

# Texas Clean School Bus Program Questions and Answers

## What is the Texas Clean School Bus Program?

The Texas Clean School Bus Program is a comprehensive program designed to improve the health of schoolchildren and bus drivers by reducing emissions of diesel exhaust from school buses. The program is offered by the Texas Commission on Environmental Quality (TCEQ) and is designed to:

- Provide grants for eligible projects that reduce particulate matter emissions from diesel exhaust.
- Educate school district personnel and school bus providers about various clean school bus options that can improve the school bus fleet and provide environmental and health benefits.
- Educate school district personnel and school bus providers about the emissions and the potential health impacts associated with diesel bus idling, with a goal of eliminating unnecessary idling.
- Identify other funding opportunities for school buses.

## Why should we pay attention to particulate matter emissions from school buses?

Air pollution from diesel vehicles has health implications for everyone, but children may be more susceptible to this pollution because they breathe more air per pound of body weight when compared to adults. In addition, as children's respiratory systems are still developing, they are more susceptible than adults to environmental pollution.

Diesel exhaust contains small particles, known as fine particulate matter (PM). PM can easily pass through the nose and throat, penetrate deep into the lungs and pose serious health risks, including aggravated asthma and allergies. Some studies suggest that long-term exposure can increase the risk of lung cancer. In addition, diesel exhaust also has environmental impacts. PM from diesel exhaust can contribute to haze (which restricts visibility), environmental damage and aesthetic damage.

## Who is eligible to receive funding?

Funding is available through the Texas Clean School Bus Grant Program to all public school districts and charter schools in Texas that operate one or more diesel-powered school buses or to a transportation system provided by a countywide school district. The grant funds cover the purchase and installation of retrofit emissions reduction technologies. Private schools are not eligible to receive funding through the Texas Clean School Bus Grant Program. School districts/charter schools that lease buses may be eligible for grants if the school district/charter

school is the applicant and the leasing company that owns the buses consents to being a third-party to an agreement with the applicant and TCEQ.

### **Which types of school buses are eligible to be retrofitted?**

All sizes of diesel-powered school buses are eligible for grant funding. The bus proposed for retrofit must operate on a regular, daily route to and from a school and have at least five years of remaining useful life, unless the applicant agrees to remove the retrofit device at the end of the life of the bus and install the device on a different eligible bus. Applicants are encouraged to keep the device in operation for the entirety of its lifespan.

Applicants must certify in the application that each specific bus retrofit project meets these eligibility requirements.

### **What retrofit options qualify for funding through the Texas Clean School Bus Grant Program?**

There are four retrofits that are currently approved for funding:

1. **Diesel Particulate Filters** are ceramic devices that collect particulate matter in the exhaust stream. The high temperature of the exhaust heats the ceramic structure and allows the particles inside to break down into less harmful components. These filters must be used in conjunction with ultra-low sulfur diesel (ULSD) fuel, which is a fuel with a sulfur content of less than 15 parts per million. The combination of particulate filters and ULSD fuel can reduce emissions of particulates, organic compounds, and carbon monoxide in the exhaust gases by 60 to 90 percent. Particulate filters work best on engines built after 1994 and cost \$6,500 to \$8,250. The maximum reimbursement amount for the equipment purchase and installation is \$8,250 per device/bus.

2. **Closed Crankcase Filtration Systems** allow a diesel engine's crankcase to be closed and use an air filter to trap blow-by aerosols consisting mainly of oil droplets with some carbon and traces of wear debris and PM<sub>10</sub>. PM<sub>10</sub> includes all particles that are smaller than 10 micrometers in diameter. These particles are considered "inhalable", because they are small enough to pass into the lower airways. Blow-by gas emissions can be as much as 25 percent of the total emissions from a diesel engine. The filtration efficiency of crankcase filters averages between 80 and 97 percent. The crankcase filter must be changed at every lube oil change (as recommended by the diesel engine manufacturer) or every 500 hours of operation, whichever comes first. Crankcase filters are inexpensive and are best used in conjunction with some type of filtration system in the exhaust stream. These systems may be more effective at reducing children's in-cabin exposures to pollutants than control systems fitted into the exhaust systems alone. The maximum reimbursement amount for the equipment purchase and installation is \$800 per device/bus.

**3. Diesel Oxidation Catalysts** are devices that use a chemical process to break down pollutants in the exhaust stream into less harmful components. Diesel oxidation catalysts can reduce emissions of particulates by 20 to 40 percent, hydrocarbons by 50 percent and carbon monoxide by 40 percent. Oxidation catalysts cost \$600 to \$1,500 and can be used with regular diesel fuel. The maximum reimbursement amount for the equipment purchase and installation is \$1,500 per device/bus.

**4. Partial Flow-Through Filters** are a tailpipe solution that can lower diesel particulate matter emissions by 70 to 75 percent. This type of retrofit can also reduce total vehicle emissions by up to 80 percent when paired with a closed crankcase filtration system. A partial flow-through filter uses a two-stage filter to trap and reduce particulate matter. It is designed to be low maintenance and can be used with ultra-low sulfur diesel (ULSD) fuel. This type of retrofit costs \$5,000 to \$6,000. The maximum reimbursement amount for the equipment purchase and installation is \$6,000 per device/bus.

The technologies that are eligible for funding with the Texas Clean School Bus grants are those that have been verified by either the Environmental Protection Agency (EPA) or the California Air Resources Board (CARB) to reduce particulate matter. The Closed Crankcase Filtration System has not been verified but is eligible as a stand alone retrofit for this grant. The EPA-verified equipment list can be found at: <http://www.epa.gov/otaq/retrofit/verif-list.htm>.

### **How much money can a school district qualify to receive?**

Your school district's grant amount depends on which retrofit device is selected for each school bus. There are no limits on how many grant requests a school district can make, but each district may not exceed \$250,000 per grant request.

### **What are the reimbursement amounts for equipment?**

There are limits on how much money can be reimbursed for each retrofit device. Closed crankcase filtration systems may receive up to \$800, diesel oxidation catalysts up to \$1,500, partial flow-through filters up to \$6,000, and diesel particulate filters up to \$8,250. These caps are per device and include installation costs.

### **How does this equipment affect the maintenance, fuel efficiency, and overall operational cost of the bus that is retrofitted? Does it require more frequent oil changes or oil additives?**

The answers to these questions vary according to the specific technology, fuel, and vehicle application. The TCEQ encourages school districts to discuss these questions with vendors and other fleet operators who have installed retrofit devices.

### **What is the life expectancy of the equipment?**

Life expectancy varies by equipment type, use and maintenance, and warranty provisions. The EPA states that in general, both diesel oxidation catalysts and particulate filters come with a 100,000 to 150,000 mile warranty and will last between seven and 15 years.

### **If a catalyst or filter breaks down or wears out, will Texas Clean School Bus require us to replace it?**

The Texas Clean School Bus Grant Program is voluntary. If equipment purchased with grant funds is damaged because of improper maintenance or incompatible fuel use, the TCEQ would reasonably expect the school district to repair or replace the damaged equipment so that the equipment can remain in use for the duration of the five year grant term.

### **Does this equipment require extra lubricants or fuel additives?**

The answer differs according to the specific technology and application, and the TCEQ encourages applicants to consult with bus and equipment manufacturers. The grant recipient, however, is responsible for any extra cost relating to the maintenance and upkeep of the retrofit and the bus in which it is used.

### **Can grant funds be used to replace the bus?**

No. The Texas Legislature has specifically authorized the use of grant funds for the retrofitting of pollution control equipment. However, the TCEQ's Texas Emissions Reduction Program (TERP) or other funding sources may support this option. Please refer to <[www.texascleanschoolbus.org](http://www.texascleanschoolbus.org)> for other Clean School Bus funding sources, and <[www.tceq.state.tx.us/implementation/air/terp/](http://www.tceq.state.tx.us/implementation/air/terp/)> for the TERP grant program.

### **Is there a special type of fuel that must be used with the control equipment?**

In some cases, yes. Buses equipped with a particulate filter must use ultra low sulfur diesel (ULSD) fuel. Because of the high sulfur content of regular diesel fuel, the use of regular diesel fuel would cause the particulate filter to quickly clog. The ULSD fuel contains less than 10 percent of the sulfur content of regular diesel fuel. Regular diesel fuel may contain 150 to 500 ppm of sulfur, compared to the maximum of 15 ppm for the ULSD fuel. As a result of recent changes in federal fuel standards, ULSD fuel became the standard diesel fuel throughout the U.S. in June 2006. Diesel oxidation catalysts and crankcase filtration systems do not require special fuel, although the use of ULSD may increase the efficiency of these controls.

### **Will school districts have to purchase retrofit equipment with their own funds then await reimbursement?**

Not necessarily. A school district may purchase retrofit equipment with their own funds then await reimbursement, but school districts can also assign payment to the vendor. If a school district assigns payments from the TCEQ directly to the vendor, grant activity costs must have been incurred by the school district prior to claiming reimbursement. Grant equipment must be purchased and installed prior to a request for reimbursement, regardless of whether payment has been assigned.

### **Can I assign payments from the TCEQ directly to my vendor?**

Yes. Subject to approval by the TCEQ, the performing party (i.e. school district/charter school) may assign payments from the TCEQ directly to the supplier, subcontractor, financing company, or other entity from which goods and services were procured or financed, subject to the General Terms and Conditions of the grant. The performing party is responsible for submitting the Request for Reimbursement forms and supporting documentation to TCEQ as outlined in the terms and conditions of this grant. The Notice of Assignment does not establish any rights or obligations between TCEQ and the vendor and does not relieve the performing party of any obligations it may have with its vendor or contractor.

### **What are the maintenance costs associated with the retrofit devices?**

The maintenance costs are estimated as follows:

- **Diesel Oxidation Catalysts:** There are generally no additional maintenance costs associated with this device.
- **Diesel Particulate Filters:** The filter needs to be cleaned on an annual basis, which can cost about \$150.
- **Closed Crankcase Filtration Systems:** The filters need to be replaced as the oil is changed. The filters cost between \$35 and \$60, depending on the manufacturer.
- **Partial Flow-Through Filters:** Regular vehicle maintenance and service procedures must include preventive maintenance for the emissions device.

Please keep in mind that these are estimates. The TCEQ encourages applicants to consult with bus and equipment manufacturers for more specific information.

### **Can we be reimbursed for travel expenses associated with the installation of retrofit devices?**

To be reimbursable, costs must support eligible activities for the installation of retrofit systems on buses. Reimbursement for travel and lodging, while not common, will be considered by TCEQ upon request on a case-by-case basis. Supporting documentation must be included with the Request for Reimbursement forms. Reimbursement for travel expenses, if any, will be in accordance with the State of Texas reimbursement rates for lodging and mileage.

State of Texas travel reimbursement rates can be found at this Web site:  
<<https://fm.xcpa.state.tx.us/fm/travel/index.php>>.

### **Will TCEQ reimburse me for data logging for diesel particulate filters and blow-by testing for closed crankcase filters?**

Diesel particulate filter technology may require data logging to determine if the diesel engine is operating at a high enough temperature to ensure that the filter operates properly. Closed crankcase filter technology is designed to trap blow-by emissions. Prior to installation of this technology, a blow-by test may be conducted by the equipment dealer to measure the diesel engine's blow-by rate and determine if the crankcase filter is compatible with the diesel engine. TCEQ may consider reimbursement for the data logging and/or blow-by testing if these costs do not exceed the grant amount requested. Also, the equipment purchase price must not exceed the maximum reimbursement cost of the purchase and installation of the equipment. TCEQ will only reimburse the cost of one test, per device, per vehicle, if it results in the installation of the device on the tested vehicle.

### **Are there other ways to reduce emissions?**

School districts can also adopt voluntary strategies to help reduce school bus emissions, which can also help improve fuel economy. Consider these voluntary strategies:

- Begin a voluntary idling limit for school buses
- Start enhanced maintenance programs.

A sample idling policy is found at <[www.texascleanschoolbus.org](http://www.texascleanschoolbus.org)>.

### **How Do I Get More Information?**

If you are interested in the program, TCEQ staff is available to help you with grant applications and can provide other resources.

- On the Internet at <[www.texascleanschoolbus.org](http://www.texascleanschoolbus.org)>
- By phone: 512-239-3100

To receive the most up-to-date program information, send an e-mail to <[CleanBus@tceq.state.tx.us](mailto:CleanBus@tceq.state.tx.us)>. You will receive e-mail updates as program information is updated.