

Control Measure for In-Use Stationary Diesel Agricultural Engines

What is an in-use stationary diesel agricultural engine?

An in-use stationary diesel agricultural engine (also referred to as in-use ag. engine) is a diesel-fueled engine located at a fixed site for the purposes of growing crops or raising fowl or other animals. An estimated 9,000 to 11,000 of these engines are currently operated in California, primarily in the Central Valley. Most are used to power irrigation pumps. They may also be used to power agricultural wind machines and to generate power for other agricultural purposes during electrical power failures or in remote locations.

What are the emissions and health impacts associated with in-use ag. engines?

California's in-use ag. engines emit diesel particulate matter (PM) and oxides of nitrogen (NO_x) that cause adverse health effects for Californians. Stationary irrigation pump engines, alone, emit an estimated 480 tons of diesel PM and 10,000 tons of NO_x annually. Most of these emissions occur during the summer growing season.

The California Air Resources Board (ARB) identified diesel PM as a toxic air contaminant (TAC) in 1998. Exposure to diesel PM may result in both cancer and noncancer health effects. Noncancer health effects may include eye and lung irritation, allergic reactions in the lungs, asthma exacerbation, blood toxicity, immune system dysfunction, and developmental disorders. NO_x, a contributor to ozone or smog, has also been shown to have adverse health effects in humans including respiratory irritation, suppression of the immune system, and asthma exacerbation.

Are there existing control measures for in-use ag. engines?

Yes, the San Joaquin Valley (Rule 4702) and South Coast (Rule 1110.2) air districts limit NO_x, volatile organic compound (VOC), and carbon monoxide (CO) emissions from in-use ag. and other engines. In the future, other local air districts may adopt control requirements for in-use ag. engines.

What is the status of ARB's control measure for in-use ag. engines?

At a public hearing on November 16, 2006, the Board approved amendments adding PM emission limits and other requirements for in-use ag. engines to the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (ATCM). The Board's approval included several modifications in response to comments on the original proposal published in the Staff Report (September 29, 2006) (<http://www.arb.ca.gov/regact/agen06/agen06.htm>). The modifications will be published in a 15-day public comment period notice. If no further modifications are made to the ATCM following the 15-day comment period, a Final Statement of Reasons (FSOR) will be prepared and sent to the Office of Administrative Law (OAL) for review. If the OAL has no objections, the amended ATCM will be filed with the Secretary of State and become effective. The expected effective date of in-use ag. engine requirements is Spring 2007. Currently, the ATCM regulates *new* ag. engines (<http://www.arb.ca.gov/regact/statde/statde.htm>). Owners or operators of greater than 50 horsepower in-use ag. engines subject to San Joaquin Valley or South Coast air district NO_x rules are also expected to comply with ARB's PM control measure, when effective.

What does the ARB control measure require?

The control measure establishes emission limits for greater than 50 hp in-use ag. engines and registration requirements for greater than 50 hp new and in-use ag. engines. The in-use ag. engine emission limits require uncontrolled (primarily pre-1996) engines not to exceed Tier 3 or Tier 4 new Off-Road Compression Ignition Engine Certification Standards for PM by the 2011-2012 timeframe. Tier 1 and Tier 2 engines can not exceed Tier 4 certification standards for PM by the 2015-2016 timeframe, or 12 years after initial installation, whichever is later. Due to residual cancer risk, some Tier 3-compliant engines located within one-quarter mile of residential areas, schools, or hospitals may be subject to additional local air district AB 2588 "Hot Spots" Program requirements. No residual risk issues are anticipated for Tier 4-compliant engines because of their very low emission rates. Affected ag. engine owners or operators are required to submit registration information on each engine to local air districts by March 1, 2008, and to pay fees for engine registration and other local air district implementation and enforcement activities. Agricultural wind machines are exempt from the ATCM. Ag. emergency standby generator sets and remotely-located ag. engines are exempt from emission limits, but must be registered.

Who will be affected by the control measure?

California farmers, ranchers, and universities or other institutions with programs operating stationary diesel agricultural engines will be affected by the control measure. In addition, the control measure could have indirect impacts on electric power providers, fuel suppliers, and engine manufacturers, dealers, and rental agencies.

What are potential compliance options for the control measure?

Potential compliance options for the control measure's emission limits include: engine replacement with an electric motor, spark-ignited engine, or compliant diesel engine; engine retrofit with add-on control devices; or the use of natural gas, propane, biodiesel, or other alternative fuels. However, engine replacement with an electric motor or new, cleaner diesel engine is expected to be the primary means of compliance for technical, financial, and emission reduction reasons.

****Contact your local air district to discuss the most appropriate and cost-effective compliance option for your in-use ag. engine or engines.****

Is funding available to meet the requirements in the control measure?

Some compliance options may be eligible for incentive funds or special rates. Contact the program provider and your local air district for information about eligibility and application submittal as soon as possible. The following links provide information on specific programs:

Pacific Gas & Electric at <http://www.pge.com/agice>. Telephone: (800) 468-4743.

Southern California Edison at <http://www.sce.com/rebatesandsavings/largebusiness/agricultural/tou-pa-ice.htm>. Telephone: (800) 896-1245.

Environmental Quality Incentives Program at <http://www.ca.nrcs.usda.gov/programs/eqip>. Telephone: (530) 792-5653.

Carl Moyer Program or Agricultural Assistance Program at <http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm> and <http://www.arb.ca.gov/msprog/moyer/contacts.htm>. Telephone your local air district.

For more information about this control measure:

A copy of the original proposal (see Tables 6 and 7 for a summary of the emission limits for in-use stationary diesel agricultural engines) is available at <http://www.arb.ca.gov/regact/agen06/agen06.htm>. Additional information is available at <http://www.arb.ca.gov/diesel/ag/inuseag.htm>. To be notified of meetings, workshops, publications, and hearings regarding the proposed control measure, please join the electronic list serve at <http://www.arb.ca.gov/listserv/inuseag.htm>. You may also contact Richard Boyd at (916) 322-8285, rboyd@arb.ca.gov, or, Barbara Cook at (916) 323-0440, bcook@arb.ca.gov.