

CMAQ and Idle Reduction Techniques

What is CMAQ?

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides a flexible funding source for state and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments. CMAQ money supports transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency (EPA) as in nonattainment or maintenance of national ambient air quality standards. Eligible activities include transit improvements, traffic flow improvements and idle reduction projects, among others.

What is the CMAQ Funding Process?

CMAQ funds must be invested in a state's nonattainment or maintenance area(s). The money must be spent on projects that reduce Ozone (O₃) precursors – volatile organics compounds (VOCs) and nitrogen oxides (NO_x) – carbon monoxide (CO), or particulate matter (PM) from transportation sources. States without nonattainment or maintenance areas may use their CMAQ funds for projects eligible under the CMAQ or Surface Transportation Programs anywhere in the state. All CMAQ projects must come from a transportation plan and Transportation Improvement Program (TIP). The state transportation department is responsible for distributing CMAQ funds.

All projects must conform to established CMAQ guidance. The federal share for most CMAQ-eligible projects is 80 percent. The CMAQ program operates on a reimbursable basis, so funds are not provided until work is completed.

Why Do Trucks Idle?

Truck drivers idle their engines for a variety of reasons. For long haul trucks, the truck driver must have 10 hours off duty after driving 11 hours. Surveys have found that 70 to 80 percent of truck drivers say the need for heating or air conditioning is the main reason they idle their trucks during their 10 hour's off duty. They also cite the need to operate on-board electrical appliances, such as a television or refrigerator, and to ensure the engine block, fuel, and oil remain warm. Long duration truck idling occurs at truck stops, travel centers, distribution hubs, airports, borders, ports, and roadsides.



Long-haul trucks like this one represent a significant percentage of mobile source emissions of air pollutants. Technologies to reduce truck idling can help.

Environmental Impacts

Truck and rail transport consume about 35 billion gallons of diesel fuel each year, which produces carbon dioxide (CO₂), NO_x, and PM. Of the nations' total transportation-related emissions, ground freight contributes 40 percent of NO_x and 30 percent of PM. Truck idling consumes almost 1 billion gallons of diesel fuel annually and emits an estimated 11 million tons of CO₂, 180,000 tons of NO_x, and 5,000 tons of PM.

To reduce long-duration truck idling, there are many techniques, which can be divided into three categories: (1) behavioral change induced by education and incentives, (2) state or local anti-idling laws, and (3) idle reduction technology. The term "idle reduction technology" refers to devices that allow engine operators to refrain from long-duration idling of the main propulsion engine by using an alternative source of power. These alternative technologies save fuel and reduce emissions.

Some Examples of Truck Idle Reduction

Technologies

There are several technologies to reduce truck idling, including direct-fired heaters, auxiliary power units (APUs), automatic engine idling systems, truck stop electrification (TSE), and advanced truck stop electrification (ATSE).

TSE refers to a system of pre-wired distribution components that connect shore power to a truck's on-board equipment that provides heat, air conditioning, and other amenities without needing to run the main engines.

ATSE systems consist of stationary structures near each parking space that deliver heat and air conditioning, Internet, local telephone service, satellite television, movies on demand, and computer-based interactive driver training to the cab of the truck.



A truck driver accesses the Internet using the high-speed computer integrated with a window adapter of a shorepower electrification system. This model also provides drivers with other electronic systems. Photograph courtesy of IdleAire.

Eligibility of Idle Reduction Technologies for CMAQ Funds

A project to control extended idling could be eligible for CMAQ funding and could be carried out under the DMAQ public-private partnership provisions. Such partnership agreements must spell out the activities and financial responsibilities of each partner, cost sharing, ownership of physical property and how public benefits are created in exchange for public funding. As always, the 20 percent match is required, but state officials are encouraged to seek a larger match than required by law.

Examples of Idle Reduction Technologies

Beaumont TX, South East Texas Regional Planning Commission provided \$5.2 million of CMAQ funds to install 532 ATSE units to stop diesel engine idling at four sites in the Beaumont Port Arthur Ozone non-attainment area. A private firm contributed \$2.6 million. The estimated emissions reductions were 29 kg/day CO, 39 kg/day NOx, 1.3 kg/day PM, and 3.6 kg/day VOC.

The Knoxville Regional Transportation Planning Organization used \$1 million in CMAQ funds to install 100 ATSE units to stop diesel engine idling at the Petro Stopping Center along I-40/I-75 in Knoxville, TN. The project has resulted in emissions reductions of 25 kg/day CO, 60 kg/day NOx, 1.6 kg/day PM, and 3 kg/day VOC, during 826 days of use.

For more information, please contact:
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For more information on idle reduction technologies, visit: <http://www.epa.gov>

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Quality Assurance Statement



A simple window adapter makes this electrification system compatible with many models of long-haul trucks. Photograph courtesy of IdleAire.