March 26, 2008

Clerk of the Board
Air Resources Board
P.O. Box 2815
Sacramento, California 95812

Dear Ms. Andreoni:

Re: **Comments on the Proposed 2008 Amendments to the ZEV Regulation**

Chrysler is pleased to provide the following comments on the staff's Proposed 2008 Amendments to the California Zero Emission Vehicle Regulation. Chrysler appreciates the efforts that have been made by the Board, Staff and the Expert Panel in order to review and address the changes required to maintain alignment with the current and future state of ZEV technology. Chrysler views the ZEV mandate to have two essential drivers: Trending vehicles to zero emissions and encouraging early deployment of ZEV technology. Many of the aspects of the proposed amendments complement these drivers, but some aspects do not. Chrysler has concerns over the following issues that we believe do not align with the ZEV mandate drivers;

- ZEV Gold requirements increase due to a new 5-Credit Type IV basis in the New Path.
- Absence of travel provision for Silver+ vehicles.
- Credit value of Neighborhood Electric Vehicles.
- Extending phase-in for Intermediate Volume Manufacturers.
- Hydrogen infrastructure implementation.

ZEV Gold Requirements

The following statement is a quote from page 175 of the April 2007 Expert Panel Review on the discussion of vehicle integration:

"Major resources are also necessary to develop ZEVs and Advanced Technology Vehicles, but the payback on these investments is usually far longer and much more uncertain. Costs to produce larger than necessary learning volumes of demonstration fleets with immature design levels (designs that still would not achieve competitive cost levels even if they were produced at high volumes) takes resources away from the basic research and development efforts necessary to advance the technology."[1]

[1] Report of the ARB Independent Expert Panel 2007, *Status and Prospects for Zero Emissions Vehicle Technology*, April 13, 2007

Chrysler agrees with this statement while acknowledging the importance of the success of the ZEV mandate in order to trend vehicles to zero emissions. However, forcing certain vehicle quantities required within a timeframe can have unintended effects and could possibly lead to market failure, which is not an option for ARB or industry. The industry has finite engineering resources (especially with regards to all-new technologies) to develop and support the implementation of these high-technology vehicles. Ideally, supplying a quantity of ZEVs that is sufficient for market testing to monitor consumer trends, usage, durability, etc. will allow the automaker to utilize its resources most effectively. Increasing the ZEV quantities to an unmanageable level increases the possibility of launching vehicles that are not ready for the market and may not be sufficiently supported. In order to ensure a trend to zero emissions, automakers must be allowed to deliver the right vehicle at the right time. Market failure of a ZEV product could have lasting effects on the respective ZEV technology.

The proposed amendment increases the required quantity of Gold and Silver+ vehicles to be produced by Large Volume Manufacturers (LVMs). In the 2012 – 2014 model year timeframe, whether comparing to the current regulation or the Nov. 2007 Concept Paper, the Gold vehicle requirement of the Feb. 2008 Proposed Amendment increases as it is based on a new, higher credit Type IV vehicle. Under the current regulation, the Alt. Path requires LVMs to produce 25,000 Type III ZEVs at 3 credits while the proposed amendment requires up to 25,000 Type IV ZEVs at 5 credits. This requires quantities of ZEVs at lesser credit levels to increase to meet the pure ZEV requirement. For example, a manufacturer planning to supply Type III vehicles must produce 25% more vehicles due to this change. Although the Silver+ (Enhanced AT-PZEV) option increases flexibility to meet the Gold requirement, a manufacturer choosing to backfill up to 90% of its requirement will have to produce 67% more than previously planned (compared to the Nov. 2007 Concept Paper). These substantial increases in vehicle quantities in the short term will drive automakers to produce and deliver ZEVs that are still in the pre-commercial stage and at a very high cost, as opposed to focusing those resources on advancing the technology and reducing the cost to produce ZEV products that meet customer expectations to assure ZEV mandate success.

Chrysler recommends retaining the 25,000 vehicle Gold requirement in the 2012-2014 timeframe with staff's 10% / 90% Enhanced AT-PZEV option based on a 3-credit Type III ZEV while also providing a 5 credit incentive for the new Type IV ZEV.

Absence of Travel Provision for Silver+ (Enhanced AT-PZEV)

Chrysler appreciates the flexibility of offering Silver+ as an option to meeting the Gold requirements. Like the Gold technologies, Silver+ technologies (Plug-In Hybrid, H_2ICE) are also all-new; cost, research and development will be substantial as the Expert Panel considers Plug-In Hybrids (PHEVs) as pre-commercial until 2012 MY. The Nov. 2007 Concept Paper included a needed travel provision for Silver+ technologies, while the Feb. 2008 Proposed Amendment removed this proposal.

Due to high vehicle quantities and incremental costs[2] in the 2012-2014 timeframe and no travel provision, PHEVs required to place in all ZEV states could deem this as cost-

[2] $25,000 Incremental Cost for PHEVs: Table 6.1 of *ARB Staff Report: Initial Statement of Reasons*, February 8, 2008.

prohibitive and make it a disincentive for manufacturers to introduce these products to market. Due to the absence of the provision, the quantity of Silver+ vehicles required to supply to all current ZEV states will approximately triple in volume. The following example shows the costs incurred by the LVMs due to the effect of no travel provision. *With* a travel provision, the LVMs will be required to supply approximately 75,000 PHEVs during the 2012-2014 phase at an incremental cost of $25,000 per vehicle, totaling $1.875 billion to LVMs. *Without* a travel provision, the quantity of vehicles triples, increasing the total cost to LVMs to $5.625 billion[3].

A travel provision would provide the needed incentive to encourage the implementation of PHEV technology. It allows a company to market-test a substantial quantity of vehicles and gain customer feedback on the usage of this all-new product, while other resources can be spent on advancing the technology and improving the cost for future higher quantities. Although travel provision allows vehicles to be placed in any ZEV state, manufacturers will most likely focus on certain regions to market-test these products while consolidating most sales, service and other support in that region, at least during the initial stages of this emerging technology.

An equitable approach is to allow travel provision for the first 10,000 vehicles that each manufacturer produces. Since manufacturers may currently be at varying levels of development of PHEVs, this would level the playing field to encourage manufacturers to develop this technology.

Neighborhood Electric Vehicle (NEV) Credit Value

The NEV credit value should be increased to at least 0.625. In addition, 2006 through 2008 model year NEV credit levels should be increased accordingly (as they are currently at 0.15).

The real value of NEVs in improving air quality is evident. Chrysler LLC and Global Electric Motors (GEM®) have committed vast resources to the research, development, sales and support of these vehicles to make them a major contribution to the ZEV program. The NEV fleet in California has grown to represent the largest concentration of Battery Electric Vehicles (BEVs) in the world.

Chrysler appreciates the fact that staff has recognized the positive environmental benefits of NEVs by increasing the credit level from 0.15 to 0.30 for 2009 and subsequent model years. However, Chrysler has presented to staff the true value of NEVs. Air quality improvement due to NEV use is significant, as one third of NEV owner's yearly tailpipe emissions are eliminated simply by the avoidance of cold starts during the short trips taken. As the majority of hydrocarbon emissions from an internal combustion engine are produced in the first minute of operation, a NEV is able to eliminate this event completely – identical to the characteristics of a pure ZEV. Although NEVs travel fewer miles per year compared to other ZEVs, they are used every day (average 3.5 to 8.1 trips per day) replacing cars and trucks for two out of three vehicle trips, averaging approximately 3,000 miles per year for GEM®

[3] The example is for the 2012-2014 phase, assuming 0.3% Gold, 2.7% Silver+ to satisfy the 3.0% gold ZEV requirement.

commercial customers and 1,200 miles per year for residential customers. The true environmental benefit of NEVs must be recognized with a higher credit level of at least 0.625.

A comparison between an all-electric range (AER) PHEV and a NEV illustrates the disproportionate credit value of a NEV. If a "P10" AER PHEV, which achieves an all-electric range of 10 miles per day and is plugged in once per day, over the course of a year it accumulates 3,650 all-electric miles. This vehicle has a credit value of 1.57 in 2012 model year (without the 2009-2011 multiplier). In contrast, a NEV only earns a credit value of 0.30 even though the average NEV travels a comparable 3,000 all-electric miles per year for commercial GEM® customers.

As mentioned previously, the credit basis increase from a Type III at 3 to a Type IV at 5 credits in the proposed amendment essentially devalues NEVs. The value needs to be increased to reflect their true environmental value.

NEV credit value for 2006 – 2008 model years should also be increased from 0.15 to at least 0.625. Staff reduced the value of NEVs beginning in 2006 model year because there was a lack of data on which to establish a credit level. In the January 10, 2003 Staff Report, staff stated that the credit value for 2006 and beyond would be reexamined and possibly revised at a later date when more detailed NEV customer usage and vehicle durability information was available. Because of the desire not to open the ZEV regulations for revision for the 2006 model year as originally envisioned, the credit value of NEVs is only being addressed now. Based on data obtained since January 2003, staff has determined that the NEV credit level should be increased to reflect its positive environmental benefits. Chrysler believes that the increased credit level should commence at 2006 model year because the environmental benefit of NEVs have been accruing since that time period. NEVs should not be penalized solely because of the regulatory timing.

Extending Phase-In for Intermediate Volume Manufacturers

Intermediate volume manufacturers (IVMs) transitioning to large volume manufacturer (LVM) status will have a distinct competitive advantage if the phase-in allowed to the ZEV requirement is extended from 6 to 12 years. See below for illustration of the proposed extension:

	Current Regulation Allows		Proposed Amendment to Allow		
	3 consecutive years of volume in excess of 60,000	Years 1 – 6 Lead Time	Years 7 – 9 AT PZEV Transition 1	Years 10 – 12 AT PZEV Transition 2	Years 13+ Full ZEV Requirement
Status	**IVM**	**LVM**	**LVM**	**LVM**	**LVM**
PZEVs	100% of ZEV Obligation	100% of ZEV Obligation	75% of ZEV Obligation	67% of ZEV Obligation	Full LVM Obligations as dictated by regulation
AT PZEVs	Not Required	Not Required	25% of ZEV Obligation	33% of ZEV Obligation	

The IVMs have access to the technology and have the same ability to meet the regulations as the LVMs. A company's California sales are not an accurate indicator of its ability to comply with the ZEV regulations, as many of the IVMs transitioning to LVM status are large, profitable, multinational companies. A longer phase-in will allow these manufacturers to gain a competitive advantage on its core products, because there is a substantial cost avoidance that can be realized by not having to meet the full ZEV requirement. For example, if a manufacturer with 60,000 annual CA sales must comply to the full ZEV requirement in 2012, that manufacturer will have to supply approx. 36 ZEVs, 1,080 Enhanced AT-PZEVs and 2,800 AT-PZEVs at an approximate incremental cost of $50 million[4] in California alone. While delaying the phase-in will let this manufacturer avoid this commitment, these are costs that Chrysler must incur instead of being able to concentrate on its core products.

In addition, based on the proposed extension phase, a transitioning manufacturer will only have to provide AT-PZEV vehicles *6 years* after it reaches its 60,000 vehicle/year threshold. AT-PZEV (HEV) technology is readily available *today*. In contrast, LVMs planning to supply PHEVs to help meet the 2012-2014 ZEV requirements will have to develop and produce this all-new technology vehicle *in 2 years*.

Maintaining the current phase-in requirement will not only set a trend to zero emissions sooner, it will also help to further advance the state of ZEV technology. All automakers have known about the ZEV requirements for a long time, and since they are aware of the current regulations, their phase-in timing is already known and should be accounted for. Having more high-technology automakers involved in the ZEV program sooner will lead to efficiencies; as costs can be driven down through the supply chains, more automakers requiring ZEV vehicles equates to increased supply base, competition and possible shared costs and common components amongst manufacturers. Incremental vehicle cost to consumers is known to be the major concern of the ZEV program, so maintaining the current phase-in requirements will lead to an earlier success of the ZEV program.

Hydrogen Infrastructure

In order to achieve a faster trend to zero emissions, key factors need to be in place for the end goal of commercial viability of zero emission vehicles; a marketable product, a customer, and an infrastructure.

With regard to fuel cell vehicles, reassurance is required that hydrogen will be easily accessible as the vehicles ramp up in market penetration. Customers will demand that hydrogen will be readily available for their use.

While vehicle manufacturers are measured by their compliance to the ZEV mandate, there is no real measurable required for a hydrogen infrastructure. We do not request an additional mandate, but instead for ARB to review its policy development to ensure that the energy groups stay engaged to develop an infrastructure that complements vehicle implementation timing. Similar to ZEV development, the infrastructure component must

[4] Assuming 0.3% Gold at $250,000, 2.7% Silver+ at $25,000, and 3.0% Silver at $5,000. Gold and Silver cost estimates are from Table 6.1 of *ARB Staff Report: Initial Statement of Reasons*, February 8, 2008.

make consistent and successful steps towards marketability. Just as the implementation of early fuel cell vehicles will be costly, it must be understood and accepted that the implementation of the initial fuel stations will be also be costly with no return-on-investment. Chrysler supports the state's efforts to implement a Hydrogen Highway and believes that the state cannot back away from the leadership role it has taken.

Summary of Recommendations:

- Retain the current regulation's 3-credit level basis and volume requirements for the Gold category during the "New Path" to provide the credit incentive for *all* ZEV technologies.
- Implement a travel provision for Silver+ category such that the first 10,000 vehicles produced by a manufacturer qualify as an incentive to justify the high capital cost.
- Increase the NEV credit value to a minimum of 0.625 and apply that credit level to 2006 through 2008 model year NEVs.
- Maintain the current phase-in for intermediate volume manufacturers transitioning to large volume status to ensure a faster trend to zero emissions.
- Develop policies to ensure the simultaneous development of both vehicle and hydrogen infrastructure in order to gain consumer confidence of fuel cell vehicles.

Chrysler LLC appreciates the opportunity to comment on the proposed 2008 amendments to the ZEV regulations. If you have any questions regarding these comments, please contact Chris Bostwick at (248) 512-0478 or cb41@chrysler.com.

Sincerely,

Reginald Modlin

Director
Environmental Affairs
Chrysler LLC