

Summary of Key Issues:
Proposed In-use Off-Road Diesel Vehicle Regulation

Background

On May 25, 2007, the Air Resources Board (ARB or Board) began hearing public testimony on a proposed in-use off-road diesel vehicle regulation. The proposed regulation would provide significant particulate matter (PM) and oxides of nitrogen (NOx) emissions reductions from nearly 180,000 existing off-road diesel vehicles by requiring fleet owners to accelerate turnover to cleaner engines and install exhaust retrofits. The proposed regulation would apply to any person, business or government agency that owns or operates diesel-powered off-road vehicles in California (except agriculture) whose engines have a maximum power of 25 horsepower (hp) or greater.

By 2020, the proposed regulation is projected to reduce diesel PM emissions from existing off-road diesel vehicles by 92 percent from the 2000 baseline. Also, the proposed regulation is expected to reduce diesel PM emissions by 5.2 tons per day (tpd) and NOx emissions by 48 tpd in 2020. The cumulative PM and NOx emissions reductions from 2010 to 2030 are expected to prevent approximately 4,000 premature deaths and tens of thousands of cases of asthma-related and other lower respiratory symptoms. Over this same time, there will also be significant health cost savings of \$18 to \$26 billion, primarily from avoided premature deaths.

Current Status

To ensure that all potential witnesses were accommodated at the May hearing, and to give the Board sufficient time to weigh and consider all oral and written testimony it receives, the Board's final deliberations were carried over to ARB's regularly scheduled meeting on

July 26, 2007, in Sacramento. However, the Board directed staff to continue to work with stakeholders to evaluate issues that were raised at the May hearing. Today's hearing is so that the Board may receive the information staff has collected since the May hearing, resume its consideration of the proposed regulation, and make its final decision.

Recent Staff Actions

Since the May Board hearing, ARB staff has been continuing to meet with stakeholders, including individual fleets, industry representatives, environmental organizations, and local air districts to address the outstanding issues that were raised. These issues include:

- Further investigations into the estimate of the statewide costs of the proposed regulation,
- Economic impacts of the proposed regulation on individual fleets,

- Opportunities for additional emission reductions in areas of the state that are designated as non-attainment for the federal fine particulate (PM2.5) standard (South Coast and San Joaquin Valley Air Districts),
- Opportunities for additional flexibility to fleets, including different compliance intervals in the proposed regulation, and
- Additional evaluations into the availability and cost of technology, engines, and vehicles necessary to comply with the proposed regulation's requirements.

Staff has concluded its evaluation of some of these issues, and has made its findings available to the Board and the public. Staff held public workgroup meetings in June and July of 2007 to present their findings regarding the statewide costs of the proposed regulation and to discuss the economic impacts of the proposed regulation on individual fleets.

Key Outstanding Issues

Staff has worked tirelessly over the past two months to address issues raised by stakeholders and the Board. However, several issues still remain unresolved. Because no consensus has been achieved, staff has not proposed specific amendments to the regulation addressing these issues. However, to guide discussion around these issues, staff has summarized each issue below, and identifies potential solutions and options.

Additional Requirements in PM2.5 Non-Attainment Areas

It has been proposed by the South Coast and San Joaquin Valley Air Districts, as well as by the California Air Pollution Control Officers Association and many environmental organizations, that requirements be included in the proposed regulation to achieve additional NOx emission reductions in the South Coast and San Joaquin Valley. ARB staff recognizes the need for NOx emission reductions in these areas, but has concluded that the current requirements in the proposed regulation represent the economic limit of what industry can bear, and any further emission reduction requirements would likely require financial incentives.

Since the May hearing, numerous stakeholder have been discussing an approach that would allow certain districts to opt-in to a program that would achieve additional NOx emission reductions through the accelerated turnover of older vehicles, providing incentive money is available to offset much of the cost. ARB staff has taken this concept and developed regulatory language which would embody such a requirement in a way that would achieve additional NOx emission reductions above and beyond the ARB staff's proposal, and that would be consistent with state law and ARB guidelines regarding the use of incentive money to achieve emission reductions that are surplus. Attachment 1 provides this language.

Longer Compliance Intervals

Industry stakeholders have commented that the current structure of the proposed regulation, which requires annual compliance dates for PM and NOx, is too rigid, and do not provide fleets sufficient flexibility to adequately plan capital expenditures over multiple years in a way that is consistent with normal business practices. To address this, industry has suggested that the proposed regulation be modified to allow compliance intervals that span multiple years, thereby giving fleets the flexibility to do more or less than what would currently be required, with the requirement that by certain date specific years, all actions required under the proposed regulation as currently structured would be achieved.

A number of variants to this concept have been evaluated by ARB staff. These include compliance required every second or every third year, and variations which have a minimum amount of reduction achieved in the in between years. All result in higher PM emissions and a loss of health benefits, compared to the staff proposal.

Resolution Language for Staff to Report Back to the Board

There has been a significant amount of debate among stakeholders regarding the future availability, viability, cost, and durability of technologies necessary to comply with the future effective fleet averages in the proposed regulation. This includes:

- The availability, cost, and durability of retrofit devices (both for PM and NOx);
- Whether or not engine and equipment manufacturers will be on schedule to introduce the cleanest new engines (known as Tier 4) in the 2012-2014 timeframe.
- Whether or not there will be sufficient vehicles available for fleets to acquire in the second half of the next decade to meet the 2020 fleet average targets in the proposed regulation.
- Availability of financing necessary for compliance.

To address similar concerns in the past, it has been a common practice of the Board to direct staff to return and provide a report and/or update presenting additional information that was not available at the time of the hearing. One way to address the outstanding concerns among stakeholders is for the Board to direct staff to report back, in specific years, and provide information germane to technology required by the regulation at that time, and whether the implementation of the proposed regulation is progressing as anticipated. Some dates that would achieve this goal are:

1. By January 1, 2009, report to the Board on the availability of ARB verified retrofit devices for off-road applications. This could include an update on the number of devices that have been verified, the cost of these devices, and information on the status of the joint ARB/SCAQMD/MSRC Off-Road Construction Showcase.
2. By January 1, 2013, report to the Board on the status of engine and vehicle manufacturers' progress towards supplying compliant Tier 4 engines and vehicles into the California Market.

3. By January 1, 2017, report to the Board on the introduction of Tier 4 engines into California, and an assessment of the availability of vehicles necessary for fleets to meet the 2020 fleet average targets in the regulation.

Attachment 1 - Proposed Language to Be Added to New Article 4.8

2449.1 Requirement for Largest Fleets to Achieve Additional Reductions of Oxides of Nitrogen Under the Solicitation for Applications Program

(a) **Purpose** – To achieve additional reductions of oxides of nitrogen (NOx) emissions from in-use off-road diesel-fueled vehicles in California air basins not in attainment with the federal ambient air quality standards for PM2.5. The reductions must be surplus to those that would otherwise be achieved through implementation of title 13, California Code of Regulations, section 2449, “Regulation for Statewide In-Use Off-Road Diesel Vehicles”.

(b) **Applicability**

(1) **District Applicability** - Section 2449.1 applies only in California air basins not in attainment with the federal ambient air quality standards for PM2.5, and only if the respective Districts’ governing boards hold public hearings and formally opt into the program.

(2) **Fleet Applicability** – Section 2449.1 applies only to fleets that:

- (A) As of January 1, 2008, consisted of more than 40 percent Tier 0 and Tier 1 vehicles, and;
- (B) Operate individual vehicles within the respective district.

(c) **Definitions**

The definitions title 13, CCR, section 2449(c) apply, along with the following definitions:

- (1) **Operate in the district** means a vehicle that in one of the most recent three years before the solicitation deadline has operated within the boundaries of the air district at least one hundred hours per year and for over half its annual operating hours.
- (2) **Contract period** means the period of time over which the vehicle is under contract to the district to operate to achieve emission reductions.
- (3) **Solicitation** means an announcement, released to the public by a district, requesting the submission of grant applications to the district for emission reduction incentive programs.
- (4) **Solicitation deadline** means the last day, as provided in the solicitation, on which a solicitation must be physically received by a district.

(d) **Requirements**

- (1) If a district, having held a public hearing and opting into this regulation, issues a solicitation for applications for funding under the South Coast/San Joaquin Valley

Off-road Opt-in for NOx (SOON) program, fleets subject to section 2449.1 must, before the solicitation deadline, do the following:

- (A) **Report to District and ARB** - Report information to the district and ARB for which they are seeking funding regarding both their total statewide and that part of the fleet that has operated in the district. All information required by section 2449(g) must be reported. If the solicitation deadline is before April 1, 2009, the fleet as of January 1, 2008 must be reported. If the solicitation deadline is on or after April 1, 2009, the information reported to ARB on the most recent April 1 reporting date must be submitted.
- (B) **Calculate NOx index** - Determine the NOx index for vehicles that operated in the district for the year in which the solicitation deadline occurs according to the formula in section 2449(d)(1)(A)1.
- (C) **Calculate NOx target rate** - Determine the NOx target rate for vehicles that operated in the district for the year in which the solicitation deadline occurs according to the formula in section 2449(d)(1)(A)1. using the targets in Table 1 below:

Table 1: NOx Targets for each Max Hp Group								
Compliance Date: March 1 of Year	25-49 hp	50-74 hp	75-99 hp	100-174 hp	175-299 hp	300-599 hp	600-750 hp	>750 hp
2011	5.6	6.2	6.7	6.0	5.4	5.1	5.3	6.4
2014	4.9	5.1	5.2	4.7	2.8	2.7	2.7	4.2
2017	4.2	4.1	3.8	3.4	1.5	1.5	1.5	3.2
2020	3.5	3.2	2.4	2.2	0.9	0.9	0.9	2.6
2023	3.5	3.2	2.4	2.2	0.9	0.9	0.9	2.6

- (D) **Apply for funding** –All fleets that have a statewide fleet with maximum power greater than 20,000 horsepower (hp) for which the NOx index, as calculated in section 2449.1(d)(1)(B), is greater than the NOx target rate, as calculated in section 2449.1(d)(1)(C), must apply. The application submitted must be completed according to the guidelines and conditions established under the solicitation. The NOx retrofits, repowers, or vehicle replacements for which funding is requested must be sufficient to bring the NOx index to less than or equal to the NOx target rate calculated in 2449.1(d)(1)(C).
- (E) **Achieve NOx reductions** – Fleets that receive SOON funding must complete the actions for which they were funded per the conditions of the solicitation. Fleets that do not receive requested SOON funding are not required to take actions beyond compliance with the in-use off-road diesel vehicle regulation, as specified in section 2449.

- (2) Districts that opt into SOON must prioritize requested projects based on the optimum NOx cost-effectiveness. Only projects that have cost-effectiveness of \$5,000/ton NOx or better may be funded. Districts must report to ARB all projects funded by SOON, including the equipment identification number of all vehicles included.

(e) Special Provisions –

- (1) **Accounting for the in-use off-road diesel vehicle rule** – Reductions achieved through SOON are intended to be surplus, over the entire contract period, to those required by the “Regulation for Statewide In-Use Off-Road Diesel Vehicles”. During the contract period, vehicles funded under the SOON program with NOx retrofits, engine repowers, or have been replaced, cannot use this lower emission rate to calculate NOx indices, PM indices, NOx target rates, PM target rates, turnover credit and retrofit credit under section 2449. Instead, for the purposes of calculating NOx indices, PM indices, NOx target rates, PM target rates, turnover credit and retrofit credit under section 2449, these vehicles must reflect the emission rate for that engine(s) as if the actions taken under SOON did not occur. These vehicles may be used for determining compliance under section 2449 after the completion of the SOON project contract period for that vehicle.

For example, if a Tier 0 vehicle is repowered with a Tier 3 engine with SOON funds, for purposes of compliance with Section 2449, that vehicle is still treated as if it were a Tier 0 until the end of the contract period for the SOON project.

- (2) **Turnover in section 2449** - A fleet may apply to the Executive Officer for an extension from the requirements in section 2449(d)(2)(A) if, using the accounting provisions in section 2449.1(e)(1), section 2449(d)(2)(A) would require, prior to March 1, 2014, a fleet to turn over vehicles that are Tier 2 or better.
- (3) **Compliance plans** – The Executive Officer may require fleets applying for SOON funding to prepare and submit a compliance plan laying out the actions they are required to take under Section 2449 and Section 2449.1.
- (4) **Surplus** - Participation in SOON does not reduce the actions required for any fleet to comply with any requirements in the statewide in-use off-road diesel vehicle regulation under Section 2449.
- (5) **Tracking devices** - Any vehicles repowered, retrofit, or replaced with incentive money through this program must be equipped with vehicle location devices (per the respective districts guidelines and conditions for receiving funding) to ensure the vehicles are used in the district for the required percent of operating hours.
- (6) **Particulate Matter Retrofits** - The exemption from retrofit requirements for engines in vehicles less than 5 years old in 2449(d)(2)(B)4.a. does not apply to vehicles that are replaced with SOON funds.
- (7) **Guidelines**- If funded with Carl Moyer program money, the SOON program must be administered consistent with applicable Carl Moyer program guidelines. If it is funded from other sources, the SOON program must be administered consistent with any applicable guidelines. The district shall develop guidelines for administration of the SOON program as provided in Section 2449.1(f).

(f) Local Air District Opt-In

(1) A local air district opting-in to Section 2449.1 may develop, through a public process and duly noted-public hearing, additional administrative provisions necessary to implement this section, including, but not limited to, funding guidelines (as required under section 2449.1(e)(7)) and reporting and monitoring requirements. Funding guidelines are subject to approval of the Executive Officer.