

OTC Mobile Source Committee

DRAFT: Potential 2008 8-Hour Ozone NAAQS Control Measures:

Purpose:

In 2008, the 8-hour ozone national ambient air quality standard (NAAQS) was lowered to 75 ppb. Those states that have areas designated as nonattainment for the 2008 ozone NAAQS are required to submit a plan to the U.S. Environmental Protection Agency describing how each area will attain the NAAQS by the designated attainment date. Attainment plans must include adopted control measures that will reduce ozone precursor emissions within the timeframe necessary to assist attainment.

The OTC Mobile Source Committee has been charged with developing potential control measures that may be suitable for adoption in each OTC state with an ozone nonattainment area. The descriptions provided here is a preliminary list of control measures under consideration by the OTC as possible regional measures. There will be a rigorous evaluation of the costs and potential emissions reductions. Some states may already have similar controls in place, or have state specific positions on the controls listed below.

FEDERAL MEASURES

1. Catalyst replacement

The California Air Resources Board has requirements/standards in place for the sale and use of aftermarket catalytic converters. They have a published list of certified aftermarket catalytic converters for individual vehicles based on year, make, model and engine size. This control measure consists of the USEPA providing and enforcing a similar system to certify aftermarket catalyst replacement systems for use in older vehicles that would apply in other States.

2. Tier 3 vehicles

States that have not adopted the California Low Emission Vehicle program are subject to the Federal new car emission standards that are currently at the Tier 2 level. This control measure is for the USEPA to establish tighter emission standards for new light duty vehicles, i.e., to the Tier 3 level. In addition to advancing the emission control technology for conventional vehicles, the Tier 3 standards would also address emissions from alternative fueled and new technology vehicles.

3. Bio-fuels

How do the biofuel mandates in the Federal Renewable Fuel Standard (RFS) affect ozone?

REGIONAL MEASURES

1. Idle Reduction for non-road diesel vehicles

Many states have programs in place to ensure compliance with idling limits for on-road diesel vehicles, but there are very few efforts actively underway to reduce idling from non-road diesel equipment (such as construction equipment). This measure is to develop a non-road idling reduction program. Construction vehicle operators can save money in fuel costs and repair expenses from reduced idling.

2. Seaports

Seaports are associated with diesel emissions (including NO_x) from a variety of sources, including marine vessels, cargo handling equipment, drayage trucks and locomotives. Some key strategies that address one or more of these sources include:

- Retrofitting or replacing older engines, e.g. phasing out pre-1995 drayage trucks and retrofitting post-1995 trucks and non-road cargo handling equipment to meet current EPA emission standards for new engines;
- Support for USEPA petition to International Maritime Organization for Emission Control Areas requiring 1000 ppm sulfur diesel fuel in oceangoing vessels by 2015. Investigating early implementation of the cleaner fuel in the ports in the ozone Transport Region.
- Idle reduction strategies for ships at berth (e.g., shore power)
- Marine vessel speed reduction

3. Regional Fuel

Due to limitations on States by the Energy Security Act (ESA), this control measure is limited to the expansion of the geographic area where Reformulated Gasoline (RFG) is required. Converting from conventional gasoline to RFG in upwind areas would reduce the loading of VOC and NO_x to the airshed, thereby resulting in reduced ozone levels.

4. Lightering for ships

This measure involves the control of VOC emissions during transfer of crude oil from ship to other vessels to accommodate delivery to ports that cannot accommodate large tankers. For example, marine cargo ships transiting the Delaware River are limited to drafts of 35 feet. A preponderance of inbound crude oil marine cargo vessels exceeds this 35 foot draft limitation. To permit delivery of crude oil to refineries up river, crude oil is transferred from the large, inbound marine vessel to one (or more) smaller vessels (ships or barges) until a draft of less than 35 feet is achieved. This transfer, referred to as a lightering operation, takes place in the Delaware Bay. VOC emissions can be controlled by use of a vapor balancing system. Another possibility is to prohibit uncontrolled lightering operations on high ozone days.

5. Encourage faster fleet turnover to newer cleaner engines

Identify incentive and disincentive measures to encourage the early turnover of equipment, engines, and vehicles. The USEPA and California set newer emission standards for various categories of equipment, engines, and vehicles which are less polluting, in some cases much less polluting, than the older standards for existing equipment, engines and vehicles in use today. Depending upon the piece of equipment, engine, or vehicle and its specific use, its useful life may be many years, thus replacing the old equipment, engines and vehicles with cleaner and possibly more fuel efficient ones could result in significant air quality benefits.

6. Mandatory controls for high ozone days

This measure consists of various restrictions on activities that cause emissions on high ozone days or during elevated ozone episodes. Examples include restrictions on driving, bans on operating small gasoline engines, and uncontrolled vessel lightering operations.

STATE/LOCAL MEASURES

1. Airports

The ease at establishing emission control projects and the potential emissions reductions at airports is all dependent on the location of the project. The location can either be on the airside or the groundside of the airport. On the airside of the airport, where aircraft operations occur, potential emission reductions from projects are large, but at the same time projects are difficult to start. Projects are difficult to start because the airport has very little influence over these projects unless the airlines agree to support them. Projects with a reasonable chance of airline buy-in and success usually are accompanied by a financial incentive, quick payback, for the airline. These projects include: hydrant refueling, replacing diesel-powered ground support equipment (GSE) with electric-powered GSE, and gate electrification with pre-conditioned air. Other measures on the airside that have met with limited success include: continuous descent approach, limiting the use of auxiliary power units, single engine taxi, rolling starts, and reduced thrust takeoffs. On the groundside, where passengers arrive by vehicle, bus, taxi etc., measures are easier to implement but do not offer big emission reductions. These projects include: purchasing hybrid buses and taxis, creating cell phone parking lots, purchasing hybrid vehicles for airport fleets, purchasing alternatively-fueled central fleets, providing commuting options for airport employees, purchase of newer snow removal equipment, and establishing remote sensing of taxis.

2. Diesel inspection and maintenance (Diesel I/M)

In 1999, the OTC passed a resolution regarding interstate cooperation on the testing of heavy duty diesel-fueled trucks and buses. Diesel I/M programs force repair of poorly maintained or tampered heavy duty diesel vehicles, and encourage proper long term maintenance which in turn reduces particulates and ozone precursors. Coordination and consistency among states in the ozone transport region regarding compliance standards, enforcement, testing and repair protocols is important.

New USEPA rules require On-Board Diagnostics (OBD) on medium duty diesel vehicles beginning model year 2007 and on heavy duty diesel vehicles between 2013 and 2016. States can now benefit from the OBD requirement by implementing a Diesel I/M Program or enhancing their existing programs to incorporate OBD testing. Currently most states that test for diesel emissions use an opacity test. This test is limited in that it is only an indicator of PM, but not a test for other emissions such as NO_x, CO, or VOCs. By implementing an OBD system states will now be able to ensure that diesel vehicles are in compliance for all emissions. This measure could be part of comprehensive package of diesel controls including, idling reductions, use of auxiliary power units (APU), federal Smartway programs and replacing older vehicles.

3. Gasoline I/M

a. Pressure Test

A more comprehensive fuel system leak check is done by California which is performed at smog check stations throughout the State. The California program performs a similar test that pressurizes the fuel system from the inlet to the canister as stated below. They also perform liquid leak checks.

b. Low income vehicle repair

These state-level programs provide financial assistance for the repair of vehicles that have either failed an inspection/maintenance (I/M) emissions test or have been identified as a potential high-emitting vehicle through remote sensing or high-emitter profiling. Other features of these programs generally include:

- income eligibility requirements
- registration in I/M program area for at least one-two continuous years prior to applying for funds
- passed the safety portion or the I/M test
- repair assistance in the form of a voucher for up to \$500-\$1000 towards emission-related repairs
- model year restrictions, such as, vehicle must be at least 10 years old
- repairs performed at a state-licensed emissions repair facility

Possible funding: through exemption for the first 6 years, with payments going to older vehicle repair

NESCAUM LEAD MEASURES

1. Vehicle Miles Traveled (VMT)

VMT reduction measures attempt to reduce the number of miles driven by various vehicles in the fleet, especially older vehicles and others with higher emission rates. This can be accomplished through innovative Transportation Demand Management, development of alternate transportation modes, pricing policies, changing highway investment priorities, changes in freight movement and Smart Growth measures.

2. Cleaner Fuels/Low Carbon Fuel

The development of a low carbon fuel standard is underway. While its focus is reducing carbon emissions, additional reductions of VOC and NO_x and other pollutants may occur. A workgroup to design the standard was formed and is working to define the program.