

Reasonably Available Control Measures Assessment for Mobile Sources and Consumer Products

1. Overview

To fulfill the Clean Air Act (the Act) control measure requirements for ozone non-attainment areas, an assessment of control measures in the State Implementation Plan (SIP) must be performed. For ozone non-attainment areas, the control measures must be shown to be Reasonable Available Control Measures (RACM). ARB is responsible for measures to reduce emissions from mobile sources needed to attain the national ambient air quality standards (standards). This chapter will discuss how California's mobile source measures meet RACM.

Given the severity of California's air quality challenges, ARB has implemented the most stringent mobile source emissions control program in the nation. ARB's comprehensive strategy to reduce emissions from mobile sources includes stringent emissions standards for new vehicles, in-use programs to reduce emissions from existing vehicle and equipment fleets, cleaner fuels that minimize emissions, and incentive programs to accelerate the penetration of the cleanest vehicles beyond that achieved by regulations alone. Taken together, California's mobile program meets RACM requirements in the context of ozone non-attainment.

2. RACM Requirements

Subpart 1, section 172(c)(1) of the Act requires SIPs to provide for the implementation of RACM as expeditiously as practicable. U.S. EPA has interpreted RACM to be those emission control measures that are technologically and economically feasible and when considered in aggregate, would advance the attainment date by at least one year.

ARB developed its State SIP Strategy through a multi-step measure development process, including extensive public consultation, to develop and evaluate potential strategies for mobile source categories under ARB's regulatory authority that could contribute to expeditious attainment of the standard. First, ARB developed a series of technology assessments for heavy-duty mobile source applications and the fuels necessary to power them¹ along with ongoing review of advanced vehicle technologies for the light-duty sector in collaboration with U.S. EPA and the National Highway Traffic Safety Administration. ARB staff then used a scenario planning tool to examine the magnitude of technology penetration necessary, as well as how quickly technologies need to be introduced to meet attainment of the standard.

¹ Technology and Fuel assessments <http://www.arb.ca.gov/msprog/tech/tech.htm>

ARB staff released a discussion draft Mobile Source Strategy² for public comment in October 2015. This strategy specifically outlined a coordinated suite of proposed actions to not only meet federal air quality standards, but also achieve greenhouse gas emission reduction targets, reduce petroleum consumption, and decrease health risk from transportation emissions over the next 15 years. ARB staff held a public workshop on October 16, 2015 in Sacramento, and on October 22, 2015, ARB held a public Board meeting to update the Board and solicit public comment on the Mobile Source Strategy in Diamond Bar.

Staff continued to work with stakeholders to refine the measure concepts for incorporation into related planning efforts including the 75 ppb 8-hour ozone SIPs. On May 16, 2016, ARB released an updated Mobile Source Strategy and on May 17, 2016 ARB released the proposed State SIP strategy for a 45-day public comment period. The current mobile source program and proposed measures included in the State SIP Strategy provide attainment of the ozone standard as expeditiously as practicable and meet RFP requirements.

3. Waiver Approvals

While the Act preempts most states from adopting emission standards and other emission-related requirements for new motor vehicles and engines, it allows California to seek a waiver or authorization from the federal preemption to enact emission standards and other emission-related requirements for new motor vehicles and engines, and new and in-use off-road vehicles and engines, that are at least as protective as applicable federal standards, except for locomotives and engines used in farm and construction equipment which are less than 175 horsepower (hp).

Over the years, California has received waivers and authorizations for over 100 regulations. The most recent California standards and regulations that have received waivers and authorizations are Advanced Clean Cars (including ZEV and LEV III) for LightDuty vehicles, and On-Board Diagnostics, Heavy-Duty Idling, Malfunction and Diagnostics System, In-Use Off-Road Diesel Fleets, Large Spark Ignition Fleet, Mobile Cargo Handling Equipment for Heavy-Duty engines. Other Authorizations include OffHighway Recreational Vehicles and the Portable Equipment Registration Program.

Finally, ARB obtained an authorization from U.S. EPA to enforce adopted emission standards for off-road engines used in yard trucks and two-engine sweepers. ARB adopted the off-road emission standards as part of its “Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from InUse Heavy-Duty Diesel-Fueled Vehicles,” (Truck and Bus Regulation). The bulk of the regulation applies to in-use heavy-duty diesel on-road motor vehicles with a gross vehicle

² 2016 Mobile Source Strategy <http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm>

weight rating in excess of 14,000 pounds, which are not subject to preemption under section 209(a) of the Act and do not require a waiver under section 209(b).

4. Light- and Medium-Duty Vehicles

Light- and medium-duty vehicles are currently regulated under California's Advanced Clean Cars program including the LowEmission Vehicle III (LEV III) and Zero-Emission Vehicle (ZEV) programs. Other California programs such as the 2012 Governor Brown Executive Order to put 1.5 million zero-emission vehicles on the road by 2025, and California's Reformulated Gasoline program (CaRFG) will produce substantial and costeffective emission reductions from gasolinepowered vehicles.

ARB is also active in implementing programs for owners of older dirtier vehicles to retire them early in favor of clean vehicles. The Air Quality Improvement Program (AQIP) is a voluntary incentive program to fund clean vehicles. The Clean Vehicle Rebate Project, a project under AQIP, provides monetary incentives for the purchase of zeroemission and plug-in hybrid electric vehicles. The "car scrap" programs, like the Enhanced Fleet Modernization Program, and Clean Vehicle Rebate Project provide monetary incentives to replace old vehicles with zeroemission vehicles.

Taken together, California's emission standards, fuel specifications, and incentive programs for on-road, light-, and medium-duty vehicles represent all measures that are technologically and economically feasible within California.

5. Heavy-Duty Vehicles

California's heavy-duty vehicle emissions control program includes requirements for increasingly tighter new engine standards and address vehicle idling, certification procedures, on-board diagnostics, emissions control device verification, and in-use vehicles. This program is designed to achieve an on-road heavy-duty diesel fleet with 2010 engines emitting 98 percent less NO_x and PM_{2.5} than trucks sold in 1986.

Most recently in the ongoing efforts to go beyond federal standards and achieve further reductions, ARB adopted the Optional Reduced Emissions Standards for Heavy-Duty Engines regulation in 2014 that establishes the new generation of optional NO_x emission standards for heavy-duty engines.

The recent in-use control measures include On-Road Heavy-Duty Diesel Vehicle (InUse) Regulation, Drayage (Port or Rail Yard) Regulation, Public Agency and Utilities Regulation, Solid Waste Collection Vehicle Regulation, Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation, ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Heavy-Duty Diesel Vehicle Inspection Program, Periodic Smoke Inspection Program, Fleet Rule for Transit Agencies, Lower-Emission School Bus Program, and Heavy-Duty Truck Idling Requirements. In addition, ARB's significant investment in incentive programs provides an additional mechanism to achieve maximum emission reductions from this source sector.

Taken together, California's emission standards, fuel specifications, and incentive programs for heavy-duty vehicles represent all measures that are technologically and economically feasible within California.

6. Off-Road Vehicles and Engines

California regulations for off-road equipment include not only increasingly stringent standards for new offroad diesel engines, but also in-use requirements and idling restrictions.

The Off-Road Regulation is an extensive program designed to accelerate the penetration of the cleanest equipment into California's fleets, and impose idling limits on off-road diesel vehicles. The program goes beyond emission standards for new engines through comprehensive in-use requirements for legacy fleets.

Engines and equipment used in agricultural processes are unique to each process and are often redesigned and tailored to their particular use. Fleet turnover to cleaner engines is the focus for these engines.

Taken together, California's comprehensive suite of emission standards, fuel specifications, and incentive programs for off-road vehicles and engines represent all measures that are technologically and economically feasible within California and when considered in aggregate, would advance the attainment date by at least one year.

7. Other Sources and Fuels

The emission limits established for other mobile source categories, coupled with U.S. EPA waivers and authorization of preemption establish that California's programs for motorcycles, recreational boats, off-road recreational vehicles, cargo handling equipment, and commercial harbor craft sources meet the requirements for RACM and BACM.

Cleaner burning fuels also play an important role in reducing emissions from motor vehicles and engines as ARB has adopted a number of more stringent standards for fuels sold in California, including the Reformulated Gasoline program, low sulfur diesel requirements, and the Low Carbon Fuel Standard. These fuel standards, in combination with engine technology requirements, ensure that California's transportation system achieves the most effective emission reductions possible.

Taken together, California's emission standards, fuel specifications, and incentive programs for other mobile sources and fuels represent all measures that are technologically and economically feasible within California.

8. Mobile Source Summary

California's long history of comprehensive and innovative emissions control has resulted in the most stringent mobile source control program in the nation. U.S. EPA has previously acknowledged the strength of the program in their approval of ARB's regulations and through the waiver process. In its 2011 approval of the San Joaquin Valley's 8-hour ozone plan, which included the State's current program and new measure commitments, U.S. EPA found that there were no further reasonably available control measures that would advance attainment of the standard in the San Joaquin Valley.

In addition, U.S. EPA has provided past determinations that ARB's mobile source control programs meet Best Available Control Measure (BACM) requirements, which are more stringent than RACM, as part of their 2004 approval of the San Joaquin Valley's 2003 PM10 Plan:

"We believe that the State's control programs constitute BACM at this time for the mobile source and fuels categories, since the State's measures reflect the most stringent emission control programs currently available, taking into account economic and technological feasibility."

Since then, ARB has continued to substantially enhance and accelerate reductions from our mobile source control programs through the implementation of more stringent engine emissions standards, in-use requirements, incentive funding, and other policies and initiatives as described in the preceding sections.

ARB finds that with the current mobile source control program, there are no additional reasonable available control measures that would advance attainment of the 75 ppb 8-hour ozone standard in the Eastern Kern Air Pollution Control District. There are no reasonable regulatory control measures excluded from use in this plan; therefore, there are no emissions reductions associated with unused regulatory control measures. As a result, California's mobile source control programs fully meet the requirements for RACM.

9. Consumer Products

Consumer products are defined as chemically formulated products used by household and institutional consumers. For more than twenty five years, ARB has taken actions pertaining to the regulation of consumer products. Three regulations have set VOC limits for 129 consumer product categories. These regulations, referred to as the Consumer Product Program, have been amended frequently, and progressively stringent VOC limits and reactivity limits have been established. These are: Regulation for Reducing VOC Emissions from Antiperspirants and Deodorants; Regulation for Reducing Emissions

from Consumer Products; and Regulation for Reducing the Ozone Formed from Aerosol Coating Product Emissions, and the Tables of Maximum Incremental Reactivity Values.

Additionally, a voluntary regulation, the Alternative Control Plan has been adopted to provide compliance flexibility to companies. The program's most recent rulemaking occurred in 2013.

U.S. EPA also regulates consumer products. U.S. EPA's consumer products regulation was promulgated in 1998, however, federal consumer products VOC limits have not been revised since their adoption. U.S. EPA also promulgated reactivity limits for aerosol coatings. As with the general consumer products, California's requirements for aerosol coatings are more stringent than the U.S. EPA's requirements. Other jurisdictions, such as the Ozone Transport Commission states, have established VOC limits for consumer products which are modeled after the California program. However, the VOC limits typically lag those applicable in California.

In summary, California's Consumer Products Program, with the most stringent VOC requirements applicable to consumer products, meets RACM.