



**Fiscal Year 2020 Implementation Guidelines:  
Transit and Shuttle Buses**

Transit and shuttle vehicle engine replacements (repowers) and vehicle replacements (replacements) will help achieve several of the goals included in Missouri's Beneficiary Mitigation Plan (BMP) and can achieve meaningful nitrogen oxide (NO<sub>x</sub>) emission reductions by replacing diesel buses and shuttles that operate on a regular basis with newer, more efficient buses and shuttles. Owners of eligible vehicles may submit an application to request funds for repower and replacement projects. The Missouri Department of Natural Resources (department) will award Volkswagen Trust (VW) funds to projects with the most cost-efficient method of reducing NO<sub>x</sub> emissions (i.e., Projects with the lowest price per pound of NO<sub>x</sub> reduction). The purpose of these guidelines is to provide information for applicants in developing a competitive project.

### **Eligible Vehicles:**

To be eligible for this award category, a project must meet **all** of the following criteria:

- Vehicle is class 4-8 with a Gross Vehicle Weight Rating (GVWR) of more than 14,000 lbs.
- Vehicle spends a minimum of 50% of its operating time in Missouri.
- Vehicle is a bus or shuttle used to transport people.
- Engine is diesel-powered and is a model year 2009 or older.
- Project's price per pound of NO<sub>x</sub> reduction must be less than \$50 per pound.

Projects are ineligible for funding if:

- Vehicle is a school bus used to transport students.
- Project receives funding from other sources such as other state's shares of the VW Trust, Diesel Emissions Reduction Act (DERA) grant, or Congestion Mitigation and Air Quality (CMAQ) grant without prior approval from the air program.
- Project applications missing any of the following pieces of information necessary to quantify a project's price per pound.
  - Funding Requested.
  - Vehicle GVWR.
  - Vehicle Type.
  - Old and New Vehicle Fuel Type.
  - Old and New Engine Model Year.
  - Usage data: Annual Fuel Gallons, Annual Miles Driven, and Annual Idle Hours.
  - Engine NO<sub>x</sub> certification (in grams/braking horsepower hour) for new non-diesel engines.

The new replacement vehicle or engine must also meet the following requirements:

- Must be powered by Diesel, Biodiesel, Compressed Natural Gas (CNG), Liquid Natural Gas (LNG), Propane, Diesel-Electric Hybrid engine, or an All-electric motor.
  - Per the federal consent decree, the new replacement vehicle or engine cannot be powered by gasoline, and such vehicles will not be considered.
- Must be the same vehicle class as the old vehicle, or a lower class and must have a similar use and vehicle type.

Applicants may request several vehicles to be replaced or repowered. Applicants may request up to \$1 million in VW funds in a single application during the same application period. The air program may choose to fund one or more projects included in an application. Individual vehicle replacement/repower projects may request a percentage of the total cost of the project as follows.

- Government Owned:
  - 75% of a repower.
  - 50% of a replacement.
- Non-Government Owned:
  - 40% of a repower.
  - 25% of a replacement.
  - 50% of a repower or replacement with an all-electric engine.

For the purposes of this award category, government means the State of Missouri, a local government agency within the State of Missouri, or a tribal government or native village. Examples of local government agencies include, but are not limited to, a school district, municipality, city, county, special district, transit district, joint powers authority, or port authority, owning fleets purchased with government funds.

### **Ranking Process:**

This award category is competitive. The department will determine each project's price per pound of NO<sub>x</sub> emissions reduced. Projects will be ranked from lowest price per pound to highest. Projects will be considered individually, and those with the lowest price per pound will be awarded funds. A project's price per pound is measured in dollars per pound (\$/lb.) and is calculated as follows:

$$\text{Price per Pound} = \frac{\text{Amount of Funding Requested}}{\text{Lifetime pounds of NO}_x \text{ Reduced by Project}}$$

Price per pound represents the amount of money the VW Trust pays for each pound of NO<sub>x</sub> reduced by a project. To maximize the efficiency of the program, the department will fund projects with the lowest cost to reduce NO<sub>x</sub> emissions. Only projects with a price per pound below \$50 per pound will be considered. The department determined \$50 per pound as the threshold to achieve the specific NO<sub>x</sub> reduction goals laid out by the Air Pollution Control Program, with consideration for emission reductions achieved by projects funded in past funding cycles.

To compare projects in a uniform way, the department has set the eligible diesel bus or shuttle's life to 25 years. Vehicles in use for the year prior to application are assumed to have at minimum 2 years of useful lifetime remaining. The remaining lifetime is used to determine a project's lifetime emission reductions, and is listed below for the eligible model years.

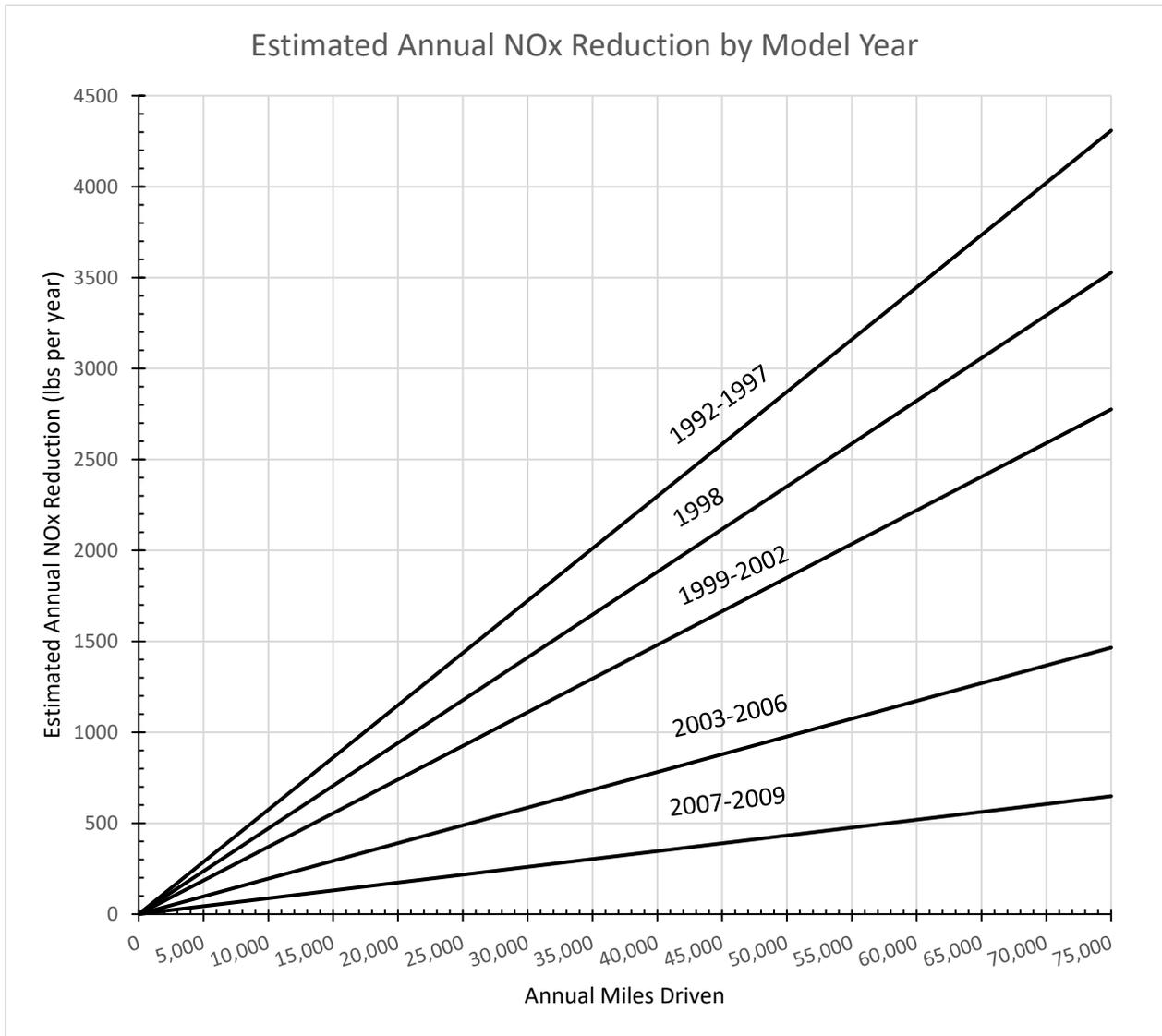
**Table 1: Remaining Lifetime by Engine Model Year**

<b>Model Year</b>	<b>Remaining Lifetime</b>	<b>Model Year</b>	<b>Remaining Lifetime</b>	<b>Model Year</b>	<b>Remaining Lifetime</b>
1992	2 Years	1998	3 Years	2004	9 Years
1993	2 Years	1999	4 Years	2005	10 Years
1994	2 Years	2000	5 Years	2006	11 Years
1995	2 Years	2001	6 Years	2007	12 Years
1996	2 Years	2002	7 Years	2008	13 Years
1997	2 Years	2003	8 Years	2009	14 Years

The department will use EPA's Diesel Emissions Quantifier (DEQ) to calculate a project's emissions reduction. This is a publicly-available tool which applicants are highly encouraged to use to quantify their own projects before submission to ensure completeness and to determine competitiveness of their project. Applicants can find EPA's DEQ at <https://cfpub.epa.gov/quantifier/>.

EPA's DEQ requires specific project information to determine actual emissions reductions. To provide general information to help applicants evaluate their projects, the department has developed the following graph to illustrate the estimated annual NO<sub>x</sub> reduction of a project based on a vehicle's annual miles driven and engine model year. This graph only provides an estimate of a project's emission reduction potential and may not accurately reflect every project. Results from this graph are estimates and do not entitle any project to be funded by the department without approval. The department will use EPA's DEQ with specifics from the project application to calculate the emission reductions of a project when ranking applications. Applicants are encouraged to use the tool to determine the emission reductions from the specific project prior to submitting an application.

**Chart 1: Estimated Annual NO<sub>x</sub> Reduction**



To use this graph, find the intersection of the project's annual miles driven and model year. The left axis at that intersection will give an estimation of the annual NO<sub>x</sub> emission reductions. To get the estimated lifetime emissions reduction, multiply this number by the vehicle's remaining lifetime. A project's price per pound can then be calculated by dividing the requested funding by the lifetime emissions reduction.

Although the graph will help applicants determine an estimated price per pound, the air program recommends applicants use EPA's DEQ to determine the actual emission reductions from individual projects.

### **Area-Specific Ranking of Projects:**

As outlined in the BMP, the department plans to target specific areas of the state that bear a disproportionate amount of NO<sub>x</sub>-related environmental burden. The department will lower a project's price per pound based on a project's area of operation to make it more competitive as detailed below:

- For every 10% operating time spent in the boundaries of the City of St. Louis or St. Louis County, the department will reduce a project's price per pound by \$0.10.
- For every 10% operating time spent in the boundaries of Jackson or St. Charles counties, the department will reduce a project's price per pound by \$0.08.
- For every 10% operating time spent in the boundaries of Jefferson or Franklin counties, the department will reduce a project's price per pound by \$0.06.
- For every 10% operating time spent in the boundaries of Clay or Platte counties, the department will reduce a project's price per pound by \$0.04.
- For every 10% operating time spent in the boundaries of Boone or Greene counties, the department will reduce a project's price per pound by \$0.02.

Additionally, every 10% operating time spent outside the State of Missouri will increase a project's price per pound by \$0.10 to make engines operating outside the state less favorable.

### **Award Category Funding Details:**

The BMP has dedicated \$4 million to this award category to be distributed to transit bus and shuttle projects across the state. As determined through stakeholder input, the department set aside \$2 million to be spread across funding pools in three areas of the state: The Kansas City area, the St. Louis Area, and the rest of the state. Dedicating funding to each of these funding pools ensured that each area was able to claim some of the VW Trust Fund. The department accepted applications for the three dedicated areas during three application periods. All remaining funds were rolled into the statewide funding pool and are now available to any eligible project throughout the state. Local governments and private entities with eligible buses will compete in a single funding pool and be awarded as described previously in this document.