



IGSD & NRDC Comments on Proposed California MDV/HDV GHG Phase 2 regulation

The Institute for Governance and Sustainable Development (IGSD) and the Natural Resources Defense Council (NRDC) welcome the California Air Resources Board (CARB) Proposed California Greenhouse Gas Emissions Standards for Medium- and Heavy- Duty Engines and Vehicles (MDV/HDV) and Proposed Amendments to the Tractor-Trailer Greenhouse Gas (GHG) Regulation. We fully support the Staff proposal to adopt new, more stringent California Phase 2 GHG emissions standards.

Medium- and heavy-duty trucks already account for nearly a fifth of California's on-road fuel use and associated carbon dioxide (CO₂) emissions. As MDV and HDV trucks are the fastest growing segment of the transportation sector in the United States and worldwide, it is important to take steps now to reduce future emissions growth and to align American markets with global efforts to reduce the cost of vehicle ownership through energy efficiency.

CARB's rigorous and transparent analysis is based on reasonable assumptions and has clearly shown that these steps are cost-effective and necessary to meet the mandates of both AB 32 and of SB 32 and the California HSC. Without these Phase 2 regulations, CO₂ emissions from affected vehicles would continue to grow to 47.9 million metric tons per year by 2050. With the Phase 2 GHG standards, they will decrease to 36.5 million metric tons per year, saving 11.4 million metric tons over the Phase 1 requirements.

Table ES- 1: California Phase 2 CO₂ Benefits

CO ₂ Emissions from Affected Vehicles (in million metric tons (MMT) per year)					
Calendar Year	Baseline CO ₂ Emissions	CO ₂ Emissions with Phase 1	CO ₂ Emissions with Phase 2	Phase 2 CO ₂ Reductions	
				From Baseline	From Phase 1
2030	44.4	39.2	34.1	23%	13%
2050	55.3	47.9	36.5	34%	24%

Table source: State of California Air Resources Board (December 19, 2017) [Staff Report: Initial Statement of Reasons for Proposed Rulemakings](#). Sacramento, California. Page ES-5.

IGSD and NRDC applaud the inclusion of incentives for manufacturers to use refrigerants with low global warming potentials (GWPs) for heavy-duty vehicles. CARB rightly observes that low-GWP refrigerants have been widely used in the light-duty sector, and that opportunities exist to adopt low-GWP refrigerants in medium-

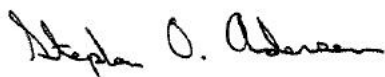
and heavy-duty vehicles as well.¹ CARB will also want to work with industry in the transition to next-generation refrigerants to simultaneously reduce mobile air conditioning (MAC) fuel use. Innovative medium- and heavy-duty vehicle and equipment manufacturers have a long history of leadership on MAC climate and stratospheric ozone layer protection, including participation in the United States Environmental Protection Agency (US EPA) Mobile Air Conditioning Climate Protection Partnership (MACCPP) and the SAE International (previously known as the Society of Automotive Engineers –SAE) Improved Mobile Air Conditioning Cooperative Research Project. Incentives for low GWP refrigerants and lower leakage rates reward innovation and affirm the value of these companies' efforts to advance next-generation technology.

IGSD and NRDC support the proposed 11.0 g/year, 1.5% leak rate limit for all refrigerants, regardless of GWP, starting after 2021. We agree with CARB that a low leak rate for any refrigerant is important for maintaining the proper refrigerant charge size, which is necessary to maintain efficient operation of the vehicle's air conditioning system. Efficient AC operation saves fuel, saves car owners money, and reduces emissions. Low leakage rates will also reduce maintenance costs to vehicle owners by reducing the frequency of air conditioning system service, which benefits both consumers and the environment—a win/win scenario.

CARB's usage of SAE J-2727 to assure compliance with the leak rate standard is commendable, as are the documentation requirements in the "Proposed Phase 2 Greenhouse Gas Amendments to California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles." The summary table, A/C system schematics, and the J2727 spreadsheets will give staff the information they need to be confident that vehicle manufacturers are meeting or exceeding targets, so that California can accurately count these reductions toward its GHG targets. The flexibility CARB built into the proposal to reduce the workload for vehicle manufacturers complying with these documentation requirements, such as the low-volume exception, is reasonable and shows concern for industry.

IGSD and NRDC support cooperation of governments and industry in evaluating emerging technology such as Secondary Loop Vehicle Air Conditioning Systems (SL-MACs) that has the potential to reduce refrigerant charge and leak rate, increase reliability, decrease service costs, and reduce fuel use for air conditioning through better power management.

Signed,



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¹ State of California Air Resources Board (December 19, 2017). *Staff Report: Initial Statement of Reasons for Proposed Rulemakings*. Sacramento, California. Page ES-6.