

Adopting reasonable energy efficiency measures throughout the economy could actually save the United States \$10 billion to \$100 billion a year in U.S. dollars and also reduce current U.S. greenhouse gas emission by 10% to 40%. This is big money and a significant cut in emissions, but it will take political leadership to bring about this reduction in emissions at a net savings.<sup>66</sup>

In addition, the mitigation panel found that reformed reforestation policies could contribute a further 3% reduction to 1990 U.S. carbon dioxide emissions.

The study showed that the corporate average fuel economy (CAFE) of United States automobiles could be increased from 18.2 to 32.5 miles per gallon (12.9 to 7.2 litres per 100 km) at a net cost savings. There is vehement disagreement from the automobile industry which claims that study researchers did not factor auto safety, consumer comfort and market behaviour considerations into their environmental decision making.<sup>67</sup> However, it should be noted that claims of decreased automobile safety may be at odds with the fact that in the United States between 1975 and 1988 the average weight of a car dropped by 455 kg, fuel efficiency doubled and traffic fatalities dropped by 40%.<sup>68</sup>

In 1982 Parliament passed a series of energy related Bills. Among these was Bill C-107, the *Motor Vehicle Fuel Consumption Standards Act*, which addressed the issue of fuel efficiency in passenger vehicles. The Bill sought to impose mandatory CAFE standards on fleets of vehicles offered for sale in the Canadian market. The Canadian automobile manufacturing lobby was against proclamation of the Bill. They proposed to bring their fleet-average fuel-efficiency level to or below that proposed by regulation on a voluntary basis. The fleet has always met or surpassed the standards set. According to officials at the Department of Energy, Mines and Resources the average fleet efficiency of all new cars sold in Canada has been below the level established by the Department for each year. In fact, the 1989 objective was 8.6 litres per 100 kilometres<sup>69</sup> and the actual fleet average was 8.2 litres per 100 km. Bill C-107 has of April 1993, not been proclaimed and therefore does not have the force of law. The government has set progressively lower fuel consumption standards and monitors fleet efficiency on an annual basis.

It is recognized that a CAFE goal of 7.2 litres per 100 km is achievable using existing technology. These energy efficiency gains could be obtained without altering the overall fleet mix through improvements in engine designs, drive trains, transmissions, and car aerodynamics.<sup>70</sup> One problem with achieving vehicle efficiency improvements is that it takes years for their full effect to be felt. In North America a new vehicle takes 4 to 5 years to go from prototype to product.<sup>71</sup> In addition, passenger car turnover rates are slow, on the order of 7 to 8 years.<sup>72</sup> Accordingly, to achieve a reduction in automobile carbon dioxide emissions by 2000, a new CAFE standard must be established with all due haste.

<sup>66</sup> *Minutes of Proceedings and Evidence of the Standing Committee on Environment*, Issue No. 48, 30 November 1992, p. 20.

<sup>67</sup> E.S. Rubin, et al., "Realistic mitigation options for global warming," *Science*, Vol. 257, 10 July 1992, p. 148-149 & 261-266.

<sup>68</sup> Michael Shepard, "How to Improve Energy Efficiency," *Issues in Science and Technology*, Summer 1991, p. 87.

<sup>69</sup> Personal Communication, Anthony Taylor, Director, Transportation Energy, Efficiency and Alternative Energy Branch, Energy, Mines and Resources Canada, 5 January 1993.

<sup>70</sup> E.S. Rubin, et al. (1992).

<sup>71</sup> A.M. Altshuler, et al., *The Future of the Automobile*, Cambridge, Massachusetts, MIT Press, 1984.

<sup>72</sup> M.C. Holcomb, et al., *Transportation Energy Data Book: Edition 9*, Report ORNL-6325, Prepared for the United States Department of Energy, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1987.