



Volkswagen Trust

Be Part of the Solution

Fiscal Year 2020 Implementation Guidelines: Airport Cargo Equipment

Cargo handling equipment and airport ground support equipment engine replacements (repowers) and vehicle replacements (replacements) will help achieve several goals included in Missouri's Beneficiary Mitigation Plan (BMP). The main goal of this program is to maximize nitrogen oxide (NO_x) emission reductions by replacing equipment that operates on a regular basis with newer, more efficient equipment. This award category promotes the use of electric-powered equipment and reduces diesel and gasoline fuel consumption. Owners of eligible equipment may submit an application to request funds for equipment repower or replacement projects. The air program will award Volkswagen (VW) Trust funds for projects with the most cost-effective method of reducing NO_x emissions (i.e. projects with the lowest price per pound of NO_x reduction). The purpose of these guidelines is to provide information for applicants in developing a competitive project.

Eligible Projects:

In order to be eligible for this award category a project must have a minimum of 50% operating time in Missouri, have a price per pound lower than \$20 per pound, and meet the following criteria:

- **Airport Ground Support Equipment:**
 - Equipment is Tier 0, Tier 1, or Tier 2 diesel powered equipment used at airports to service aircraft between flights
 - Engines are uncertified (or certified to 3g/bhp-hr or higher) spark ignition engine powered vehicles and equipment is used at airports to service aircraft between flights
- **Forklift Equipment:**
 - Equipment is greater than 8,000 lb lift capacity
- **Port Cargo Handling Equipment:**
 - Equipment can include rubber-tired gantry cranes, straddle carriers, shuttle carriers, and terminal tractors, including yard hostlers and yard tractors that operate within ports

Projects are ineligible for funding if:

- Project receives funding from another source such as other states' 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 application is missing any information necessary to use the Diesel Emissions Quantifier tool.

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

- Must be powered exclusively by electricity provided by a battery, fuel cell, or the grid.
- Must be a similar or smaller size as the equipment it replaces.

For the purposes of this award category, port means a hub or node in the goods movement supply chain with freight activity that facilitates the distribution of goods by any mode of transportation across marine, air, rail, and truck. Additionally, for the purposes of this award category, all-electric means powered exclusively by electricity provided by a battery, fuel cell, or the grid.

Applicants may request several projects to be repowered or replaced, and may request up to \$1,000,000 in total across their applied-for projects. Individual replacement/repower projects may request a maximum percentage of the total cost of the project as described below. For all projects in this category, the charging infrastructure costs may be included in the project cost.

- Government-owned:
 - Up to 75% of the cost to repower or replace eligible equipment
- Nongovernment-owned:
 - Up to 50% of the cost to repower or replace eligible equipment

Ranking Process:

This category uses a competitive application process to select projects for funding. Each project will be considered individually and ranked by its price per pound. Projects with the lowest price per pound will be awarded funds. The 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 is the amount of money the VW Trust pays for each pound of NO_x reduced by a project. In order to maximize the efficiency of the program, the air program is looking for projects with the lowest cost to reduce NO_x emissions. Only projects with a price per pound

below \$20 will be considered, and these projects will be ranked by their price per pound to determine which are funded and in what order. The air program set \$20 per pound as the threshold based on stakeholder feedback and interest in achieving NO_x reduction goals as set out in the BMP. This threshold achieves the specific goals for this award category with the allocated funding from Missouri's share of the VW Trust Fund.

In order to compare projects in a way that is uniform, the air program will make the following assumptions when calculating lifetime pounds of NO_x reduced by a project. The useful life of any equipment will be assumed based on the horsepower of the equipment:

- Total useful life for equipment with horsepower less than 50 HP: 15 years
- Total useful life for equipment with horsepower 51 – 300 HP: 25 years
- Total useful life for equipment with horsepower greater than 300 HP: 35 years
- For any equipment that operated in the previous year and is still operating, the air program will assume a minimum remaining life of two years

Based on stakeholder input, the air program will use EPA's Diesel Emissions Quantifier (DEQ) to calculate a project's emissions reduction. This is a publicly available tool that applicants are highly encouraged to use to quantify their own projects before submissions to ensure completeness and to determine the competitiveness of their project. Applicants can find EPA's DEQ at <https://cfpub.epa.gov/quantifier/>.

Quantification method for Diesel projects:

The air program will first calculate the emissions reduction assuming a diesel-for-diesel replacement, and then add the emissions of that new diesel over its lifetime to obtain the total emissions reduction of the all-electric project.

Quantification Method for Gasoline Projects:

The air program will first calculate the emissions of the old and new equipment assuming that both are powered by diesel. Then the emissions of the old equipment will be modified based on the NO_x certification of the gasoline engine as given on the project application and the emissions of the new equipment will be modified based on the NO_x certification listed in the applicable EPA regulations. The emissions reduction of the project is then calculated as the emissions of the old equipment over its lifetime plus the emissions of the calculated new gasoline equipment over its lifetime to represent the zero-emissions electric equipment.

Area-based Ranking Modification:

As outlined in the BMP, the air program plans to target specific areas of the state which bear a disproportionate amount of NO_x-related environmental burden. The air program will modify a project's price per pound based on its area of operation. This preferential treatment gives advantage to the areas of the state that bear a disproportionate amount of diesel-related

environmental burden. By modifying the project's price per pound, projects that can achieve high NO_x reduction will see the greatest benefit within targeted areas. This approach keeps the program's focus on high NO_x reduction while still being able to target specific areas of the state. The area-based modifications are as follows:

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

Award Category Funding Details:

The BMP has dedicated a maximum of \$2 million to this award category. The air program plans to hold a number of application periods for this award category as long as funding for this category and public interest remain. All application periods will be identical in terms of eligibility and cost share. Additional application periods give fleet owners further chances to apply and allow successful applicants from previous periods to apply for more projects. In the event that funding remains after all eligible projects have been awarded, funds from this category will be moved to another category of Missouri's VW Trust NO_x emissions reduction program as outlined in the BMP.