

# 2016 Diesel Emission Reduction Grants

\$12 million to reduce air emissions from diesel fleets in priority counties

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<http://epa.ohio.gov/oeo/derg.aspx>

# Why clean up or replace aging diesel engines?

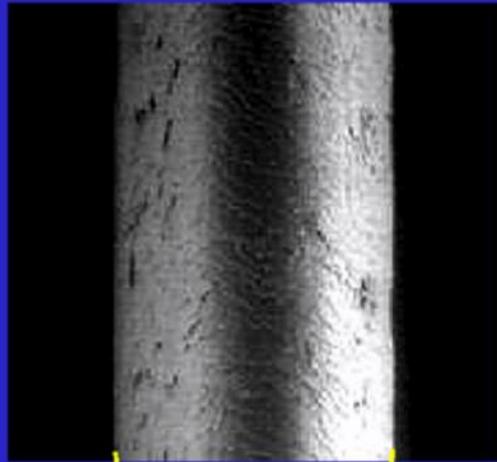
- Reduce our exposure to the harmful pollutants in diesel exhaust.
- Reduce the amount of air pollution created by aging diesel engines.
- Improve air quality in Ohio counties that are currently struggling to meet national Clean Air standards

# Diesel Exhaust and Health

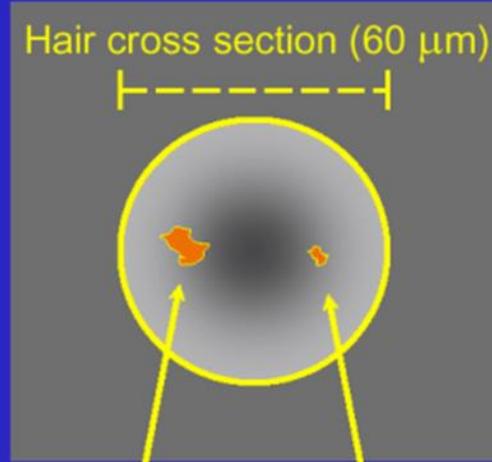
- Diesel exhaust contains small soot particles known as fine particulate matter
- Fine particles can lodge in the lungs and aggravate conditions such as asthma and bronchitis
- US EPA has determined that diesel exhaust is a likely human carcinogen

# Fine Soot Particles

## HOW SMALL IS PM2.5?



**Human Hair**  
(60  $\mu\text{m}$  diameter)



**PM10**  
(10  $\mu\text{m}$ )

**PM2.5**  
(2.5  $\mu\text{m}$ )

Cite: Health Effects of Fine Particles, Dr. Bart Ostro, October 2003

# Ways of Reducing Diesel Emissions

- REDUCE fuel use and engine idling
- REFUEL with cleaner fuels like propane and CNG
- RETROFIT existing vehicles with pollution controls
- REBUILD older diesel engines to reduce emissions
- REPOWER older diesel engines, to remove or replace with a newer, cleaner engine
- REPLACE older diesel vehicles and non-road equipment with newer, cleaner vehicles and equipment that meet more stringent emission standards

# Sample Funded Projects 2012-2015

- 70 transit buses replaced with CNG, 12 with clean diesel, 1 with zero emissions hydrogen fuel cell



# 16 marine engines refurbished on 5 Ohio River tow boats



# 29 Locomotives refurbished

26 electric layover heating systems

21 plug in stations



108 trucks and tractors replaced  
with clean diesel, 149 with CNG  
and 6 with propane



44 school buses replaced with clean diesel, 4 with CNG, 14 with propane



# 154 electric plug-in parking spaces at truck stops along Ohio interstate highways



Idle reduction onto 115 vehicles,  
including 5 hospital shuttles and 2  
airport snow throwers



# DERG Grant Program

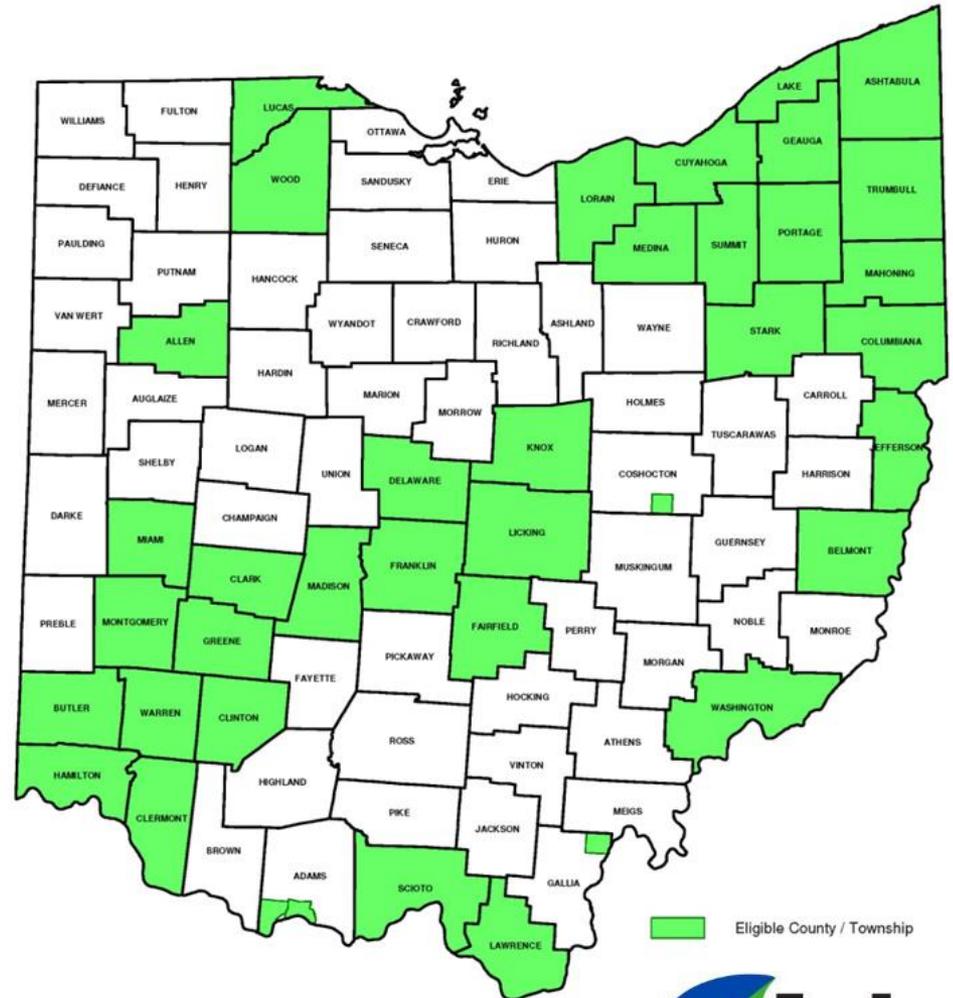
- Administered jointly by Ohio EPA and ODOT
- Federal Highway Administration, Congestion Mitigation and Air Quality (CMAQ) funds
- Grants will REIMBURSE up to 80% of eligible project costs
- Grant sizes (federal share): \$50,000 - \$1 million
- Competition, transparency and documentation are required of all federal aid projects



# Eligible Fleets

- Applications may be submitted from fleets operating at least 65% of the time in Ohio nonattainment counties: those not meeting federal air quality standards for fine particulates (PM 2.5) or ozone (green counties on map), or those in maintenance status as determined by US EPA

## CMAQ Program Eligible Counties & Townships



# DERG Eligible Fleets

- All transportation sectors allowed in CMAQ, including highway construction
- **Public sector** diesel fleets (e.g., school buses, transit buses, other government fleets with some restrictions)
- **Private sector (including non-profit)** diesel fleets, e.g., trucks, locomotives, highway construction equipment (working on a surface transportation construction project within an Ohio CMAQ eligible county) that apply through a **public sector partner** such as a metropolitan planning organization, local government or state agency

# DERG Eligible Expenses

- All types of projects, subject to CMAQ restrictions:
  - Rebuilding a diesel engine, with resulting emission reductions
  - Full cost (up to 80%) of replacement of traditional public transit vehicles and some other public diesel fleets
  - Partial cost of replacement of other diesel-powered vehicles & equipment.
  - Purchase and installation of verified retrofit technologies with resulting emission reductions
  - Upgrades for idle reduction
  - Repowers (destruction of old engine must be certified)
  - Labor costs if performed by an outside contractor/vendor to install approved DERG Program replacement engines or retrofit applications.

# DERG Eligible Projects

- CMAQ-invested projects or programs must reduce CO, ozone precursor (NO<sub>x</sub> and VOCs), PM<sub>2.5</sub>, or PM<sub>2.5</sub> precursor (e.g., NO<sub>x</sub>) emissions from [transportation](#).
- All projects shall be advertised and awarded through competitive bid standards
- Equipment must be operated in a nonattainment or maintenance area for a minimum 65% of the time for five years after grant award
- Public-Private Partnerships (PPPs) must be documented and executed
- FHWA formal eligibility determination

# Vehicle/Equipment Replacement

- New vehicles/equipment must meet higher emission standards.
- Verification that old vehicles/equipment have not been returned to service
- Up to 80% of total project cost subject to CMAQ restrictions, less core or scrap value and other governmental financial purchase contributions
- For private and non-profit fleets, funding will be approved only for replacement vehicle components that contribute to the vehicles' emission characteristics

# Repower

## (Engine Replacement or conversion)

- Removing the engine from a piece of equipment and replacing it with a new, rebuilt or remanufactured engine, or converting an existing engine to alternative fuel operation (e.g., CNG, propane, electric repowers) that meets higher emission standards
- Verified equipment, verification that old engine is remanufactured or destroyed
- Reimburse 80% of equipment invoiced cost, less core value or scrap value
- Reimburse 80% of installation if performed by authorized outside vendor

# Retrofits

- Adding on emission reduction technologies to reduce pollution
- Retrofit technology must be verified by US EPA or CARB, specific to engine type and model year
- Reimburse up to 80% of invoiced purchase cost including delivery charges
- Reimburse up to 80% of invoiced installation cost if performed by an authorized outside vendor
- Reengineering costs by an authorized outside vendor, if vehicle/equipment must be modified for retrofit

# Idle Reduction

- Adding anti-idle technologies to reduce pollution
- Equipment must be verified by USEPA
- Reimburse up to 80% of invoiced purchase cost of anti-idle equipment including delivery
- Reimburse up to 80% of installation costs if installed by an authorized outside vendor
- Reimburse up to 80% of reengineering costs by an authorized outside vendor if the vehicle or equipment must be modified for the anti-idle technology

# Technology Options

- U.S. EPA Verified Technologies  
<http://www3.epa.gov/otaq/diesel/verification/verif-list.htm>
- U.S. EPA Verified Technologies for Idle Reduction  
<http://www3.epa.gov/smartway/forpartners/technology.htm#tabs-4>
- California Air Resources Board (CARB)  
Verified Technologies  
<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

# Ineligible Expenses

- Operating expenses and fuel costs, including incremental costs of fuel. The use of cleaner fuels such as ULSD and biodiesel blends is encouraged, but is not reimbursable.
- Any project required by any law or other regulatory requirement or agreement
- Work done on purchases made prior to official notice of project funding approval, or for costs incurred for work or purchases not included in the approved project costs.

# More ineligible Expenses

- Installation costs incurred from in-kind services or by an unauthorized vendor
- Administrative costs.

# Estimating Emission Reductions

- Application must include an estimate of the project's benefits in reducing emissions of PM 2.5 and NOx.
- Most applicants will use US EPA's Diesel Emissions Quantifier (DEQ) tool to generate the estimate <http://www2.epa.gov/cleandiesel/diesel-emissions-quantifier-deq>
- Do not set the DEQ parameters to generate a cost effectiveness estimate for your project as the DERG program uses a different calculation
- DERG fleet data reporting spreadsheet in Appendix B should help you organize the information needed for the DEQ. Applicants unfamiliar with Excel spreadsheets may submit the fleet information in an alternate format. Check with Ohio EPA on what is needed.

# Estimating Emission Reductions

- For some types of projects such as maritime or locomotive, USEPA's Diesel Emission Quantifier (DEQ) tool isn't the best option. **Manual calculations** using USEPA or CARB emission factors for verified equipment may be submitted.
- Contact [Alan.Harness@epa.ohio.gov](mailto:Alan.Harness@epa.ohio.gov) or (614) 644-4838 for assistance in developing manual calculations.

# Demonstrations

- Applicant must demonstrate non-federal funding source to meet the required minimum 20% local match
- Private sector applicants must explain how they will meet the requirement that vehicles or equipment will be operating in eligible counties and townships (Ohio nonattainment or maintenance areas) at least 65% of the time for five years after grant award
- Private sector applicants seeking Ohio EPA as a public sponsor should submit a complete application draft at least two weeks prior to the deadline

# New This Cycle: Online Application Form

- Form adjusts as applicant enters information about project type
- For different project types, submit a separate application for each
- [https://odot.formstack.com/forms/2016\\_derq](https://odot.formstack.com/forms/2016_derq)
- Review RFP to understand what uploads are required

# Factors Considered in Awarding Grants

- \$4 million is reserved for transit projects, and \$4 million for school bus projects this cycle
- Anticipated level of PM 2.5 and/or nitrogen oxide emission reductions
- Cost effectiveness of the emission reductions (federal share of project cost) divided by total emission reduction of PM 2.5 and NOx)
- Ohio EPA and ODOT will also consider promoting project diversity and geographic diversity in choosing the best mix of projects that meet CMAQ requirements
- Applicants who have received three DERG grants will not be considered for three subsequent cycles.

# DERG Grant Application Review

- Application deadline 5:00 p.m. October 7, 2016.
- Answers to Frequently Asked Questions will be posted to DERG Website.
- Any PPPs that were not executed when application was submitted must be executed within 14 days of deadline.
- Ohio EPA expects to announce projects *recommended* for funding around December 16<sup>th</sup>
- FHWA issues formal eligibility determination
- Recommended projects may not proceed or seek bids for equipment until LPA agreement with ODOT has been executed, and FHWA has issued project authorization
- Another DERG RFP will be released in 2017

# DERG Grant Administration

- Like all federal grant programs, project costs are *reimbursed after* approvable invoices are submitted for work completed
- Multiple requests for scope changes will not be considered once a project is approved. Applicants should have a firm project scope, schedule and fiscal commitments in place before submitting a proposal.

# Staying on Schedule

- If awardee is not making satisfactory progress in receiving all authorizations and submitting invoices for reimbursement, Ohio EPA may, in consultation with ODOT and FHWA, revoke the grant and award the funds to another applicant or reserve the funds to award in the next grant cycle.

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