

## Economic Impact Statement: Attachment A

### **A. Introduction**

The proposed rule establishes greenhouse gas (GHG) emission standards for new motor vehicles for inclusion in Vermont's Low Emission Vehicle (LEV) Program. Under the rule, one set of GHG standards would be established for passenger cars, small light-duty trucks, and small SUVs (sometimes collectively referred to as PC/LDT1), and another set would be established for large trucks and large SUVs (sometimes collectively referred to as LDT2). Both sets of GHG standards would be gradually phased in between model-years 2009 and 2016. When fully implemented during model-year 2016, new motor vehicles subject to the regulation would be required to emit approximately 30 percent fewer GHGs than currently emitted.

With respect to standards controlling emissions from motor vehicles, section 177 of the Clean Air Act (CAA) authorizes states to adopt standards in lieu of the default federal standards provided that: (1) the standards are identical to those adopted by California; and (2) the standards are adopted at least two model years before becoming applicable. *See* 42 U.S.C. § 7507. The GHG standards at issue were established by the California Air Resources Board (CARB).<sup>1</sup>

A thorough cost analysis performed for the Northeast States Center for a Clean Air Future (NESCCAF) concluded that all of the technologies needed to achieve the GHG standards are currently in production.<sup>2</sup> Examples of lower GHG emitting technologies include: electronic power steering, 6-speed automatic transmissions, improved air conditioning systems, cylinder deactivation, and turbocharging. In order to meet the proposed GHG standards, these technologies will need to be introduced in higher volumes than are currently being produced. In addition, CARB performed a detailed evaluation of the economic impacts of the regulations to control GHG emissions from motor vehicles.<sup>3</sup> In short, CARB concluded that the proposed GHG standards are

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<sup>1</sup> Vermont has a history of regulating motor vehicle emissions to the greatest extent allowable under the federal Clean Air Act. Vermont first adopted California's LEV program in 1996 because the California program placed more stringent standards on vehicle emissions than the federal program. Vermont's LEV program has been updated and amended as necessary over the years to remain consistent with California's LEV program. *See* Vermont Air Pollution Control Regulations §5-1101. Other northeast states, including Maine, Massachusetts, and New York, have also adopted California's LEV program to reduce the health and environmental impacts caused by air pollution from motor vehicles.

<sup>2</sup> *See* NESCCAF, *Reducing Greenhouse Gas Emissions from Light Duty Motor Vehicles*, Sept. 2004.

<sup>3</sup> *See* California Environmental Protection Agency Air Resources Board, *Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gases Emissions From Motor Vehicles* (Aug. 6, 2004) (hereinafter "CARB Initial Statement of Reasons"); California Environmental Protection Agency Air Resources Board, *Addendum Presenting and Describing Revisions to: Initial Statement of Reasons for*

expected to result in a net benefit to consumers over the life of the vehicle. Much of CARB’s economic analysis is relevant to Vermont and is discussed in more detail below.

**B. Affected Parties**

The proposed GHG standards for motor vehicles are expected to produce costs and benefits to several sectors of the economy including automobile consumers, businesses, and government entities.

1. Potential Costs and Benefits to Consumers

As part of its technology evaluation, CARB estimated the average fleetwide incremental cost of control to meet the greenhouse gas emission standards. CARB’s cost estimates take into account the phase-in of the GHG standards and the specific starting points of the six large volume manufacturers.<sup>4</sup> CARB’s estimated average costs are shown in Table 1 below. When fully phased in with model-year 2016, CARB estimates the GHG standards will result in an average cost increase of \$1,064 for passenger cars, small light-duty trucks, and small SUVs; and an average cost increase of \$1,029 for large light-duty trucks and large SUVs.<sup>5</sup>

**Table 1: Average Cost of Control**

Tier	Year	PC/LDT1 (Passenger cars and small trucks/SUVs)	LDT2 (Large trucks/SUVs)
Near-term	2009	\$17	\$36
	2010	\$58	\$85
	2011	\$230	\$176
	2012	\$367	\$277
Mid-term	2013	\$504	\$434
	2014	\$609	\$581
	2015	\$836	\$804
	2016	\$1,064	\$1,029

Source: CARB Report to Legislature, Table 3-2.

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*Proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gases Emissions From Motor Vehicles* (Sept. 10, 2004) (hereinafter “CARB Addendum to Initial Statement of Reasons”); California Environmental Protection Agency Air Resources Board, *Report to the Legislature and Governor on Regulations to Control Greenhouse Gases Emissions From Motor Vehicles* (Dec. 2004) (hereinafter “CARB Report to Legislature”).

<sup>4</sup> Large volume manufacturers, which currently include General Motors, Ford Motor Co., Daimler Chrysler, Toyota, Nissan, and Honda, are required to meet the GHG standards beginning with the 2009 model-year. Small volume, medium volume, and independent low volume manufacturers are not required to meet the GHG standards until model-year 2016.

<sup>5</sup> CARB Report to Legislature at 10.

To provide perspective on the potential impact of the GHG standards on the monthly cash flow for typical purchasers of new vehicles, CARB also examined the lifetime cost of these technologies to vehicle owner-operators. CARB considered a vehicle financing period of five years at an interest rate of five percent. As shown in Table 2, CARB estimates the increase in average monthly payments will be more than offset by decreased operating costs due to higher fuel efficiency. Taking into account the average price increase for vehicles in 2016 when the regulation is fully phased-in, and assuming a fuel price of \$1.74 per gallon, CARB estimates a monthly net savings of about \$3.50 to \$7.00.<sup>6</sup> Moreover, higher fuel prices would serve to increase the monthly net savings by further reducing vehicle operating costs.

**Table 2: Potential Impact on Monthly Loan Payment and Operating Savings for New Vehicles in California in 2016**

	2016 PC/LDT1 (Passenger cars and small trucks/SUVs)	2016 LDT2 (Large trucks/SUVs)
Average Increase in New Car Price	\$1,064	\$1,029
Increase in Monthly Loan Payment	\$20.08	\$19.42
Monthly Operating Savings	\$23.46	\$26.16
Net Monthly Savings	\$3.38	\$6.74

Source: CARB Addendum to Initial Report, Revised Table 10.5-1

The cost-benefit analysis conducted by CARB is based on some parameters that may vary state by state. Variables such as the interest rate, cost of control, CO<sub>2</sub> percentage reductions, fleet mix and fuel economy are assumed to be the same. On the other hand, variables such as the average useful life of the vehicles and vehicle miles traveled per year may vary state to state. For instance, CARB assumed the average useful life of vehicles is 16 years for passenger cars and about 19 years for light duty trucks;<sup>7</sup> New York, however, assumed the average useful life of vehicles was 14 years for passenger cars and 18 years for light duty trucks.<sup>8</sup> New York found that the lower vehicle life, due in part to the hardship of northeast winter weather, decreased the cost effectiveness of the

<sup>6</sup> *Id.*

<sup>7</sup> See CARB, *Estimation of Average Lifetime Vehicle Miles of Travel*, October 2004.

<sup>8</sup> New York State Department of Environmental Conservation, Division of Air Resources, Proposed Part 218, Emissions Standards for Motor Vehicles and Motor Vehicle Engines, Regulatory Impact Statement, 30, March 2005 (hereinafter “NYSDEC Proposed Part 218 Regulatory Impact Statement”).

regulation.<sup>9</sup> Notwithstanding, New York still projected that consumers would realize a net benefit over the life of the vehicle.<sup>10</sup>

Vermont consumers are also expected to realize an economic benefit from the GHG regulation. To estimate the proposed rule’s impact on Vermont consumers, a cost analysis was conducted that assumes a fuel price of \$2.10 and a vehicle life of ten years and takes into account the average vehicle miles traveled in Vermont. The results are set forth in Table 3. Any economic benefit realized by Vermont consumers will increase as gas prices increase.

**Table 3: Potential Economic Impact on New Vehicles in Vermont**

	2012 PC/LDT1 (Passenger cars and small trucks/SUVs)	2012 LDT2 (Large trucks/ SUVs)	2016 PC/LDT1 (Passenger cars and small trucks/SUVs)	2016 LD2 (Large trucks/SUVs)
Average Increase in New Car Price	389.02	293.62	1127.84	1090.74
Increase in Monthly Loan Payment	7.34	5.54	21.28	20.58
Years Until Payback	1.1	0.8	2.6	2.3
Net Savings Over 10 Years	1910.05	1765.62	2615.91	2657.32

The proposed rule is not expected to impact the cost of testing, repairing, and maintaining vehicles that are subject to the rule. The proposed regulation does not require any additional testing or changes in equipment for existing testing. The technology that will be used to comply with the rule is widely recognized as “off the shelf” technology and is already in place in the marketplace. Thus, maintenance and repair costs are not expected to increase. Likewise, the proposed rule will not increase the cost of state inspections of vehicles subject to the rule.

## 2. Potential Costs and Benefits to Businesses

The proposed regulation affects only light duty vehicles whose primary use is noncommercial personal transportation. Therefore, many vehicles that businesses use

<sup>9</sup> However, the shorter vehicle life provides a benefit through accelerated fleet turnover, which would increase the number of cleaner vehicles in the fleet and result in greater reductions in the number of tons of GHG emitted.

<sup>10</sup> NYSDEC Proposed Part 218 Regulatory Impact Statement at 31, 37-38.

would not be covered under the proposed regulation. However, if businesses purchase the same vehicles as consumers, they would be expected to pay the same higher prices for the vehicles but also save on operating costs. As described above, the reduced operating costs are expected to outweigh the price increase, resulting in a net savings over the life cycle of the vehicle.

As vehicle fuel efficiency increases, gasoline service stations may experience a decline in demand for their product as opposed to the no regulations scenario. However, this effect may be mitigated by projected growth in both population and travel demand in Vermont.

### 3. Potential Costs and Benefits to Local and State Agencies

As with consumers and businesses, state agencies will have to plan to pay higher vehicle prices as the GHG standards are phased in. However, as discussed above, the operating costs of vehicles subject to these standards should outweigh the higher vehicle prices, resulting in a net benefit.

The new complying vehicles are also expected to impact revenues from gas and sales taxes. Assuming gas tax rates and vehicle miles traveled remain the same, gas tax revenues would be expected to decline as the GHG standards are implemented due to increased fuel efficiency. On the other hand, revenues from vehicle sales taxes would be expected to rise as vehicle prices increase. In addition, it is expected that the increase in personal income resulting from the regulations would be expended on goods subject to local sales tax.

### **C. Conclusion**

The proposed rule would serve to reduce GHG emissions from motor vehicles by 30 percent. While the technologies that lower GHG emissions will lead to price increases for new vehicles, these price increases will be more than offset by lower monthly operating costs. Thus, the GHG standards are expected to result in a net benefit to consumers, businesses, and government agencies that purchase the new complying vehicles. In conclusion, the proposed rule is the most appropriate method of achieving its regulatory purpose of reducing GHG emissions from motor vehicles.