Eric C. Scroggins
Vice President, General Counsel & Secretary
O (317) 242-5000

November 15, 2013

Richard Corey
Executive Officer
Air Resources Board of the State of California
1001 I Street
Sacramento, CA 95814

Re: Comments regarding Heavy Duty GHG Phase I and, specifically, the Notice Of Public Hearing To Consider The Proposed Greenhouse Gas (GHG) Regulations For Medium- And Heavy-Duty Engines And Vehicles, Optional Reduced Emission Standards For Heavy-Duty Engines, And Amendments To The Tractor-Trailer GHG Regulation, Diesel-Fueled Commercial Motor Vehicle Idling Rule, And The Heavy-Duty Hybrid-Electric Vehicles Certification Procedures

Dear Mr. Corey:

This letter transmits comments prepared by Allison Transmission Inc. (Allison) regarding the above-captioned rulemaking.

As a manufacturer of planetary fully-automatic transmissions and hybrid systems for medium- (MD) and heavy-duty (HD) on-road vehicles, Allison understands the need for and supports the goals for MD and HD vehicles that fully comply with ARB's above captioned rulemaking requirements. Allison welcomes the opportunity to comment on the draft documents of this proposed regulation and appreciates the ongoing exchange of dialogue between ARB and Allison. We also commend ARB for harmonizing with MD/HD emissions requirements beginning in 2014 enacted by the U.S. Environmental Protection Agency (U.S. EPA).

Allison supports ARB's hybrid goals as currently stated on its webpage for the HVIP program[1];

> ***A hybrid-electric vehicle typically uses an electrical motor and a gasoline- or diesel-powered engine, which work in tandem to reduce emissions and fuel consumption. Hybrid vehicle technology reduces criteria pollutant, air toxic, and greenhouse gas emissions – particularly in urban delivery vehicles, refuse trucks, work trucks, buses, and other vehicles with high stop-and-go or idling duty cycles. Hybrid vehicles also provide significant fuel economy benefits and fuel cost savings to the fleet owner and therefore, have the potential to be self-sustaining with some reductions in the upfront vehicle cost. Large scale market penetration of hybrid trucks and buses will help California meet its long term SIP and climate change goals***.

Allison has designed, developed and manufactured over 5,900 transit bus hybrid systems as of 10/01/2013. Allison estimates that, combined, they have saved approximately 31,000,000 gallons of fuel. We are proud of this ongoing contribution and are now ready to produce our newest family of hybrids for trucks and buses. Allison supports ARB's recognition of the importance of MD/HD hybrids.

Allison provides the following comments on the current draft regulation documents that were made available for industry and public comment on October 23, 2013:

- In regards to Appendix I-E-1:
    - Page 3, Definition 5: This provision should be clarified to ensure that the Executive Officer selects a vehicle for the baseline substantially similar to a vehicle a customer would normally buy if the customer were not selecting a hybrid vehicle such that it would be configured with the routine engine, transmission, and axle combination that would occur in most instances of a conventional vehicle purchase.

[1] http://www.arb.ca.gov/msprog/aqip/hvip.htm

- Page 12, Section 1.1 - Test Site: The current wording appears to imply that the fan would be directed perpendicular to the side of the bus to help with cooling; however this direct airflow would cause artificial cooling of the engine compartment. The fan's purpose is to simulate airflow while the vehicle is traveling, such that the fan should blow air along the side of the bus in parallel with the sides of the bus, not directly at the side of the bus. The wording should describe that the airflow of the fans should mimic airflow that would be observed while the vehicle is traveling down the road such that the engine compartment is not cooled to a level that is not realistic to typical operating conditions. Allison also suggests adding the instruction that brake cooling fans should be shut off during the dwell (temperature conditioning) phase of the test.

- Page 15, Section 1.6 – Test Instrumentation: Regarding battery connections, the current instructions are not implementable because Allison hybrid systems have multiple connection points for the battery where several would need to be accessed simultaneously for accurate measurements. Allison recommends that this description should be amended to state that "multiple meters must be used if there are multiple connections to the Energy Storage System".

- Page 17, Section 2.2, Driving Cycles:

  - The cycles provided by ARB in this draft mirror city transit bus usage but are less reflective of certain vocational applications such as a delivery vehicle or utility bucket truck. Providing options for using other test cycles that reflect other typical "vocational truck/vehicle" usage would capture more accurate and "real world" data reflective of fuel usage and emissions for that vocation.

  - There is no "preparation cycle" listed or described to be implemented before the test begins (other than coast-down). For adaptive purposes, describing those "preparation cycle" protocols would establish uniformity in the test setup by the dyne technicians and would also conserve, consolidate, and even template the time required for set-up of the test.

- In the Light Duty (LD) passenger car test applications, dynes are kept warm as vehicles are easily loaded on and off while other vehicle soak (i.e. during the temperature conditioning/stabilizing phase). However, this LD example is not true in most MD/HD vehicle tests. Once a 40,000 pound weight vehicle is loaded, it remains there on the dyne platform during the soak timeframe, which means that during the soak phase, the dyne gets cold. Allison's past testing of MD/HD systems yielded that it took more than three "OCTA-cycle" test runs in order to get the dyne fully warmed-up and the emissions/fuel economy data stream stabilized. Thus, we recommend instructions to include that steps should be taken to insure that the dyne is fully warmed-up and data streams are stabilized before the start of the test is commenced.

In summary, Allison remains supportive of the goal of MD and HD vehicles that fully comply with ARB's EPA-harmonized emissions requirements, and the accompanying Heavy-Duty Hybrid-Electric Vehicles Certification Procedures. We look forward to continued dialogue and cooperation with ARB in addressing and resolving the technical challenges associated with this endeavor.

Regards,

Eric Scroggins
Vice President, General Counsel & Secretary
Allison Transmission Inc.