province have increased (Quebec, Department of Sustainable Development, the Environment and Parks, 2006)—although, contrary to global warming theory, there's no trend in Montreal toward warmer temperatures in either winter or summer (figure 3) (Environment Canada, 2002a).

Likewise, Canada's emissions of greenhouse gases have increased 24.4% despite ratification of the Kyoto Protocol. The increase is double that of the United States, which has not ratified the climate change treaty (Reynolds, 2008, May 1). All of which to say that yet more costly regulation isn't likely to benefit citizens of Quebec. If past experience is any guide, more stringent tailpipe standards are more likely to spill blood on the highways than change the climate.

Notes

¹ The state's request for a waiver from federal regulations has been denied by the Bush

administration, which favors a uniform national standard. The legal battles that have ensued, including a challenge by automakers, appear to be headed for the US Supreme Court.

² The US Environmental Protection Agency likewise estimates that raising fuel economy standards to 40 mpg would reduce greenhouse gas emissions worldwide by less than 0.5%.

³ One megaton equals one million tons.

⁴ General Motors estimates that stricter fuel economy standards will increase the cost of new vehicles by \$6,000, on average. Advocates of stricter standards claim the cost increase would not exceed \$1,500. The Brookings Institution has estimated that consumers would incur a net loss of at least several hundred dollars under the stricter standards, as the higher cost of the car would exceed the discounted fuel savings.

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