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November 25, 2009

RE: Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; 74 Fed.Reg. 49454 (September 28, 2009); EPA Docket ID No. EPA-HQ-OAR-2009-0472

California through its Air Resources Board (CARB) is pleased to provide these comments to supplement the testimony that our Chief Deputy Executive Officer, Thomas C. Cackette, provided to the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) at their October 27, 2009 hearing in Los Angeles. That hearing and the ones preceding it in Detroit and New York continued the historic steps that the Obama Administration initiated in May of this year toward federally regulating this country's greenhouse gas emissions and their contribution to global warming and its devastating impacts. California applauds the important work EPA and NHTSA have done to develop, release and take comment on the subject proposal.

The joint proposal properly recognizes that the Clean Air Act is an appropriate tool for regulating greenhouse gas emissions, beginning with passenger motor vehicle emissions. As decades of agency practice have shown, the Act is technology-forcing yet flexible. The Act allows – indeed expects – that EPA will set ambitious yet achievable and typically performance-based standards further into the future than NHTSA can do under its authority. EPA's standards are a recipe for the type of transformative technological change that will be needed from many emission sources over the coming decades in an effort to avoid the worst impacts from global warming.

CARB strongly supports the joint proposed action, most importantly the stringency of the greenhouse gas emission standards as proposed for each year in the 2012 through 2016 model years. Those standards align very well with California's adopted and now enforceable Pavley greenhouse gas emissions standards for those model years, ultimately arriving at the same stringency as California's standards in 2016. The proposed standards are the result of the agencies' thorough review and study of technical, engineering, and cost studies and a reasonable weighing of their respective statutory directives. The proposal also contains several provisions that will help to ensure no credit windfall occurs that could undermine the standards and reduce their cumulative greenhouse gas reductions. However, CARB has two concerns that must

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California Environmental Protection Agency

be addressed in the Final Rule to ensure California's continued support for the National Program.

*Maintain Standards' Stringency.* First, the Final Rule needs to maintain the proposed standards' stringency in each model year 2012 through 2016. It appears that a principal industry trade group has proposed reducing the stringency of the proposed fuel economy standards for model year 2012-2015, arguing that, as currently proposed the standards do not meet EISA's requirement for the standards to increase "ratably." See Alliance of Automobile Manufacturers (Alliance) Document ID EPA-HQ-OAR-2009-0472-6952.1. CARB strongly opposes the Alliance proposal.

California committed to adopt the national program for model years 2012-2016 with the understanding that it would provide equivalent or better overall greenhouse gas reductions nationwide than California's program standing alone, and the Alliance proposal threatens that equation. First, the proposed fuel economy and greenhouse gas requirements were designed to establish a national program with a consistent and harmonized approach that would reduce greenhouse gas emissions and improve fuel economy from light-duty vehicles. Because the Alliance is also recommending that EPA's GHG standards be simultaneously stepped, the greenhouse gas reductions projected for the national program would be significantly reduced. Second, the proposed fuel economy and greenhouse gas requirements were established after a joint effort by both agencies to determine standards that were technically feasible and cost-effective in the timeframe proposed. We do not believe that a case has been made to refute the agencies' analyses. These and other Alliance recommendations need careful review to ensure that they do not reduce the stringency and consequent cumulative greenhouse gas reductions California expected in committing to the National Program.

*Advanced Vehicle Credits – ZEVs.* Second, EPA needs to assign a non-zero upstream greenhouse gas emission factor for zero-emission vehicles (ZEVs). EPA has proposed to make additional credits available for advanced technology vehicles such as electric vehicles (EVs), plug-in hybrids and fuel cells. However, EPA is proposing to ignore the lifecycle emissions of these vehicles by assigning a GHG emissions value of zero grams per mile towards compliance with the national standard. Furthermore, the NPRM proposes that a multiplier ranging from 1.2 to 2.0 be assigned for each vehicle. While the intent is to encourage the early development and production of advanced vehicle powertrains – a goal with which CARB agrees – the proposed credits for these technologies are excessive. In light of some manufacturers' announcements for large scale production of EVs, the potential magnitude of these credits may delay the implementation of improved GHG technologies on conventional vehicles, thereby reducing the effectiveness of the proposed program.

Accordingly, EPA should strike a balance between encouraging advanced vehicle development and protecting greenhouse gas reductions by assigning lifecycle emissions to these vehicles. Several studies suggest that a lifecycle emission value of 200 grams per mile would be appropriate for EVs on the national grid. Assigning that or a similar supported value will provide appropriate credit applying the 1.2-2.0 vehicle multiplier. Because significant numbers of commercially available EVs and fuel cell vehicles will be needed in the 2020 timeframe to achieve the greenhouse gas reductions required to meet the long term goal of reducing global warming, such credits should be restricted to EVs and fuel cell vehicles only.

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*Other Issues.* Other issues of concern to CARB include an assigned Social Cost of Carbon (SCC) at \$20/ton of greenhouse gas emissions that is arguably too low, and suggestions in the preamble and in others' comments that tend to overvalue consumers' desire for certain vehicle attributes (e.g. electronics, horsepower) while undervaluing fuel savings benefits. The remainder of our comments provide further detail on these and other issues of concern, or respond to the agencies' specific requests for comment.

*Social cost of carbon.* CARB recognizes that the \$20/ton of avoided GHG emissions is an interim figure, but as we previously commented (Document ID No. NHTSA-2008-0089-0173) and based on comments submitted by Prof. Hanneman, CARB believes the value could be much higher than \$20/ton. Prof. Hanneman suggests a value starting in 2005 of \$25/ton and adjusted annually using a real growth rate of 2.4%; this would yield a value of \$36/ton in 2020. This is similar to EPA's previous meta analysis of the social cost of carbon, which yielded values of \$40/ton at a 3% discount rate. However, a recent survey by NYU's Institute for Policy Integrity of 144 international climate change economists suggests an even higher value of \$50/ton. Thus, we are pleased to see sensitivity analysis at social costs ranging from \$5 to \$56. But given the large range of uncertainty surrounding potential effects from climate change, many of which are omitted in the models used to calculate the social cost of carbon, it would seem prudent to include a bounding case of \$200/ton to represent a low probability, but highly catastrophic and irreversible event.

Going forward, we suggest providing a fuller explanation for why only the two unadjusted model-weighted means are averaged while the adjusted means are included in the sensitivity analysis but not in the total arithmetic average (as well as justification that the arithmetic mean is the appropriate measure for combining these values). If the reason for averaging the estimates associated with the different discount rates was because of uncertainty, it would seem that the Newell & Pizer random-walk estimates, which more explicitly account for uncertainty in future discount rates, should also be included in this average. Additionally, given the uncertainty surrounding discount rates,

we would also recommend inclusion of estimates at rates less than 3%, which is consistent with prior EPA analyses dealing with longer term issues posing intergenerational concerns.

Furthermore, while the climate scenarios used in creating the model averages are described as all being business-as-usual cases, it is not clear what these cases are assuming for base case economic growth, population growth or technological innovation. Within the FUND model, there appears to be non-trivial variation between estimates and no two papers use the same climate scenarios. Additional categorization within this family of estimates may be needed, as well as greater assurances that these business-as-usual scenarios are using similar parameters across models before combining them into a model-weighted mean. We note also that the DICE model does not provide any estimates at a 3% discount rate, and thus the model-weighted mean at 3% is averaging only 2 values. Though not critical, results could be more robust with this third value averaged in.

*Energy Paradox/Efficient Markets.* EPA sought comments on the potential consumer welfare loss that may accompany private gains from fuel savings and how to reconcile economic theory with actual consumer behavior (i.e. the so-called Energy Efficiency Paradox) (p. 49602m). We support EPA's position that any welfare losses would be outweighed by the private and social benefits of this rule and believe the Energy Paradox is based on many assumptions that are flawed.

We believe that rational consumers will seek to minimize fuel costs for their preferred vehicle configuration. This rule will provide previously unavailable vehicle offerings that may lead to a gain in welfare for many consumers. We agree with the agencies that only fuel economy and price will be affected by this rule, i.e. that compliance costs have included the costs to maintain other attributes at current levels (see more below on opportunity costs). As for potential welfare losses due to substitution effects, the footprint-based proposal will preserve consumer choices and result in minimal mix shifting. As addressed below, we do not believe that fleet turnover effects will be significant. Thus, associated welfare losses of consumers delaying purchases will likely be small as well.

The Energy Paradox is based on the following assumptions: 1) consumers have full information and foresight; 2) markets are efficient so that current vehicle purchasing patterns are reflective of consumers maximizing their utility (with new vehicle average economy much lower than that proposed by the rule); so that 3) the rule will force consumers to deviate from their original choices and result in a loss of consumer welfare.

We disagree with the first assumption that consumers have full or accurate information about the potential fuel savings that could result from different purchase decisions. Turrentine and Kurani (Energy Policy, 2007) found that few consumers routinely or systematically tracked fuel consumption or expenditures of their current vehicle holdings. As a result, consumers may be making vehicle purchases based on inaccurate estimates of potential fuel savings, if they are able to make these calculations in the first place. Additionally, there could also be uncertainties about how long a consumer might plan to own the vehicle, how many miles it will be driven in the future, and how its actual fuel economy may differ from the label.

On the second assumption, we contend that revealed preference is not necessarily the best indicator of future purchase decisions. For a variety of market inefficiencies, manufacturers are not able to produce exactly the vehicles that all consumers desire. While the purchase decisions consumers make might be maximizing their utility *conditional on current offerings*, today's market is not exhaustive of all possible options. Although there are some vehicles available today which meet the proposed fuel economy standards, they do not necessarily provide the other features, e.g. towing capacity, cargo room, etc. desired by the consumer. Trading off these features for fuel economy does not necessarily imply that consumers would not value fuel savings if they were also available. In a future market with new offerings, consumers may make different choices based on the same preferences, which would not result in the welfare loss asserted in the third assumption.

The issue of how fuel savings may motivate a purchase decision is separate from the subsequent benefits of that decision. Simply because savings may not be valued by an individual consumer does not negate the fact that these savings would actually be realized or that they would not be valued by future owners of the same vehicle or society overall. In acknowledging this, California's similar rule required that the economic analysis take into account "the full life-cycle costs of a vehicle," and not only those associated with the original vehicle owner.

*Opportunity Costs Generally.* NHTSA requested comment on whether to estimate explicitly changes in vehicle buyers' welfare due to changes in vehicle attributes other than fuel economy. CARB believes that the cost estimates for compliance with this rule have sufficiently accounted for maintaining performance, utility, and safety attributes at current levels. It is clear that many performance improvements over the past twenty years have come at the expense of improved fuel economy. See latest working paper by Knittel, "Automobiles on Steroids: Product Attribute Trade-offs and Technological Progress in the Automobile Sector"

([http://www.econ.ucdavis.edu/faculty/knittel/papers/steroids\\_latest.pdf](http://www.econ.ucdavis.edu/faculty/knittel/papers/steroids_latest.pdf)), EPA's recently released Fuel Economy Trends 1975-2009, and CAFE and the U.S. Auto Industry Revisited, Citigroup, October 13, 2009. Should opportunity costs for non-fuel economy

attributes be included in any future economic analysis, the opportunity costs for ignoring fuel economy improvements in the reference case should likewise be included. Based on the recent distress to domestic automakers caused by fuel price spikes, and based on the above sources, we believe the costs of doing nothing and leaving reduced GHG emissions and consequent fuel economy gains untapped to be quite high. Furthermore, any explicit valuation of vehicle attributes should also include a relative component, as in many cases the magnitude of the attribute itself is not as important as how it compares to other vehicles on the road or in the market.

*Opportunity Costs of Improved Fuel Economy.* CARB agrees with the agencies' assumption that vehicle attributes on performance, carrying capacity, safety, or comfort would not change under this regulation. In response to the request for comment on how to explicitly estimate changes in consumer welfare, we believe it is possible to use consumer choice modeling to obtain a reasonable estimate. While EPA's DRIA thoroughly describes the variation in model types and results as well as the issue of consumer valuation of fuel savings, we support EPA's efforts to continue investigation of this type of methodology. Assumptions, data sources and collection methods, and model specification clearly drive many of the differences in model results. EPA's conclusion that the literature is inconsistent does not seem to have controlled for these varying factors. We believe a closer look will reveal that when models have similar objectives and specifications, they will produce repeatable results. EPA also questions the reliability of consumer choice models for their predictive power of future vehicle choices. While this is certainly a limitation of any forecast model, this can be mitigated by including stated preference data for technologies that are currently not in the marketplace, e.g. plug-in hybrids, fuel cell vehicles.

*Fleet Turnover and Scrappage.* We agree with NHTSA that the incremental increases in average new vehicle costs can be mostly or wholly passed through to consumers, and for this reason also agree with EPA's related assumption that cost increases of this magnitude will not create a fleet turnover issue. Due to the concurrent improvements in fuel efficiency (and lower emissions), the higher vehicle purchase price can be offset by the fuel savings within the typical ownership period of the first owner. Reduced operating costs could make these new vehicles more attractive to consumers who expect fuel prices to remain high or continue to rise. For this reason and based on previous CARB analyses for the Pavley GHG rulemaking, we do not believe that the increased vehicle prices will significantly deter consumers from making new vehicle purchases. In fact, our analysis showed that in early years, new sales would increase slightly as a result of the regulation. Thus, like EPA and NHTSA we believe delayed scrappage or fleet turnover issues should not be a serious concern at the cost levels currently anticipated.

However, should EPA/NHTSA wish to explicitly estimate scrappage and use of older vehicles, they would likely need to develop a consumer vehicle choice model, which they appear reluctant to do due to these models' perceived ineffectiveness. Although many models to date focus only on the choice of which vehicles consumers may purchase, there are a few models that estimate both the vehicle and their usage as a joint decision – which many believe is more representative of actual decision-making, though technically more difficult – and which incorporate both new and used vehicles as purchase options. Should the agencies wish to pursue development of a consumer choice model, they would be in a unique position to shape the next version of DOT's National Household Travel Survey to obtain the necessary data.

*Backstop.* The agencies sought comment on whether a backstop should and can be implemented to guarantee emission reductions from these attribute-based standards. CARB strongly urges the EPA to include a backstop measure in the final rule.

The fleet composition in model year 2008 – the baseline model year used by the agencies to project fleet composition in future years – demonstrated a significant shift in consumer preference to smaller, more efficient passenger cars due to an unforeseen increase in fuel prices and a declining economy. This shift in consumer preference was also noticeable in the recent “cash for clunkers” program. Additional uncertainties in the analysis of future fleet composition include: the methodology used by the agencies to project future fleet composition; the impact of early credits; future oil prices; and the impact of changing economic conditions. A backstop measure would provide assurance that, regardless of any unforeseen changes in fleet mix, the GHG emission reductions estimated for the program would be achieved.

Contrary to the Alliance's argument (Document ID EPA-HQ-OAR-2009-0472-6952.1), *Massachusetts et al. v. EPA* said very little about EPA's and NHTSA's respective duties, did not *direct* the agencies to avoid inconsistency, and does not preclude EPA from promulgating a backstop. 549 U.S. 497, 532 (2007). Rather, the Court merely stated that the agencies could fulfill their respective obligations while avoiding the inconsistency. This nuanced distinction is important, as the *Central Valley* and *Green Mountain* further delineated those obligations and found that EPA can fulfill its public health and welfare mandate – which a backstop could serve to ensure – while NHTSA fulfills its fuel economy mandate.

In addition, the Alliance's practical considerations, suggesting a backstop is unnecessary, are less than reassuring. First, manufacturers can increase vehicle footprints and offset their supposed increased weight penalty by down weighting. Second, manufacturers need not change vehicle platforms mid-stream if their sales were originally targeted to larger vehicle models than those estimated in the joint proposal. Third, their extreme case of offsetting any increase in car efficiency by

increasing vehicle footprint is a red herring; backstops typically under discussion instead are proposed (as noted above) to preserve the greenhouse gas reductions envisioned for this program should any unforeseen changes in fleet mix occur. So rather than rely on an industry that has deftly exploited regulatory loopholes and marketing tricks to sell larger and heavier vehicles, EPA has an opportunity to ensure that the greenhouse gas emissions it is mandated to achieve actually come to fruition.

*Separate car and light truck standards.* EPA requested comment on whether the proposed separate car and light truck standards are sufficient to avoid concerns over emission reductions that could be lost if vehicles are upsized. CARB supports separate greenhouse gas standards for passenger cars and light-duty trucks as proposed. As noted in the Joint Proposal, vehicle attributes such as load carrying and towing capacity differ between these two categories and, therefore, are appropriately addressed by separate fleet average requirements. However, as we stated above, we also urge EPA to adopt a backstop measure to minimize the impact from any unforeseen changes in future fleet mix composition resulting from either changes in consumer preference, economic conditions, or “gaming” by the manufacturers.

*Air Conditioning.* EPA requested comment on various issues concerning air conditioning (AC) test procedures and crediting. CARB believes EPA should develop and utilize a performance test to quantify AC indirect credit in the future. We support EPA’s suggestion of a modified SC03 test procedure and not the idle test. The proposed AC Idle Test will not capture real world driving conditions because it lacks adequate engine load and speed variance. In the interim, a menu-driven option for assessing AC indirect emission may buy some time for test development.

ARB does not support the potential interim alternative of providing credits for light trucks equipped with relatively efficient air conditioners based on amended fuel economy test procedures. Since mobile air conditioning (AC) systems are the source of two GHG pollutants, emissions from leakage of the refrigerant (direct emissions) and CO<sub>2</sub> emissions from operation and transport of the AC unit (indirect emissions), credits for improved systems more properly belong in a GHG regulatory program, not a fuel economy program. Accordingly, EPA has included such credits in its proposed vehicle GHG standards. Absent comprehensive test procedures for measuring the impact of AC system performance on fuel consumption, we do not believe it appropriate to include credits for improved AC systems in a fuel economy program at this time. Furthermore, since NHTSA is constrained from providing AC credits to passenger cars, it does not make sense to propose such credits for only one category of vehicles. However, such credits could be considered beginning in 2017 if comprehensive test procedures have been developed, their application by NHTSA is consistent with similar credits applicable under an EPA GHG program, and NHTSA is granted authority to provide such credits to passenger cars.

*Data Sources.* The agencies have requested comment on their use of publically available data to determine the baseline fleet for model years 2012-2016. CARB agrees with the agencies that this approach provides greater transparency to the process and avoids some of the inherent problems noted in the NPRM from relying on incomplete and limited data from manufacturers' future production plans. The NPRM acknowledges that because future fleet projections are based on the model year 2008 fleet some vehicles models manufacturers have already announced for production in the near future are not included in the analysis. We agree with the agencies that the likely impact of this omission is minor.

*Joint Technical Analyses and Assumptions.* The agencies requested comment on the joint technology analysis and assumptions, including new types of analyses introduced in this joint proposal. CARB believes the joint technological and cost analyses are fundamentally sound. CARB supports the agencies methodology for determining component technology costs. Clearly, component teardown costs as determined by FEV is the most reliable method for assessing technology costs. Absent such detailed cost data, the next best option is a bill of materials approach – used by CARB in determining costs for California's GHG standards – supplemented by cost data from manufacturers, component suppliers, and public sources. As additional teardown cost data becomes available, the agencies should include those costs in the final rule. Given the uncertainties in the model inputs raised in our previous comment on EPA's estimate of future fleet mix, EPA's use of the OMEGA model appears to be a reasonable methodology to determine manufacturers' technology implementation and costs for compliance with the proposed GHG requirements. Although CARB used a different methodology to determine the cost-effectiveness of its GHG requirements, it is not surprising that EPA has arrived at the same conclusion regarding what levels of GHG emission reductions are reasonable and achievable in the same timeframe.

The Joint Proposal notes that the update to the 2002 National Academy of Science (NAS) report, "Technologies to Improve Light Duty Vehicle Fuel Economy," would be available in the docket by September 30, 2009, and requested comments on the updated report. However, less than a week before the close of the comment period, the updated NAS report had yet to be published. Given this delay in publication of the report, the agencies should provide additional time for public comment before considering inclusion of any data from the revised NAS report in the final rule.

EPA requested comment on their estimates for diesel cost, mass reduction and material substitution generally (techniques, costs, and effectiveness), and revised hybrid system costs. EPA's technology costs and effectiveness estimates generally match those determined by CARB for the same technologies. This is not surprising because most of the technologies are well known and are either already being implemented in vehicles

or are at the prototype stage. Concerning hybrid systems, CARB does not believe they are required to meet the proposed standards. Nonetheless, the costs cited in the DRIA may be reasonable when considered in the timeframe of the proposed GHG program. However, we would note that the costs cited for power split systems seem high in light of Ford and Toyota's statements that they have made significant cost improvements in their hybrid systems and are currently making some profit from their hybrid vehicles. In addition, as hybrid drive systems and batteries undergo further refinement, their costs are expected to decrease near and beyond 2016.

EPA also requested specific comment on their mark-up factor of between 1.11 and 1.64, depending on the technology. As noted in our response above, CARB supports the methodology used by the agencies to determine component costs. CARB is also supportive of the comprehensive analysis EPA undertook to determine indirect component costs to the manufacturer resulting from production and retail related costs. EPA noted in its DRIA that cost multipliers will vary between components depending on the complexity of the technology and the timeframe. CARB agrees with EPA's analysis that less complex and/or more mature technologies would incur lower production and retail costs.

*Fuel price.* We support the use of the AEO 2009 reference case for fuel prices. The AEO projection is a fairly standard forecast used in other CARB modeling exercises as well. We are pleased to see the sensitivity analysis using AEO's high and low forecasts for fuel prices in NHTSA's PRIA (p.452). However, given the volatility in fuel prices and the results of the sensitivity analysis showing non-trivial impacts, the agencies may wish to qualify more explicitly their results using the reference case.

*Rebound Effect.* CARB supports the decision to reduce the rebound effect to 10% from previous analyses using 15%. As previously commented (Document ID No. NHTSA-2008-0089-0173), CARB believes 10% to be the *upper bound* for the rebound effect. Thus, the agencies may wish to consider further reducing this effect to 5%, which is more consistent with the latest results from Small (2009) on the projected dynamic rebound effect accounting for fuel economy regulations. NHTSA's sensitivity analysis shows that this adjustment in rebound effect would increase fuel savings and emission reductions by 5% and discounted benefits by 4%. (PRIA p.456) Thus, the regulation impacts are somewhat sensitive to the assumption on the magnitude of the rebound effect and a lower value could be justified.

*Petroleum consumption and import externalities.* CARB supports the inclusion of reduced risk of supply disruptions. CARB has previously commented (Document ID Nos. NHTSA-2008-0089-0173) that an additional \$0.03-\$0.15/gal benefit should also be included for reduced military expenditures. We are pleased to see that NHTSA's PRIA does include a sensitivity analysis using a \$0.05/gal military security component (p.

49720, Table IV.G.4-21) and suggest an additional case using a \$0.15 military security value.

*Other Vehicle Crediting Issues.* In addition to the non-zero grams/mile ZEV upstream factor discussed earlier, we have the following comments on other aspects of the proposed crediting system. EPA has proposed credit provisions designed to provide manufacturers with compliance flexibility, help ease the transition into the national GHG program, and provide incentives for the development and production of advanced GHG technologies. Consistent with the Low-Emission Vehicle and Zero-Emission Vehicle programs for light-duty vehicles, CARB includes similar provisions in its GHG program and is generally supportive of including such provisions in the national GHG program. However, while we agree that including credit mechanisms in the national GHG program is appropriate, we believe that such provisions should not undercut the primary objective of the program, namely achieving significant reductions of GHG emissions from light-duty vehicles.

EPA requested comment on its proposed FFV crediting. CARB recognizes that FFV credits without a specific demonstration of alternative fuel usage are included in EPA's GHG program for model years 2012-2015 in consideration of manufacturers' lead time requirements. While CARB does not believe that such credits are necessary, or even appropriate for a GHG program, we are pleased that EPA will base these credits on verifiable alternative fuel usage beginning in 2016. We also agree with EPA that such credits should not be available in model years 2009-2011.

*Alternative Fuels Use Demonstration.* EPA requested comment on how an alternative fuels usage demonstration could reasonably be made, and proposed two options to determine credits for alternative fuel use in 2016 and later years. The first option, a top down approach, assigns credits based on national alternative fuel use prorated by manufacturers' flex fuel vehicle (FFV) production. While this approach would on its face seem both simple and reasonable, to assure that the credits are real and verifiable, provisions should be included that would account for any differences in fuel feed stock in different regions of the country. For example, different regions may use different fuel stocks for E85. Corn based ethanol may be sourced primarily in the Midwest, while cellulosic based E85 sourced in other regions. The second option, a statistical demonstration by the vehicle manufacturer of alternative fuel use is similar to the approach California has discussed for alternative fuel credits accrued in its GHG program. We believe this option can be implemented using existing vehicle on-board computer capabilities with little additional burden on the manufacturer and, unlike the first option, would provide geographical and manufacturer specific vehicle fuel usage data.

*Early Credits.* CARB does not support the proposed provisions for early credits prior to implementation of the national GHG program unless such credits are accrued by exceeding California's requirements in California and those states that have adopted California's program. Of the four pathways proposed, Pathway 2 more closely matches this criterion. Nonetheless, should EPA chose to retain all four pathways in the final rule, we strongly support incorporating in the final rule the provisions proposed by EPA to prohibit trading between manufacturers of credits earned in model year 2009, requiring the use of credits earned in 2009 to offset debits accrued in 2010-2011, and specifically, the proposal to prohibit trading between manufacturers of credits earned in model year 2009. These are reasonable proposals designed to assure that credits earned in the early years do not provide a windfall for vehicle manufacturers and that the emission reductions envisioned for the national GHG program are realized.

*Air Conditioning Credits.* CARB staff conducted a comparison of the AC credit approach in this proposed rulemaking against California's currently effective California's Pavley I program and the more recent Environmental Performance Label regulation. The analysis addresses a need to understand how the various AC credit schemes compare and the reason for differences in the credit amounts. CARB's analysis was provided to EPA for reference. Overall expected AC emissions credits and associated GHG reductions appear similar. While CARB is not suggesting changes to the Final Rule, we recommend that CARB and EPA continue dialogue on this issue to reconcile the California and federal approaches that could apply for the 2017 and later model years.

*Warranty and Defect.* EPA is proposing that a number of AC system components such as rings, fittings, compressors, and hoses be included in the Clean Air Act (CAA) warranty provisions. CARB agrees that it is appropriate to include these components under the CAA warranty provisions, since failure of any of these components would result in increased GHG emissions. EPA also requests comment on other vehicle components that should be included in the CAA warranty provisions. CARB is currently evaluating which vehicle components would increase GHG emissions should they malfunction. Since this evaluation has not been completed, we are not suggesting the addition of any other specific components. We note, however, that the majority of components such as fuel systems, transmissions, etc., that impact vehicle GHG emissions are likely already covered by current criteria emission warranty requirements.

*Safety Impacts.* CARB agrees with EPA that manufacturers could reduce vehicle mass without reducing vehicle size, footprint, or structural integrity, thus reducing or eliminating potential safety impacts from EPA's modeled 4% downweighting. Conversely, we concur with EPA in questioning NHTSA's continued reliance on the Kahane study which assumed that weight and size are completely correlated, ignoring

more recent studies by Dynamic Research Inc. (DRI) and others that have shown otherwise.

NHTSA downplays several serious problems with the Kahane study including: omitting data for 2-door models; ignoring the impact of vehicle design on safety; failing to separate vehicle size from vehicle weight; failing to consider improvements in light weight and increasing use of high strength materials; relying on outdated crash data; and the lack of peer review. More recent peer-reviewed studies by DRI and Wenzel have conclusively shown that vehicle design plays a critical role in improving vehicle safety. Wenzel has also shown that the increasingly popular crossover vehicles with their lower center of gravity are less prone to rollover, more than offsetting any safety impact from reduced vehicle weight. Moreover, most vehicle manufacturers have publically announced that they will be incorporating weight reduction in their vehicles in the near future on the order suggested by EPA in its technology analysis. It is unlikely that manufacturers would pursue this course if vehicle safety would be impaired, not to mention risk a loss of sales due to a public perception of increased safety risks for these vehicles.

Importantly, even though the agencies reached different results regarding potential additional fatalities from weight reduction, they agreed “that reducing vehicle mass without reducing the size of the vehicle or the structural integrity is technically feasible in the rulemaking time frame.” P. 49590. This appears to confirm that NHTSA’s extensive discussion of potential safety impacts was an academic exercise based on outdated and marginally applicable data. We also believe that especially given the worst case scenarios NHTSA presents, CARB and other commenters should be able to review the data NHTSA sought from manufacturers and submit comments later whether or not through an extended formal comment period.

*Penalties.* We disagree with the Alliance comment (in Document ID EPA-HQ-OAR-2009-0472-6952.1) concerning penalties proposed by EPA under its Clean Air Act authority and believe EPA took a reasonable and proper approach. By moving ahead at a technology application level toward the 2020 MY more ambitious than what a straight-line projection under ESIA/EPCA would require, EPA is arguably fulfilling its duty to address the separate public health and welfare goals not present in EISA/EPCA but required by the Clean Air Act, as discussed in *Massachusetts et. al. v. EPA, Central Valley, and Green Mountain*. However, to ensure that those greater greenhouse gas emission reductions come to fruition, EPA rightly eschewed simply aligning its penalty and enforcement policies with those under the current CAFE structure.

*NHTSA’s Consideration of Other Motor Vehicle Standards.* The agencies requested comment on whether and in what way California and EPA greenhouse gas emission standards should be considered under the “other motor vehicle standards” provision or

other provisions of the Energy Policy and Conservation Act of 1975 (EPCA), including 49 U.S.C. 32902, consistent with NHTSA's independent obligation to issue corporate average fuel economy (CAFE) standards under EPCA and the Energy Independence and Security Act of 2007 (EISA). As two federal district courts have held, EPA, CARB and state standards adopted under Clean Air Act Sec. 177 are clearly other motor vehicle standards of the government. *Green Mountain Chrysler Plymouth Dodge Jeep, et al. v. Crombie*, 508 F.Supp.2d 295 (D.Vt.2007) (2<sup>nd</sup> Circ. appeal Nos. 07-4342-cv(L) and 07-4360-cv(CON) and *Central Valley Chrysler-Jeep, Inc. et al v. Goldstene*, 529 F.Supp.2d 1151 (E.Dist. CA 2007 (as corrected March 26, 2008) (9<sup>th</sup> Circ. appeal No. 08-17378) (*Central Valley*).

The *Central Valley* court stated: "EPCA empowers NHTSA to import EPA's determination of the necessity of the regulation through EPCA's "shall consider" provision and conform its mileage standards to what EPA determines is necessary for the protection of health and welfare" (529 F.Supp. 2d at 1170), and "[t]he court can discern no legal basis for the proposition that an EPA-promulgated regulation or standard functions any differently than a California promulgated and EPA-approved standard or regulation." *Id.* at 1173. In setting its own standards, NHTSA thus not only should but must consider the full fuel economy impact of California's greenhouse gas and other emission standards.

Indeed, NHTSA states it has already considered EPA's proposal and the harmonization benefits of the National Program in developing its own proposal. But both agencies have really gone further than that. By explicitly acknowledging the impact of the California standards both in effect prior to the 2012 model year as well as those for which California plans to accept compliance with the National Program in the 2012-2016 model years, they are considering the effects of California's standards as required. Consequently, the statement on p. 49466 that "EPCA calls for NHSTA to take into consideration the effects of EPA's emissions standards..." is not complete; "...of the government..." in 49 U.S.C. 32902(f) includes California's standards.

On a related note, in its March 20, 2009 Notice of Intent NHTSA stated it would reconsider its previously stated views regarding EPCA preemption of State standards regulating motor vehicles' carbon dioxide emissions "...in a deliberate, comprehensive manner ..." in the context of the subject joint proposed rulemaking. 74 Fed.Reg. 11193, 11194 (March 20, 2009). However, the joint proposal shows no such deliberation, instead asking for States' comment on the proposed action while purporting to defer consideration of the preemption issue. P. 49745. This supposed deferral also does not square with the earlier request for comment (p. 46461-62) on the core preemption issue, as we discussed and provided comment above. While CARB believes that NHTSA has indeed retracted its previously stated views regarding EPCA preemption of

state greenhouse gas emission standards, CARB believes that NHTSA should formally and explicitly confirm it has done so.

We also note that, contrary to the discussion at p. 49461 right column, not all effects of such early emissions standards on fuel economy were negative, as legislative history makes clear. “The improved technology required to meet emissions standards may *assist* in improving fuel economy emission standards.” H.R.Rep.No. 95-294 at 247, 1977 U.S.C.C.A.N. 1077, 1326 (*emphasis added*). Further, “[t]he development of new or improved engine technologies which simultaneously reduce emissions and fuel consumption can and should be pursued.” *Ibid.* See also *id.* at 238-44, 1977 U.S.C.C.A.N. 1077, 1317-23 (evaluating potential air emission and fuel economy benefits from a range of then new technologies that remain at issue today, including new engine designs, electronic controls, transmission systems, turbocharging, etc.). To conclude on this issue, we concur with and urge the agencies to carefully review the comments by California’s Attorney General.

*EPA’s Judgment.* EPA invited comment on all aspects of EPA’s judgment that its proposed CO<sub>2</sub> standards meet the requirements of Clean Air Act Section 202(a). We believe EPA has met those requirements. Like CARB, EPA has conducted a thorough review of the individual technologies and suites of them that can be employed in the lead time provided. Provided EPA favorably addresses our comments seeking a non-zero grams/mile upstream factor for ZEV GHG emissions and our stringency concerns, we agree that “given the technical feasibility of the standard, the moderate cost per vehicle in light of the savings in fuel costs over the life time of the vehicle, the very significant reductions in emissions and in oil usage, and the significantly greater quantified benefits compared to quantified costs...the proposed standards are an appropriate and reasonable balance of the factors to consider under section 202(a).” Pp. 49512-13.

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*Conclusion.* In closing, I reiterate that the Clean Air Act is the right tool to drive the kind of emission reductions needed to address the pressing public health and welfare issues that this nation’s greenhouse gas emissions present for global warming impacts both here and abroad. And while some commenters continued to raise the specter of a patchwork of state emissions standards – which parties committing to the National Program intended this rulemaking to address in large part – the Act continues to provide not a patchwork but the 2-car system that the National Academy of Science reviewed in detail and praised in its 2006 report, State and Federal Standards for Mobile Source Emissions. President Obama acknowledged this living system in recognizing California’s role and legacy leading to the historic May, 2009 Rose Garden announcement.

The Act will remain the right tool for technology forcing emission reductions, especially for the 2017 and later model years. Many of the auto manufacturers' comments at the hearings sought early work on these standards. CARB agrees those standards should be a top priority and stands ready to engage the industry and the federal agencies in developing them. If stringent enough, those 2017 and later model year standards could usher in a second phase National Program that would again serve as compliance with California's standards.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mary N. Nichols". The signature is fluid and cursive, with a long horizontal stroke at the end.

Mary N. Nichols  
Chairman