Economic Impact Statement: Attachment A

A. Introduction

The proposed amendments reflect on-going changes to the California Low Emission Vehicle (LEV) Program, which Vermont adopted in 1996 and periodically needs to update to maintain consistency with California. The proposed amendments will incorporate by reference three substantive areas of change to California's LEV Program: (1) revisions to Zero Emission Vehicle (ZEV) requirements; (2) new Environmental Performance Labeling requirements; and (3) revisions to Emission Warranty Information Reporting and Recall requirements.

In addition, Vermont has reviewed its LEV regulations and those sections of the California Code incorporated by reference in Vermont's LEV regulations and is proposing to make some administrative changes, such as updating the effective dates of the incorporated sections and adding appropriate sections to clarify LEV policy and administration. These proposed changes, which can be viewed in the annotated text of the proposed amendments to Subchapter XI and Appendix F of the Air Pollution Control Regulations, are not expect to have any significant economic impacts.

B. Discussion

1) ZEV Amendments.

Current ZEV requirements offer Large Volume Manufacturers a choice of following a Fuel Cell Alternative Path or a Base Path. In either instance, requirements are framed within time intervals identified as Phase I 2005-2008, Phase II 2008-2011, Phase III 2012-2014, and Phase IV 2014-2017. The overall numbers of either fuel cells or other zero emission vehicles ramp up during each successive phase, along with the percentage of a manufacturer's fleet which must qualify for ZEV credit. Intermediate Volume Manufacturers meet simplified, less stringent requirements, while Small Volume Manufacturers are exempted, but not precluded from earning credits by supplying vehicles.

The amendments adopted by the California Air Resources Board (CARB) maintain the existing time frames, merge the Alternative and Base Paths, identify new categories of zero emission vehicles – especially emerging plug-in hybrid electric vehicles (PHEVs) and smaller full function battery electric vehicles – and reduce the requirements for "pure" ZEV or "Gold" vehicles in the 2012-2014 Phase III.

The revised Gold requirements in Phase III are tied to manufacturer use of "Silver +" PHEVs to offset the reduction. PHEVs are efficient emerging vehicles which will provide bridge technology and promote market appetite for eventual volume production of Gold hydrogen and battery electric vehicles. Initially, they will offer a combination of enhanced fuel economy, an ability to return some measure of "all electric" range that

could bracket a significant percentage of commuter daily trips, and the ability to both recharge from the grid during off-peak hours and eventually provide Vehicle-to-Grid (V2G) load buffering and peak shaving abilities.

In the February 2008, CARB projected that the proposed ZEV amendments would reduce cost to manufacturers by $1.3 billion in 2012-2014.[1] To the extent that market appetite for PHEVs reaches the robust dimensions predicted in the press, costs for manufacturers may be further reduced. The on-going provisions in the ZEV requirements for Partial Zero Emission Vehicles (PZEV) and the background LEV Program requirement for manufacturers to meet declining annual fleet average tailpipe standards, will further offset costs to industry through shared design and volume production of advanced components fostered through technology forcing requirements. Volume production reduces per-unit costs and leads to in-process production efficiencies and refinements.

A key intent of California's revisions to the ZEV requirements is to provide increased flexibility to those manufacturers obligated to supply ZEV vehicles. A CARB staff report explains: "The changes proposed by staff significantly reduce an automaker's cost of compliance, but still provide increased air quality benefits of commercially viable and increasingly available [Advanced Technoloy Partial Zero Emission Vehicles, e.g., hybrids]."[2]

Economic impacts on consumers are expected to be positive. While the emerging technology in hybrid and other ZEV-type vehicles is currently at a cost over that found in most comparable conventional vehicles, the potential savings in fuel expense is significant. Currently, the incremental cost of the most popular hybrid vehicles is recovered within the first several years of ownership, while various manufacturers have identified as their business plans the reduction of the cost differential between advanced technology and conventional vehicles. Toyota, Honda, and Nissan have announced their intentions to reduce the cost of their ZEV products to the same levels as conventional fossil fuel-powered vehicles.

The enhanced build quality implicit in the ZEV warranty requirement of 15 years/150,000 miles for any device that illuminates the vehicle "Check Engine" light reduces consumer maintenance expense and improves resale value. Maintenance costs with electric-powered vehicles are significantly less than petroleum-fueled counterparts. Batteries in all-electric, fuel cell, and hybrid vehicles will be warranted for 10 years/150,000 miles. Consumer savings on fuel costs reverberate through the economy in increased spending power for other goods and services.

Economic impacts on Vermont automobile dealers are projected to range from neutral to positive. Some dealers may incur expense in subsidizing technician training to the extent that subsidized manufacturer support is incomplete. Some such expense would be offset by consumer demand for the relevant product, and dealers' perceived need to

[1] CARB, Staff Report: Initial Statement of Reasons – 2008 Proposed Amendments to the California Zero Emission Vehicle Program Regulations, at p. iv , February 8, 2008.
[2] Id., at p. iv.

position themselves as most prepared to deliver and support that product. As emerging vehicle technology is not limited to ZEV applications, dealers are routinely in the position of needing to train their technicians as a cost of doing business.

Economic impacts on the State of Vermont will generally be positive. Reductions in tailpipe and evaporative emissions, including greenhouse gases, will improve air quality and public exposure to toxic air pollutants. Reductions will contribute to State efforts to address climate change and maintain compliance with the National Ambient Air Quality Standards (NAAQS). Being out of attainment with NAAQS brings an expensive additional level of State planning and administration of transportation and development. To the extent that alternative fuel vehicles, including electric, represent reduced consumption of gasoline and diesel, state gas tax revenues will be reduced. However, as an Environmental News Service article on an initiative by Illinois to adopt the California LEV Program explains:

> By reducing demand for gasoline, the Clean Car Standards [LEV] will help keep gas prices in check . . . The groups predict that by 2020, the Clean Car Standards would save Illinois drivers nearly $1.9 billion in fuel costs compared to the new federal CAFE standards. "Between now and 2020, global warming pollution will be reduced by around 40 percent more in Illinois under the Clean Car Standards than the new CAFE program," said Ron Burke, director of the Midwest Office for the Union of Concerned Scientists, a national group. "Plus, the new CAFE program does nothing more to reduce smog-forming pollutants, which will be cut under the Clean Car Standards," he said.[3]

To the extent that emerging technology vehicles are likely to be more compact and representative of a trend away from heavy truck-based SUVs, wear and tear and the consequent expenses on State highways will decrease. The Vermont State Energy Plan addresses many of these elements, and reaches a supportive position for PHEVs and alternative fueled vehicles in general.[4] The October, 2007 Final Report of the Governor's Commission on Climate Change [Vermont] embraced the Clean Car (LEV) Program as one of it's six overarching goals. The Transportation and Land Use Technical Work Group of the Commission reached unanimous consent in endorsing both the Clean Car Program and deployment of PHEVs.[5]

Economic impacts on the Vermont Agency of Natural Resources will be neutral. Workforce requirements are not anticipated to increase, and the proposed amendments are properly viewed as on-going revisions to existing elements in an evolving motor vehicle emissions regulation.

Economic impacts on public utilities in Vermont will be neutral to positive. Central Vermont Public Service (CVPS), Green Mountain Power (GMP), and the Burlington

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[3] Environment News Service, "Illinois Bill Finds Clean Cars Best Antidote to $4 Gas", June 3, 2008.
[4] available at http://publicservice.vermont.gov/pub/state-plans-compenergy.html
[5] available at http://www.anr.state.vt.us/air/Planning/htm/ClimateChange.htm

Electric Department (BED) are Vermont utilities that have been supportive of reduced emissions from mobile sources, and have been proactively planning for a PHEV future, both before and after Smart metering and vehicle-to-grid (V2G) capabilities and infrastructure are established. Studies in part supported by utilities include those of Professor Steven Letendre at Green Mountain College, including his collaborative studies with the University of Vermont Transportation Center[6]. While the current structure of the Regional Greenhouse Gas Initiative (RGGI) does not include a mechanism for utilities to use transportation CO2 emissions offset projects in calculation of their allowances, this concept is under discussion and possible in future programs. As the Electric Power Research Institute (EPRI) notes[7]:

> Benefits to utilities from transportation electrification include: nighttime load growth; load management resulting from the controlled charging or discharging of vehicle batteries (and other corollary applications) that result in improved supply energy efficiency and asset utilization; potential CO2 and pollution credits; and the goodwill and image enhancements that result from being pro-environment and pro-customer. The technology also appears to be a symbiotic partner for wind and solar storage. Benefits for consumers include: lower operating costs, especially fuel costs; flexible energy storage that can be used for back-up or emergency power or, in the long term, potentially sell back to the grid; an environmentally friendly, green solution to transportation requirements; and the convenience of charging at home, work, or other remote locations due to electricity availability.

In overall context, the proposed amendments to the ZEV requirements are expected to reduce costs for manufacturers while maintaining environmental benefits. The heart of the ZEV requirements is the phase-in of alternatively-fueled vehicles which will be less costly to operate, and less costly to public health and the environment than their conventional fossil fuel-powered equivalents.

2) Environmental Performance Labeling Amendments.

California recently adopted Environmental Performance Labeling requirements in Title 13 of the California Code of Regulations (CCR) Section 1965. As amended, Section 1965 replaces the Smog Index Label with an Environmental Performance Label in which graphical representations of a vehicle's Smog Score and Global Warming Score will be displayed side by side. California's new labeling requirements are effective January 1, 2009.

Act No. 55, enacted on May 29, 2007 by the Vermont State Legislature and now codified at 10 V.S.A. §579 requires the Agency of Natural Resources to "establish, by rule, a vehicle emissions labeling program for new motor vehicles sold or leased in the state

[6] University of Vermont Transportation Center, Plug-In Hybrid Vehicles and the Vermont Grid: A Scoping Analysis, February 15, 2008, available at http://www.uvm.edu/~transctr/?Page=utc_publications.html
[7] see http://et.epri.com/projectopportunities.html

with a model year of 2010 or later." 10 V.S.A. §579(a). The statute further provides: "A label that complies with the requirements of the California vehicle labeling program shall be deemed to meet the requirements of this section and the rules adopted thereunder for the content of labels." 10 V.S.A. §579(b).

The new California Environmental Performance Label is based on the premise that: "Consumer awareness of a vehicle's environmental footprint would help consumers make the cleanest purchasing choice possible when selecting a new vehicle. Ultimately, consumer decisions to buy cleaner cars could result in lower emissions than would be achieved from regulating vehicles alone."[8]

By adopting California's Environmental Performance Label requirements, Vermont will share the goal of providing consumers with expanded information on the efficiency, cleanliness, and general impact of vehicle choices.

The new labeling provisions may provide an opportunity for the State of Vermont to more generally engage the public in issues surrounding personal and business transportation choices. Labels may provide an initial key to expanded awareness of both the impacts of vehicle choices but also potential alternatives, warranty implications, and incentive options.

CARB staff summarized their estimate of the economic impacts of an Environmental Performance Label.[9] For the some thirty manufacturers supplying approximately two million new vehicles annually to California, the CARB estimated the total annual cost to industry as $245,000. It further estimated annual cost to a typical manufacturer at $8,167, a figure including annualized cost for upgrading from black and white to color label printers with an average 3-5 year life. These estimated costs were based on manufacturer production of required labels at either their final assembly plants within the U.S. (76 plants operational as of May, 2007; currently less), or Ports of Entry to California.

Those manufacturers with U.S. final assembly points, or Ports of Entry serving not only California but other LEV states, would presumably not incur additional costs beyond label material and ink for additional labeling for the small Vermont market. Manufacturers without U.S. final assembly points, and using other than California – distribution Ports of Entry might incur expense to acquire label printers and supplies. This potential expense would be amortized over several years of printer service life, and be proportional to labeling requirements in other LEV states. It should also be noted that Vermont already requires the Smog Index Label, which would be replaced with the Environmental Performance Label.

[8] CARB, Staff Report: Initial Statement of Reasons – Proposed Amendments to the Smog Index Vehicle Emissions Label, at p.1, May 4, 2007.
[9] Id., at pp.21-24.

Economic costs to Vermont vehicle dealers are expected to be negligible. An Environmental Performance Label will provide an opportunity for dealers to engage potential customers in a discussion of their needs and the merits of a dealer's products.

Impacts on State revenues may include eventual reductions in tax collected on the sale of gasoline but, as earlier illustrated in the discussion of ZEV amendments, will also potentially lead to reduction of dependency on ever more costly oil supplies, reduce wear and tear on highways, and increase that portion of consumers' resources available for home heating and general efficiency improvements, along with new vehicle purchases, and general goods and services – all representing offsetting sales tax revenue. The Governor's Commission on Climate Change[10] and the State Energy Plan[11] address the general trend toward reduced State revenues from fuel taxes, and the various alternative funding mechanisms that can and will need to be developed, and which are independent of any specific provision such as vehicle Environmental Performance Labeling.

Economic impacts to Vermont consumers will be beneficial. The higher a vehicle's Global Warming Score, the more fuel efficient that vehicle is compared to a vehicle with a lesser score. The higher a vehicle's Smog Score, the more integrated and better built its power train compared to a vehicle with a lesser score. The higher rated vehicles will largely carry superior 15 years/150,000 warranties for anything that illuminates the Check Engine lamp, significantly reducing consumer expense and enhancing residual value.

Overall, the proposed amendments relating to Environmental Performance Labeling are expected to reduce the cost of operating a vehicle for consumers and to reduce the health and environmental impacts and attendant costs on society.

3) Emission Warranty Information Reporting and Recall Amendments.

California completed a substantive amendment to the Emission Warranty Information Reporting (EWIR) and Recall requirements earlier in 2008, effective for the 2010 Model Year which begins in January of 2009. The final amendment revised sections 1958, 1956.8, 1961, 1976, 1978, 2112, 2122, 2136, and 2141, while adding new sections 2166-2174 to Title 13, CCR, with consequent changes to the incorporated Test Procedures[12].

The heart of the amendment is to shift the burden of proof in initiating emission warranty recalls from the Executive Officer of the California Air Resources Board to the manufacturer by adding the following requirement:

> Beginning with 2010 model-year vehicles or engines, at the time of certification manufacturers shall state, based on good engineering

[10] available at http://www.anr.state.vt.us/air/Planning/htm/ClimateChange.htm
[11] available at http://publicservice.vermont.gov/pub/state-plans-compenergy.html
[12] Vermont currently incorporates by reference Sections 1956.8, 1961, 1976, 1978, 2112, 2122, 2136, and 2141, and proposes to add Sections 2166-2174.

> judgment and information available at that time, that the emission control devices on their vehicles or engines are designed and will be manufactured to operate properly and in compliance with all applicable requirements for the full useful life (or allowable maintenance interval) of the vehicles or engines. Also, vehicles and engines tested for certification shall be, in all material respects, substantially the same as production vehicles and engines. If it is determined pursuant to title 13 CCR, Division 3, Chapter 2, Article 5, sections 2166 through 2174 that any emission control component or device experiences a systemic failure because valid failure for that component or device meet or exceed four percent or 50 vehicles (whichever is greater) in a California-certified engine family or test group, it constitutes a violation of the foregoing test procedures and the Executive Officer of the Air Resources Board may require that the vehicles or engines be recalled or subjected to corrective action as set forth in title 13 CCR, Division 3, Chapter 2, Article 5, sections 2166 through 2174. Certification applications may not be denied based on the foregoing information, provided that the manufacturer commits to correct the violation.[13]

The proposed amendments will more clearly hold manufacturers accountable for representations made during the certification process that their vehicles can meet applicable emissions limits for their Useful Life, which will protect both the purchasers of their products and those air quality benefits traditionally modeled on those manufacturer statements. While the existing Emissions Warranty Information Reporting (EWIR) and Recall provisions are not thematically different, the current procedures to initiate warranty recalls have in some instances had the unfortunate result of preventing the repair of defective components, to the detriment of consumers' pocketbooks, public health, and air quality. CARB will now be able to initiate recalls on the basis of failing components alone, instead of the prior system which had required unwieldy and expensive demonstrations by CARB of average emissions exceedances for specific vehicle models.

The amended EWIR and Recall provisions will provide CARB with the option to specify an extended warranty for defective emissions parts equal to the certification useful life of the vehicle. As part of the certification process, manufacturers choose a Useful Life interval of either 120,000 or 150,000 miles for LEV vehicles.

The structure of the LEV Program provides credits for vehicles certified to a 150,000 mile life, which is also a prerequisite for earning credits to meet the Zero Emission Vehicle (ZEV) requirements which are part of the LEV Program. By the 2010 Model Year, some 43% of new vehicle sales are expected to be Partial Zero Emission Vehicles (PZEV) with 150,000 mile Useful Life certification. PZEVs are the most common,

[13] Durability provisions of ARB Test Procedures [5], e.g., California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, as set forth in 40 CFR 86.1823-01.

though not only type of ZEV credit vehicle, but do illustrate that the proposed amendments are not likely to affect a major portion of new vehicles.

CARB points out in the Final Statement of Reasons[14] for the amendment that impacts on manufacturers are projected to be minimal to modest. Costs that manufacturers bear for reporting potential defective emissions components should be reduced as the trigger level changes from one percent to four percent, while streamlined annual versus quarterly reporting requirements for initiated recall progress reports will lead to cost reductions in that area. Since manufacturers are not being held to a higher standard of construction quality than previously, and have already developed components and assembly techniques for 120,000 and 150,000 mile Useful Life intervals across their product lines, production costs are not expected to increase. CARB estimates that manufacturer experience over the past several years in building large quantities of vehicles with 150,000 mile warranties may actually reduce defect rates across all model lines by at least ten percent. CARB further points out that a manufacturer concerned about an emissions component liable to fail within the certified useful life would find the cost of improving the component substantially less than the expense to warrant the part during a recall. Industry wide, CARB estimates that costs will be equivalent to current costs.

Impacts on vehicle dealers are projected to be neutral to modestly beneficial. The mechanisms to provide warranty repairs on behalf of the manufacturer are pre-existing. Warranty visits by consumers offer dealers an opportunity to maintain contact, highlight new model availability, and potentially provide non-warranty related services.

Impacts on the aftermarket vehicle repair industry are expected to be minimal. The warranty and recall amendments will not have significantly different effects on the aftermarket than the current options available to CARB (and as pass-through decisions in Vermont). The current provisions and proposed amendments apply to those relatively new vehicles which are not frequently serviced by the aftermarket. Any proposed recall or warranty extension will apply only to specific defective components. Any warranty extension will be only for the useful life of the vehicle certified to by the manufacturers, i.e., 120,000 miles for Low Emission (LEV) and Ultra Low Emission (ULEV) vehicles, and 150,000 miles for Partial Zero Emission Vehicles (PZEV). As an estimated 43% of new vehicles in the 2010 Model Year will be PZEVs, the effective changes to aftermarket service volumes will be low.

Impacts on consumers are projected to be beneficial. Recalls will be more clearly tied to consumer expectations, and mechanisms will now exist to protect consumers in some instances against defective parts and expensive replacements for longer intervals. These potential benefits will be especially important for less affluent consumers.

Impacts on the State will be minimal. CARB initiates the recalls, and manufacturers already report their Vermont-specific numbers and recall progress reports to the Vermont

[14] CARB, Final Statement of Reasons, Amendments to California's Emission Warranty Information Reporting and Recall Regulations and Emission Test Procedures, October 2007.

LEV Program. The new annual versus quarterly recall campaign progress reports will represent a slight reduction in administrative time.

The overall economic impact of the proposed amendments relating to Emission Warranty Information Reporting and Recall requirements is expected to be positive.