

**SUMMARY OF COMMENTS AND RESPONSES**

**AIR POLLUTION CONTROL REGULATIONS  
SUBCHAPTER XI, LOW EMISSION VEHICLES**

**PROPOSED AMENDMENTS TO CONTROL GREENHOUSE GAS EMISSIONS  
FROM MOTOR VEHICLES**

**October 3, 2005**

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## **COMMENTERS**

- 1) Natural Resources Defense Council
- 2) American Lung Association of Vermont
- 3) Alliance of Automobile Manufacturers
- 4) Northeast States for Coordinated Air Use Management
- 5) Conservation Law Foundation
- 6) Vermont Public Interest Research Group
- 7) Thomas Hand, Middlebury College student
- 8) Burlington Electric Department
- 9) Association of International Automobile Manufacturers
- 10) Quebec-Labrador Foundation
- 11) General Motors Corporation
- 12) Sierra Research
- 13) Ford Motor Company
- 14) DaimlerChrysler
- 15) Environmental Defense

## **SUPPORTIVE COMMENTS**

*[The first number in a bracket refers to the Commenter quoted; additional numbers represent similar statements from other Commenters]*

1) Comment: “Contrary to what the auto manufacturers would have you believe, these regulations are about pollution and controlling pollution.” [1]

Response: The Agency proposed the amendments for their pollution-controlling effect.

2) Comment: “Adopting these standards in Vermont will deliver significant health benefits.” [1, 2, 4, 5, 6, 15]

Response: The Agency acknowledges the comment within the context of its responsibility to defend public health.

3) Comment: “Global warming threatens the Vermont environment and the economic security of Vermonters by impacting the ski industry, other tourism including the fall foliage season, the maple sugar industry, the utility grid, and the accumulation of toxins in the food chain.” [1, 5, 6, 7, 15]

Response: The Agency agrees that climate change will have negative environmental and economic impacts. There is consensus on the threat across the spectrum of commenters, merely disagreement as to the effects of the proposed amendments.

4) Comment: “The automakers’ claims of the cost of compliance in 2016 - \$3000 versus the California Air Resources Board’s \$1000 – is clearly exaggerated.” [1, 4, 5, 6, 15]

Response: The Agency acknowledges the comment. There have been compelling illustrations of the historical over-estimation of costs by not only industry, but regulators as well.

5) Comment: “In its analysis of the regulations, CARB also took a conservative approach in evaluating cost-effectiveness for consumers. The technology combinations and alternative fuel on which the proposed standards rely all entail conventional technologies and fuels or refinements of conventional technologies and fuels. Moreover, CARB’s choice of packages that yield net consumer *savings* over a vehicle’s lifecycle goes beyond the cost-effectiveness mandate that would only require emissions reductions to be cost-effective. This mandate would not require either a net savings or zero net cost, but would require that reductions be achieved at a reasonable cost. This indicates that even greater improvements would be cost-effective to consumers. This approach provides a margin of safety in CARB’s estimates; arguably, CARB could have set significantly

more stringent targets while still meeting reasonable tests of cost-effectiveness.” [15, 1, 2, 4, 5, 6]

Response: The Agency acknowledges the comment.

6) Comment: “Environmental Defense notes that the technology assessment CARB used to justify the standards represents an engineering proof of feasibility, rather than a literal prescription of the technology changes to be made in vehicles. An analogy can be made to the assessments used to justify the Low Emissions Vehicle standards promulgated in 1990, when technologies such as electrically heated catalysts had been identified as a justification [sic] for ULEV levels. As it turned out, automakers and suppliers developed other approaches for meeting the standards at lower cost. Similarly, the assessment of CO<sub>2</sub> reduction potential is best interpreted as a demonstration of engineering capability, which is in fact likely to play out in different ways – and probably less costly ways – as the requirements to cut GHGs creates a new set of design objectives for automotive engineers.” [15]

Response: The Agency agrees. The Commenter draws an important distinction that applies to the entire LEV Program – while the CARB has identified both existing and emerging technologies that address emissions reductions goals, the standards required do not specify which technologies or combinations are required. A driving force behind the LEV Program is that of “technology forcing”, where new and innovative solutions to chronic emissions problems are developed.

7) Comment: “Vermont has an obligation to address the global warming problem to protect the air we breathe, to reduce the suffering of adults and children with asthma and other lung illnesses, and to help children grow up with healthy lungs.” [2, 5, 6, 15]

Response: The Agency agrees that the link between transportation emissions, including greenhouse gases, and the rising prevalence of lung disease has been well-demonstrated.

8) Comment: “The reduction of GHG emissions is extremely important to Northeast state regulators and governors. In terms of the specific risks of climate change for the Northeast states, modeling suggests that average temperatures in New England could increase by 3.1-5.3 degrees centigrade by the year 2090. Associated impacts on the region could include more frequent and intense storms; increased damage in coastal areas from flooding and erosion associated with sea-level rises; and a variety of stresses on fishing grounds, forests, and coastal ecosystems.” [4, 5, 6, 15]

Response: The Agency acknowledges the comment. Individual state efforts are important, and gain effectiveness and benefits to citizens when coordinated on a regional basis. The basic physics of climate science has long meant that the Northeast is

particularly challenged in controlling the effects of fossil fuel emissions, of which those from transportation are the single largest source.

9) Comment: “Vermont, along with other Northeast states, has committed to reduce GHGs as part of the New England Governors/Eastern Canadian premiers Climate Action Plan adopted in 2002.” [4, 5, 6]

Response: The Agency agrees, and believes that the proposed greenhouse gas amendments to the LEV Program are an effective mechanism to responsibly meet this and other obligations.

10) Comment: “Given the gradual ramp-up of the proposed GHG standards and the current availability of technologies, the Northeast states believe the standards are fair and can be met in the timeframe set out in the regulation. Furthermore, the regulations will not only reduce GHGs but will benefit consumers given the significant savings that can be achieved in fuel costs. For example, a NESCCAF study found that consumers will save up to \$2000 over the life of a lower emitting vehicle. These savings assume a gasoline cost of \$2.00 per gallon and a vehicle life of 150,000 miles.” [4, 5, 6, 15]

Response: The Agency agrees that the proposed amendments represent an emissions reduction strategy which comes with demonstrable economic benefits to individual citizens as well as the general public and the environment.

11) Comment: “According to the U.S. EPA Office of Air Quality Planning and Standards, 86% of Vermont’s nitrogen oxide (NOx) pollution comes from mobile sources. This is the highest in the nation. Vermont is tied with Colorado and Washington State as the 6<sup>th</sup> highest state in the nation with regards to the percentage of volatile organic compounds (VOCs) which combine with NOx to form smog. If we in Vermont are going to aggressively address smog, we should take every step possible to reduce pollution from cars.” [6, 1, 5, 15]

Response: The Agency agrees that these statistics illustrate the importance of careful regulation of mobile source emissions in Vermont.

12) Comment: “55% of Vermont’s carbon dioxide (CO2) pollution comes from mobile sources. This is the second highest % in the country. CO2 is a leading greenhouse gas linked to global warming. We are already seeing the effects of global warming in Vermont. Future impacts of global warming include: reduced air quality as higher summer temperatures facilitate the formation of ozone smog; increased spread of insect-borne diseases such as Lyme disease; declines in fresh water quality due to more severe storms, increased precipitation and intermittent drought. In short, global warming will have an increasingly negative and costly impact on public health in Vermont.” [6, 1, 5, 10, 15]

Response: Please see the Response to the previous Comment.

13) Comment: “Vermont continues to have an air pollution problem. For example, the American Lung Association, in its annual State of the Air Report, gave Bennington and Chittenden Counties a “C” grade for ozone pollution. When it comes to our health, and the health of our children, a “C” just isn’t good enough.” [1, 2, 5, 6, 15]

Response: The Agency agrees that we should strive to improve air quality.

14) Comment: “While arguing that they could not meet the California standards in the U.S., a number of the auto manufacturers have made it clear to officials in Canada that they could meet similar standards without technical difficulty and in fact will do so voluntarily.” [6, 5, 15]

Response: The Agency notes that the CARB provisions formed the backstop against which the Canadian agreement was forged. Greenhouse gas emissions reduction programs are also increasing globally, with European and Asian reductions forecast at even more rapid rates than those of the LEV Program.

15) Comment: “Burlington Electric Department would like to go on record in support of the California GHG standards for automobiles. Global warming has risen to the top of environmental concerns, because of the distinct possibility that it may change our world in a very fundamental way. It is incumbent upon us to do everything we can to reduce our contribution of greenhouse gas emissions. . . we feel it is abundantly clear that any small cost of implementing these rules is very much outweighed by the benefit of cleaner air, fewer greenhouse gas emissions and a more environmentally sound state.” [8, 10]

Response: The Agency agrees that reducing the state’s greenhouse gas emissions are a clear responsibility of the Agency and notes that the proposed greenhouse gas emission standards would contribute to this effort.

16) Comment: “The economic and environmental impacts of adopting these rules are at small cost of the future value of reduced greenhouse gas emissions and cleaner air. The proposed gradual phase-in of the standards should give the transportation industry more than sufficient time to accommodate the changes.” [10, 8, 15]

Response: The Agency agrees that the benefits of the proposed amendments outweigh the costs. The surprising speed with which the transportation industry responds to market trends and requirements is well-documented and at some variance with occasional claims of long product design and development times.

17) Comment: “With less than six percent of the world’s population, the United States is responsible for over one-third of the total global emissions of pollutants that cause global warming. Transportation is the single largest and fastest growing source of these emissions within Vermont (39 percent) and New England (25 percent). Emissions from this sector are projected to comprise most of the growth in overall GHG emissions throughout the Northeast over the next decade.” [5]

Response: The Agency acknowledges the comment.

18) Comment: “Although a national regulatory program might be a more effective way to combat global warming, in the case of the transportation sector the federal Environmental Protection Agency’s Tier 2 vehicle emission regulations do not address this critical problem. Nor are there any plans by EPA to add greenhouse gas emissions standards to the Tier 2 program, despite the availability of proven cost-effective technologies to do so. Thus, in order to achieve the goals of the New England Governors and Eastern Canadian premiers (NEG/ECP) Climate Change agreement, states such as Vermont must implement their own regulatory programs.” [5]

Response: The Agency notes that the addition of several new states in the Northeast and the Northwest who have recently exercised their rights under the Clean Air Act to adopt the LEV Program, illustrates the potential for a multi-regional commitment.

19) Comment: “Even the most “conservative” climate models are forecasting massive disruption in Vermont’s natural environment over the next 100 years. These changes are predicted on such a massive scale that they are almost beyond comprehension. Indeed, credible scientists are seriously contemplating the disappearance of the sugar maple from Vermont’s forests along with a host of other trees, plants, and animals. It is hard to imagine a more dire pending environmental catastrophe.” [5, 15]

Response: The magnitude of potential changes, along with the risk of accelerated climate changes from the effects of cumulative imbalances, is cause for adopting the proposed amendments.

20) Comment: “The entire region and nation will share the economic and social losses due to detrimental changes in our tourism, forests, agriculture, maple syrup and ski industries, and many others. For example, roughly 75 percent of the total US maple syrup production is represented in the New England region. The average value of the region’s syrup production was \$25 million for 1997-99. In 2002, Vermont produced about 37 percent of the total US maple syrup. Vermont led the nation in total output by producing about 495,000 gallons of maple syrup. Judging by the 2001 price per gallon, maple syrup brought in approximately \$15,246,000 to the State of Vermont. In Vermont, the highest volume maple syrup producing state in the region, the multiplier effect of the

industry to related equipment, manufacturing, packaging, and retail sectors equals \$105 million annually and represents approximately 4,000 seasonal jobs.” [5, 15]

Response: The Agency acknowledges the comment, and notes the extent to which the Vermont economy is climate-dependent.

21) Comment: “The ski industry is also a particularly important recreational sector in New England. In Vermont, the state’s alpine ski areas and Nordic areas resulted in over \$750 million in direct spending in the year 2000 with another \$705 million in secondary, related spending. The Vermont ski industry generates over \$110 million in state tax revenues every year. During the 1999-2000 season, Vermont experienced almost 4 million skier visits, while the historical high was over 5 million visits in the mid-1980s. The Vermont Ski Areas Association’s Ski Vermont website claims that the industry brings \$1 billion into the state. Each of these industries is directly dependent on Vermont’s climate for their existence.” [5, 7, 15]

Response: Please see the Response to the previous Comment.

22) Comment: “The state’s agricultural production is at risk due to altered crop-pest relationships, more frequent extreme weather events, and warmer temperatures. Dairies likely will suffer economic losses because of more frequent incidents of heat stress among cattle.” [15, 5]

Response: The Agency acknowledges the comment, which illustrates an effect of climate change that has not been particularly noted in the news media.

23) Comment: “Shorter winters with subsequent declines in the number of days lakes are ice-covered, changing precipitation patterns, and increased evaporation and transpiration may adversely affect the reliability of Vermont’s water supply and all of the organisms that rely on it. Reduced water levels in, and the warming of, lakes and streams can accelerate the accumulation of mercury and other toxins in the food chain. Global warming also harms fish habitat through the reduction of dissolved oxygen levels in warmer water.” [15]

Response: The Agency acknowledges the comment. Recent compilation of these indicators of a changing climate has been made by the University of New Hampshire, and published in conjunction with Clean Air-Cool Planet.

24) Comment: “Another important health implication of global warming is that it brings an elevated risk of heat-related illnesses and deaths, particularly among the elderly and poor. Warmer temperatures could allow for population growth among rodents and rodent-parasites such as ticks. Global warming could also increase the incidence of

certain diseases in Vermont. Further, heavy precipitation and warmer temperature could increase cryptosporidiosis and giardia outbreaks in public water supplies.” [15]

Response: The Agency acknowledges that these are important health risks to recognize and address.

25) Comment: “Increased GHG emissions contribute to conditions favorable for the formation of ground-level ozone, specifically by increasing temperature through global warming. Conditions required to form ground-level ozone include increased temperature, strong sunlight, and the presence of ozone precursors such as oxides of nitrogen (also emitted by motor vehicles and, as a co-benefit, subject to reduction under the proposed rule). Ground level ozone and particulates (another pollutant subject to co-benefit reductions) can inflame and damage cells in the lung lining, aggravating chronic lung diseases such as emphysema and bronchitis, triggering asthma attacks and, with repeated exposure, causing permanent lung damage in children and reduced lung function in adults. In 2001, 17% of Vermont households with children reported at least one child being diagnosed with asthma. We would note the direct correlation between increased temperatures, cause by global warming, and high levels of ground level ozone. Attacking the problem of the widespread and systemic health effects of ground level ozone has been a primary mission of automobile air emissions regulation for over three decades – this regulation, attacking a root cause of the problem is simply the latest manifestation of that effort.” [5, 2, 6, 15]

Response: The Agency acknowledges the comment, which highlights the interrelation of GHG emissions with air quality and public health.

26) Comment: “If anything, CARB’s figures are conservative both in terms of timing (Toyota and Honda both exceeded the 2009 standards as early as 2003) and benefits (last year, Ford announced that it would improve average fuel efficiency, and thus greenhouse gas emissions, by 80 percent – a figure that dwarfs the impact of the new California standards). Thus, if the trend of early and over compliance continues, and there are strong indications from the market that it will, then the benefits may exceed CARB’s estimates. Moreover, given the premium on “green” vehicles in today’s market, companies that comply early will likely benefit through better sales.” [5, 15]

Response: The Agency acknowledges the comment and notes that the Commenter points to encouraging trends in the automotive industry.

## **CRITICAL COMMENTS**

*[Where quotation marks occur, the first number in a bracket refers to the Commenter quoted; additional numbers represent similar statements from other Commenters]*

27) Comment: “This regulation will impose substantial costs on Vermont consumers that far exceed any perceived benefits, and will not improve the quality of the environment in Vermont or elsewhere.” [11, 13, 14]

Response: The Agency disagrees. Please see the Responses to Comments 29 and 30.

28) Comment: Adoption of this regulation by Vermont will result in restrictions in the number and types of new vehicles that manufacturers will be able to offer our dealers for sale in Vermont. Product restrictions and higher vehicle prices will lead to large U.S. employment losses. [11, 3, 12, 13, 14]

Response: The Agency disagrees. This is a corollary argument to Comment No. 27 above. The argument is based on the assumption that certain manufacturers will decide they are not competitive in the passenger car marketplace with certain other manufacturers with sophisticated and extensive product, and will thus decide to limit models in those states with GHG standards. From lost sales in the GHG states, assembly lines may curtail production, employees could be furloughed, etc. This argument was presented to the CARB, who responded at length in the Final Statement of Reasons (FSOR) document, see particularly response numbers 387, 432 and 437. The CARB found that issues of global competitiveness, where more-accelerated GHG reduction goals are already in place, the greater profitability for manufacturers with production on a volume basis which takes advantage of economies of scale, the historical industry strategies of not passing along all immediate costs to consumers, while realizing technology and production breakthroughs in the manufacturing process, and the rising public demand for fuel efficient vehicles, along with the California Assembly’s directive to develop a program which would specifically avoid such a result, make such assertions unlikely. More recent developments, especially the rising cost and decreased availability of fuel, have significantly shifted the focus of manufacturers, who have acknowledged a significant decrease in sales of heavier, less-efficient vehicles, and the acceleration of programs to address market appetite for more-efficient vehicles.

29) Comment: “The Vermont Agency of Natural Resources (VANR) has proposed to adopt California’s greenhouse gas (GHG) regulations for new motor vehicles. In taking this action, VANR appears to assert, without having performed any technical analysis, that there will be no impact associated with the adoption of the California GHG regulations on criteria air pollutants and precursor emissions in the state. . . Given the above, an independent review of the impact of adoption of the California regulations on

criteria pollutants and precursor emissions in Vermont has been performed relative to opting out of the California LEV II regulations.” [12, 3]

Response: The Agency notes that the voluminous material supplied by the Commenter supporting their core argument – that Vermont adoption of GHG standards will result in an increase in criteria pollutants – relies on assumptions which have been examined in detail by the California Air Resources Board. As part of the final rulemaking package for the GHG amendments the Air Resources Board issued a 12 page document on August 4, 2005 titled “ARB Staff Responses to Comments Raising Significant Environmental Issues Regarding the Proposed Regulations to Control Greenhouse Gas Emissions from Motor Vehicles” addressing Commenter’s assertions, and summarizing the sixty-some pages devoted to Commenter’s California comments in the FSOR. The Commenter has now adjusted its California analysis for Vermont. Because the basic premises and assumptions remain unchanged, interested parties are referred to the CARB document cited above for an in-depth treatment, as well the CARB Responses to Comments numbers 467-477 in the Final Statement of Reasons.

Briefly, Commenter’s submission to Vermont consists of modeling, in three separate reports, hinging on assumptions that consumers will delay the purchase of new vehicles, thus keeping older, more-polluting vehicles in the fleet longer (the so-called “fleet-turnover effect”), but yet sufficient new vehicles will also be sold with technological improvements in efficiency and utility, which will then promote a “rebound” effect in which consumers drive substantially more miles than previously.

With regard to the fleet-turnover effect, the Commenter’s estimates of increased vehicle costs are based on the use of costly technologies that are unnecessary and not cost effective. Historically, manufacturers have consistently overestimated the actual cost of complying with stricter emission standards by 2 to 10 times. According to the same economic theories the Commenter is applying to this proposed regulation, new vehicle sales should have declined when Vermont adopted the California Low Emission Vehicle standards effective with model year 2000. Yet new vehicle sales trends in Vermont since 2000 have actually outpaced national sales trends. Also, by significantly overestimating vehicle costs, the Commenter failed to consider how operating cost savings more than offset the increased purchase price, and how this in turn would tend to actually increase fleet turnover. In addition, failing to account for the credit provisions that provide flexibility to manufacturers and decrease compliance costs, further contributes to the Commenter’s significant overestimate of vehicle costs.

With regard to the rebound effect, the Agency believes these claims are without merit because in estimating the disposable income (resulting from operating cost savings associated with increased vehicle efficiency) that could be used to increase driving, the commenter has failed to account for the increased purchase price of vehicles. In addition, recent increases in gasoline prices further reduce disposable income available for extra driving.

Separately, Commenter claims that Fuel Cycle criteria emissions in Vermont will be reduced less than forecast, although still reduced. The Agency did estimate Fuel Cycle criteria pollutant reductions in the Scientific Information Statement.

In addition to the considerable work undertaken by CARB Staff to examine and respond to Commenter's modeling and its assumptions, the Agency has had the Commenter's modeling reviewed independently by Meszler Engineering of Abingdon, Maryland. Briefly summarized, Meszler Engineering found that Commenter's assumptions were based on a scenario that they themselves believed to be an unlikely "compliance measure of last resort", and incomplete in the treatment of the complex interplay of vehicle miles traveled (VMT), fleet turnover, and the potential for the cost of fuel, vehicle price, household income, and vehicle technology improvements to change VMT. Meszler found that rising fuel costs were likely to exert a key controlling effect on the rate of VMT growth, and to be a major driver in consumer choice of replacement vehicles. In addition, Commenter's modeling contained technical errors whose severity once corrected actually showed decreased criteria pollutants in 2030 even without correction of other inadequacies and flawed assumptions. Meszler's examination of historical Vermont-specific VMT growth correlated to the cost of fuel indicated that Commenter's modeling assumptions were routinely askew.

The Agency is confident that the emissions benefits of the proposed greenhouse gas amendments are substantial and important. Regionally, the Northeast states expect consistent and quantifiable reductions similar to those modeled for California.

30) Comment: "VTDEC should expect an increase in roadway congestion in future years above the level that would prevail in the absence of new regulation." [12]

Response: Commenter suggests such a scenario based on their VMT "rebound effect" assumptions discussed in the Response to previous Comment No. 29. The Agency disagrees for those reasons stated in our response above.

31) Comment: "There is no evidence that adoption of the California greenhouse gas rule in Vermont would have any effect on the climate of Vermont. If the goal of the regulation is to address climate change, the only purpose served by adopting the California rule would be symbolic." [3]

Response: It is important for Vermont to contribute to regional and national efforts to reduce greenhouse gas emissions. In California, the reductions will be comparable to a major signatory to the Kyoto Accord. In the Northeast, individual state actions will be comparable to smaller countries participating in Kyoto. In the aggregate, with the anticipated reductions from 3 West Coast states, 6-7 in the Northeast, plus the Canadian reductions which were negotiated with the California requirements as the thematic backstop, the aggregated reductions will be clearly important. The goal of the regulation

is to reduce greenhouse gas emissions from the light-duty transportation sector. Emissions do not honor theoretical state and nation boundaries.

32) Comment: “The California greenhouse gas rule would needlessly inject the government into consumers’ choices about the types of vehicles that best suit their needs.” [3]

Response: The greenhouse gas amendments were specifically developed under requirements to not limit consumer choice as to type, performance, or weight. The manufacturer obligation is to have their overall fleet mix meet an annual greenhouse gas emissions target, which gradually declines and is set based on the manufacturer with the least developed technology. There is no requirement to develop a specific type of vehicle. A long-standing function of government has been to set reasonable standards for industry to protect human health and the environment, which have included requirements for seat belts, bumper and side impact performance standards, air bags, catalytic converters, non-venting gas caps, etc. These standards have not required new types of vehicles.

33) Comment: “In addition to providing no significant environmental benefit, the proposed greenhouse gas rule would compromise traffic safety, if one accepts CARB’s premise that the California rule would result in nationwide deployment of vehicles designed to comply with the California standards. On that assumption, the least-costly compliance strategies for the California rule will include significant reductions in the weight of new vehicles.” [3, 12]

Response: This safety issue has been the subject of considerable discussion. Please see the Comments and Responses numbered 191 through 193 in the CARB Final Statement of Reasons (FSOR) document for an expanded and illuminating view from both sides of the fence on this issue. The Agency agrees with CARB’s Responses on this issue. Briefly summarized, weight and size are often confused, as is the function of design. No one element is a guarantor of safety. The GHG standards neither require nor encourage downsizing.

34) Comment: “In estimating the “pay-back” period over which it predicts that consumers will recover the costs of vehicles designed to meet the California standards, Attachment A to the Economic Impact Statement assigns a type of private discount rate to the reduced operating costs it attributes to the technologies it identifies. The discount rate assumed by the plan is five percent, the same as in California. If the discount rate is higher than five percent, then the present value of future fuel economy savings would fall. The peer-reviewed literature indicates that the private discount rate applied in the market for personal-use vehicles is higher than five percent.” [3]

Response: The Agency refers the Commenter and other interested parties to the lengthy discussion of this topic in the CARB Final Statement of Reasons numbers 247 through 250. The Agency will also note that the greater dynamic in payback is the cost of fuel, which has dramatically increased from the \$1.74 figure used in the CARB analysis.

35) Comment: “In addition, the analysis of the consumer value of the California program appears to assume that Vermont residents who purchase a new vehicle would retain it for the vehicle’s full service life. Such an assumption is certainly invalid for most new-vehicle buyers. Assuming that a new-vehicle purchaser is behaving rationally, the new-vehicle purchaser will not assume that when she is ready to sell the vehicle into the used-vehicle market, the prospective purchasers will be able to obtain credit at the same loan rate that she can obtain in the new vehicle market.” [3]

Response: The Agency uses standard assumptions in its analysis. The reduced costs of ownership of any GHG-compliant vehicles extend for the lifetime of the vehicle regardless of the chain of ownership.

36) Comment: “The economic analysis ignores opportunity costs, which are important in any mainstream economic analysis of measures like the California rule. The total costs of such a rule include, for example, the value of the foregone opportunity to purchase a vehicle which may be less fuel-efficient but has other features that a consumer desires more than enhanced fuel efficiency. Such features obviously include vehicle performance, safety, capacity, comfort and aesthetics. Consumers who buy a vehicle, but who are forced to purchase technology or other features added or subtracted from the vehicle to meet standards that they would not otherwise prefer, incur costs that are real and quantifiable.” [3]

Response: The Agency reiterates that the greenhouse gas provisions were developed under specific direction of California Assembly Bill 1493, which prohibited reduction in type, performance, or weight. Attention is directed to Comment No. 6 in the first section and to the response to Comment No. 32.

37) Comment: A number of issues and documents were presented to the Agency that were also submitted to the California Air Resources Board (CARB). For example, issues such as differential treatment of manufacturers based on sales volume, availability of commercial vehicles, and alternative compliance mechanisms; and documents such as a reprint from the “Journal of Economic Perspectives”, Spring 2004, with a comment on fuel economy standards, a November 2003 policy paper from Resources for the Future entitled “The Economics of Fuel Economy Standards”, and copies of industry representative comments and industry-sponsored studies submitted previously to the California Air Resources Board were examples of ancillary material received. [3, 11, 12, 13, 14]

Response: CARB responded to these issues and documents in detail during their rulemaking process. The Agency has reviewed and agrees with CARB's responses to these comments. *See generally* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons (Aug. 4, 2005).

## **LEGAL COMMENTS**

38) Comment: Vermont has authority under federal law to adopt the California program, and CARB has done a thorough, technically sound job with these new greenhouse gas emission standards. [1]

Response: The Agency agrees.

39) Comment: Federal law allows state policy makers a choice between two options to regulate tailpipe emissions for new cars and trucks. The first option is the basic federal certification standard known as Tier 2. The second option is the adoption of the Clean Cars Standard originally created by the state of California. This standard, LEV II, produces greater emissions reductions than the federal standard. [6]

Response: The Agency agrees that under the Clean Air Act, Vermont has two options in regulating tailpipe emissions for new cars and trucks: (1) follow the default federal emission standards; or (2) adopt California's emission standards. Historically, the California vehicle emissions standards have consistently been more progressive than the federal program.

40) Comment: Under section 177 of the federal Clean Air Act, states may not adopt their own vehicle emission standards except that states in violation of national ambient air quality standards may adopt the California vehicle emission standards, but only so long as the standards are identical to those in place in California for each model year. See 42 U.S.C. § 7507. Additionally states adopting under section 177 must provide two years lead time between final adoption to the effective date. Vermont is an adopting state under section 177. [5]

Response: The Agency agrees that states adopting California vehicle emission standards under section 177 must provide two years lead time between final adoption and enforcement of the emission standards. The Agency also agrees that Vermont is an adopting state under section 177. However, the Agency notes that Vermont is in attainment with national ambient air quality standards. As the Agency has explained in past LEV rulemakings, section 177 of the Clean Air Act states that "any State which has plan provisions approved under this part [Part D of Title I] may adopt and enforce" emission control standards which are identical to the California standards for which a waiver has been granted by EPA. Section 177 does not require the existence of non-

attainment areas in a state as a prerequisite to adopting the California standards; it does require that the State Implementation Plan have provisions that arise out of Title I, Part D. In Subpart 2 of that Part, subsection 184(a) of the Clean Air Act establishes an Ozone Transport Region (OTR) including Vermont. Subsection 184(b) requires the adoption by states in the OTR of certain plan provisions. Vermont has adopted plan provisions to satisfy the requirements of subsection 184(b). Vermont is, therefore, entitled to adopt new vehicle emissions standards that are identical to the California standards under section 177 of the Clean Air Act.

41) Comment: California's GHG standards are incorporated into its Low Emission Vehicle standards and become effective in Model Year 2009. *See* Title 13 CCR § 1900 *et seq.* Therefore, the Vermont Agency of Natural Resources must also adopt the proposed rule effective MY 2009 in order to remain identical with California. Importantly, the Agency need not and, indeed, given the above timeframes, cannot wait for a decision from EPA regarding a federal waiver pursuant to 42 U.S.C. § 7543(b). The only constraint is that enforceability in Vermont is contingent upon granting of the waiver. *See Motor Vehicle Manufacturers Association v. DEC*, 17 F.3d 521, 533-34 (2nd Cir. 1994). For the same reasons, Vermont should adopt the proposed rule now and not wait until the legal challenges to the California rule have been resolved. [5]

Response: The Agency intends to adopt the proposed rule by the end of this calendar year so that it will be enforceable with model-year 2009 vehicles.

42) Comment: Should Vermont fail to keep pace with and remain identical to California, it risks losing credit in its State Implementation Plan for reduction of criteria pollutants. As these credits are not easily replaced, such an event could subject the state to the Clean Air Act's costly penalty provisions. Finally, the California GHG rule uses a carefully calibrated phase-in requirement, early reduction credits, early credit trading, and alternative compliance strategy – all of which are time-date dependent. Thus, in order to adopt identical provisions (and to avoid the difficult and expensive task of creating a comparable phase in and credit program as with the Zero Emission Vehicle rule), Vermont must stay synchronous with the California program. For all of these reasons, the Agency's proposed revisions are timely and appropriate, and immediate and full adoption is encouraged. [5]

Response: Monitoring of ozone in Vermont indicates that this criteria pollutant is right at the level of the health-based National Ambient Air Quality Standard (NAAQS) for ozone. Because the levels of ozone and other criteria pollutants in Vermont do not exceed the NAAQS, the requirement of State Implementation Plan credits does not apply. However, the actual air quality benefits of the lower emissions of California certified vehicles are very important to the State's proactive strategy of remaining in attainment of the NAAQS, so as to avoid the adverse consequences to human health, environmental impacts, and the legal obligations associated with air quality nonattainment. For these reasons and to stay in sync with the California program, the Agency agrees that the

proposed amendments to Vermont's low emission vehicle program are timely and appropriate.

43) Comment: Insofar as section 177 of the federal Clean Air Act governs, Vermont should adopt California's automotive greenhouse gas standards to assure continued and comprehensive consistency with California's vehicular emissions program. [15]

Response: The Agency agrees.

44) Comment: State standards for greenhouse gas emissions from motor vehicles are *de facto* fuel economy standards for vehicles, which are preempted by federal fuel economy laws and regulations. [3, 9, 11, 13, 14]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB's responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 358-67 (Aug. 4, 2005).

45) Comment: Vermont's proposed amendments do not meet the requirements of section 177 of the Clean Air Act. Section 177 states that eligible states may only adopt "California standards for which a waiver has been granted" by EPA under section 209 of the CAA. At this time, EPA has not granted or even considered a section 209 waiver for California's greenhouse gas emission standards, and California has not yet requested such a waiver. [9]

Response: The Agency disagrees. Section 177 actually states that eligible states may only "adopt and *enforce* . . . California standards for which a waiver has been granted" by EPA under section 209. 42 U.S.C. § 7507 (emphasis added). The Second Circuit has held that "the waiver is a precondition to enforcement of the standard that has been adopted. *Motor Vehicles Mfrs Ass'n v. New York State Dept. of Env'tl. Conservation*, 17 F.3d 521, 534 (2d Cir. 1994). Accordingly, a state may adopt California's emission standards before EPA grants a waiver, "so long as [the state] makes no attempt to enforce the plan prior to the time when the waiver is actually obtained." *Id.* Thus, Vermont may adopt California's greenhouse gas emission standards prior to the time that EPA grants a waiver and still meet the requirements of section 177. Alternatively, California may make a determination that the greenhouse gas emission standards are within the scope of an existing waiver granted by EPA under section 209.

46) Comment: There is no basis for Vermont's conclusion that it is required to adopt the California greenhouse gas standards to meet the requirements of section 177 unless EPA

determines that the greenhouse gas standards are not severable for the purposes of section 177. [9, 13]

Response: The Agency disagrees. Read in the greater context of section 209 and in light of the legislative history, section 177 admits to only one interpretation: that Congress, in passing these provisions, intended there to be “two, and only two, permissible sets of regulations limiting emissions from new cars sold in the United States. There are California regulations; and there are the federal regulations, which preempt the laws of the other 49 states.” *Commonwealth of Virginia v. Environmental Protection Agency*, 108 F.3d 1397, 1401 (D.C. Cir. 1997). Allowing states to cherry pick between California standards and federal standards for a given model-year could result in a patchwork of state regulatory regimes relating to emission standards contrary to clear congressional intent. Accordingly, the Agency believes the only permissible interpretation is that section 177 requires eligible states to either adopt all of the California emissions standards for a particular model year or accept the default federal standards for that model year.

The Commenter refers to the “severability test” that EPA used to conclude that states adopting California low emission vehicle (LEV) standards were not required to adopt California’s zero emission vehicle (ZEV) mandate to satisfy section 177’s identity requirement. *See* U.S. Environmental Protection Agency, Final Rule on Ozone Transport Commission; Low Emission Vehicle Program for the Northeast Ozone Transport Region, 60 Fed. Reg. 4712, 4729 (Jan. 24, 1995). In reaching this conclusion, EPA reasoned that “[t]he ZEV production mandate and the remainder of the LEV program can be segregated from each other, and the ZEV mandate is not essential for implementation and enforcement of the remainder of the LEV program.” *Id.* However, this interpretation of section 177 has never been reviewed by a court of law, and it is not clear that it would be entitled to deference under *Chevron v. Natural Resources Defense Council*, 467 U.S. 837 (1984) (“If the intent of Congress is clear, . . . the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress. If, however, the court determines Congress has not directly addressed the precise question at issue . . . the question for the court is whether the agency’s answer is based on a permissible construction of the statute).

Section 177 of the Clean Air Act authorizes certain states to “adopt and enforce for any model year standards relating to the control of emissions” only if “such standards are identical to the California standards.” 42 U.S.C. § 7507. In passing this provision, Congress sought to balance its concern that subjecting vehicle manufacturers to “50 different sets of requirements relating to emission controls” would be unduly burdensome with its concern that federal preemption under section 209(a) “interferes with legitimate police powers of States [and] prevents effective protection of public health . . . .” H.R.Rep. No. 95-294, at 309-10 (1977) *reprinted in* 1977 U.S.C.C.A.N. 1077, 1388-89. To balance these conflicting interests, Congress enacted section 177 so that “states attempting to combat their own pollution problems could adopt California’s more stringent emission controls.” *Motor Vehicles Mfrs Ass’n v. New York State Dept. of Env’tl. Conservation*, 17 F.3d 521, 531 (2d Cir. 1994) (citing H.Rep. No. 294, 95<sup>th</sup> Cong.,

1<sup>st</sup> Sess. 309-10 (1977)). Allowing states to adopt some but not all of the California emission standards for a given model year, regardless of whether the standards can be segregated from one another, could result in numerous sets of state requirements relating to motor vehicle emission controls contrary to the plain language and legislative intent of section 177.

In any event, regardless of whether or not Vermont is required to adopt California's greenhouse gas emission standards under section 177 of the federal Clean Air Act, doing so ensures consistency with section 177. *See* 60 Fed. Reg. at 4728, n.21 ("EPA believes that the incorporation of the ZEV production mandate into a state's LEV program is consistent with the requirements of section 177."). In addition, incorporation of California's greenhouse gas emissions standards into Vermont's LEV program furthers Vermont's longstanding policy of adopting California's technology forcing emission standards as part of a regional effort to reduce air pollution from motor vehicles and its commitment to reduce greenhouse gas emissions as part of the New England Governors/Eastern Canadian Premiers Climate Action Plan. Thus, Vermont's adoption of California's greenhouse gas emissions standards is, at a minimum, consistent with section 177 of the Clean Air Act.

47) Comment: The California rule stands in sharp contrast to the collaborative, government-industry voluntary programs that deal more realistically with the issue of greenhouse gases such as the memorandum of understanding (MOU) between the Canadian automobile industry and the Canadian government. The MOU is not expected to require major changes in vehicle pricing or sales mix, including the cancellation or restriction of certain vehicle models in Canada. In contrast, the California regulation is expected to result in each of those adverse outcomes. [11]

Response: The Agency agrees that there are some key differences between the Canadian MOU and the California greenhouse gas regulations. The primary difference is that the MOU is a voluntary agreement, which by virtue of its nature does not *require* any changes or reductions in greenhouse gas emissions. The proposed amendments, on the other hand, are regulatory requirements. Given the two-year period between adoption and enforcement of the California greenhouse gas emission standards, the gradual ramp-up of the standards, and the current availability of technologies needed to meet the standards, the Agency believes the standards are fair and achievable. Moreover, the standards are expected to result in an economic benefit to Vermont consumers due to reduced vehicle operating costs over the life of vehicles subject to the standards.

48) Comment: Emissions of greenhouse gases from Vermont's automobiles are not of a sufficient quantity and duration as to qualify such emissions as an air pollutant under Vermont law. Under Vermont law, "The secretary may establish such emission control requirements, by rule, as in his judgment may be necessary to prevent, abate, or control air pollution." 10 V.S.A. § 558. The term "air pollution" is defined by statute as "the presence in the outdoor atmosphere of one or more air contaminants in such quantities,

and duration as is or tends to be injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or property. Such effects may result from direct exposure to air contaminants, from deposition of air contaminants to other environmental media, or from alterations caused by air contaminants to the physical or chemical properties of the atmosphere.” 10 V.S.A. § 552(3). Although carbon dioxide is an “air contaminant” under Vermont law, the Agency does not have authority to establish emission control requirements for greenhouse gases such as carbon dioxide unless the Agency makes a determination that greenhouse gases are of such quantity and duration to cause injury to human health or welfare, the environment, or interfere with the enjoyment of life or property. Because the Agency has not made this determination, carbon dioxide is not an air pollutant under Vermont law and regulation, and therefore the Agency has no basis for its regulation. [3]

Response: The Agency disagrees. The Agency is clearly authorized to establish emission controls as a preventative measure against air pollution. The plain language of 10 V.S.A. § 558 authorizes the Agency to establish emission controls, if, in the Agency’s judgment, such controls “may be necessary to *prevent* . . . air pollution” (emphasis added). In other words, the Agency may establish emission controls for air contaminants *before* the contaminants are present at such quantity and duration to cause injury to human health or welfare, the environment, or interfere with the enjoyment of life or property.

Nevertheless, as set forth in the Scientific Information Statement for this rulemaking, the Agency concluded that anthropogenic greenhouse gas emissions are causing climate change to occur at an unprecedented rate. Undesirable impacts of climate change include shifting temperature averages and extremes, the timing and amount of precipitation, changes in plant and animal varieties common to a region, an increase in harmful lower atmosphere ozone levels, an increased frequency of extreme weather events, and the prevalence of vector-borne disease. All of these impacts can be described as “tend[ing] to be injurious to human health or welfare, animal or plant life, or property” or “unreasonably interfere[ing] with the enjoyment of life or property.” 10 V.S.A. § 552(3). The Agency also concluded that such effects result “from alterations caused by air contaminants to the physical or chemical properties of the atmosphere.” *Id.* Furthermore, the Agency determined that the proposed amendments are expected to significantly reduce emissions of greenhouse gases, hazardous air contaminants such as benzene, as well as the criteria pollutants non-methane organic gases, oxides of nitrogen, and carbon monoxide. Thus, in the Agency’s judgment, the proposed amendments “may be necessary to prevent, abate, or control of air pollution” caused by greenhouse gases, hazardous air contaminants, and criteria pollutants. 10 V.S.A. § 558.

49) Comment: The proposed standards are not “consistent with section 202(a)” of the Clean Air Act because EPA cannot regulate carbon dioxide under section 202(a). [3]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB’s

responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 355-57 (Aug. 4, 2005).

50) Comment: The proposed standards are not “consistent with section 202(a)” of the Clean Air Act because EPA cannot adopt the MAC design standards under section 202(a). [3]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB’s responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 357-58 (Aug. 4, 2005).

51) Comment: The Agency cannot enforce a fleet average greenhouse gas standard under section 177 of the Clean Air Act because manufacturers would be forced to limit the sale of some of their California-certified vehicles in order to meet the fleet average standards in Vermont. This would violate the “sales limit” provision of section 177 of the Clean Air Act. [3]

Response: The Agency is not adopting the fleet average emission requirements for greenhouse gases to directly or indirectly limit the sale of California-certified vehicles in Vermont. Please see Response to Comment 28. Rather, the Agency is adopting this requirement because it is identical to the California standard. Section 177 of the Clean Air Act authorizes Vermont to adopt and enforce emission standards for new motor vehicles only if “such standards are identical to the California standards.” 42 U.S.C. § 7507. In 1990, section 177 was amended to also provide that states shall not “prohibit or limit, directly or indirectly, the manufacture or sale of a new motor vehicle or motor vehicle engine that is certified in California as meeting California standards.” *Id.* The Second Circuit has explained how the identicality and “sales limit” provisions of section 177 should be read together:

Congress wanted the plans of opt-in states to be identical to those of California, as is evident from the identicality requirement. Ruling in effect that one portion of the plan adopted according to the specific instructions in § 177 somehow at the same time violates § 177, places . . . opt-in states in Catch-22 position. Like the third-vehicle rule, the sales-limitation rule is designed to reinforce the identicality requirement.

*Motor Vehicles Mfrs Ass’n v. New York State Dept. of Env’tl. Conservation*, 17 F.3d 521, 536 (2d Cir. 1994). Accordingly, it would be incongruous with congressional intent to conclude that the Agency is wrongly mandating a fleet average requirement that is identical to California’s standard. *See id.* at 537.

Further, contrary to the Commenter's assertion, the Supreme Court's decision in *Engine Manufacturers Association v. South Coast Air Quality Management District*, 541 U.S. 246 (2004), is inapplicable to the facts and issue at hand. The Supreme Court's decision in that case addressed whether a state air quality management district's rules requiring fleet operators to purchase or lease only vehicles that met state motor vehicle pollution standards were "standards" under section 209(a) of the Clean Air Act and thus preempted by section 209(a). *Id.* Here, unlike in *Engine Manufacturers Association*, there is no debate that the fleet average emission requirements for greenhouse gases are "standards." Moreover, the emission standards that Vermont is adopting are identical to the California standards. While section 209(a) of the Clean Air Act generally preempts states from adopting their own emission standards for motor vehicles, 42 U.S.C. § 7543(a), section 177 authorizes certain states, such as Vermont, to adopt and enforce emission standards that are "identical to the California standards." 42 U.S.C. § 7507. Because section 177 of the Clean Air Act was not at issue in *Engine Manufacturers Association*, the Supreme Court's decision does not shed any light on the provisions of section 177.

Given that the Supreme Court's decision does not address section 177, the Second Circuit's reasoning in *Motor Vehicles Mfrs Ass'n* still stands: "It would be inappropriate to construe the 1990 amendments in a manner that would effectively prohibit any state from opting into the California program since Congress so obviously planned for several states to have that option." 17 F.3d at 537.

52) Comment: The proposed regulation is invalid under the Dormant Commerce Clause of the U.S. Constitution because it excessively burdens interstate commerce in relation to its putative local benefits. [3]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB's responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 372-73 (Aug. 4, 2005).

53) Comment: The foreign affairs power and the Supremacy Clause of the U.S. Constitution preempt the proposed regulations because unilateral efforts by individual states to reduce motor vehicle CO2 emissions will frustrate established foreign policy. [3]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB's responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 368-69 (Aug. 4, 2005).

54) Comment: The California standards require that when one manufacturer owns 10% or more of the shares of another, the two companies may only meet their greenhouse gas obligations by coordinating key strategic decisions. Such coordination among competitors violates federal antitrust laws. [3, 11]

Response: The California Air Resources Board (CARB) received similar comments during their rulemaking process. The Agency has reviewed and agrees with CARB's responses to these comments. *See* CARB, Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 369-72 (Aug. 4, 2005).