# Options for Addressing Scrappage

## In State Electric Truck and Bus Purchase Incentive Programs

Scrappage, a long-standing component of vehicle incentive programs administered by air quality agencies, ensures that older, dirtier vehicles are scrapped and replaced with new, lower-emitting vehicles. However, as states design and modify incentive programs to support their zero-emission vehicle (ZEV) regulations and climate commitments, some are opting out of scrappage, or trying new approaches to incorporating scrappage into incentive design to promote wider and more equitable disbursement of funding. In the context of incentive programs for the purchase or lease of zero-emission medium- and heavy-duty (MHD) vehicles such as trucks and buses, this fact sheet describes traditional scrappage requirements, associated benefits and challenges, alternative approaches states are using, and examples of such programs.

### What are Scrappage Requirements?

Scrappage requirements compel fleets to "scrap" or permanently disable an eligible fossil-fueled vehicle in active service as a condition of receiving funding to support the purchase of a new, cleaner vehicle. Prescribed scrappage techniques often involve cutting a 3-inch hole in the vehicle's engine block and/or disabling the vehicle chassis by cutting through the frame on each side of the vehicle. The recipient of incentive funds is typically responsible for ensuring that scrappage is performed properly and submitting evidence of the scrappage (e.g., before and after photos) and a statement certifying that it took place according to program requirements. Some programs, however, prefer to witness the scrappage and collect their own documentation of the scrappage event.

### Why is Scrappage Required?

Whether vehicle incentive programs include or exclude scrappage requirements depends on factors such as the source of funding, authorizing legislation, and goals of the incentive program. Scrappage is a common element of vehicle incentive programs with the primary goal of reducing emissions of criteria and hazardous air pollutants. For example, incentive programs funded by the Diesel Emissions Reduction Act (DERA) Grant Program and the Volkswagen Environmental Mitigation Trust Agreement, which are administered by air quality agencies, are subject to scrappage requirements. Scrappage allows programs to better quantify the emissions benefits that will result from the use of the new vehicle in place of the scrapped vehicle.

### What Vehicles can be Scrapped?

In order to achieve measurable air quality benefits with scrappage, programs typically require that the vehicle to be scrapped belong to a certain model year or engine model year that represents an outdated emissions control technology. Most programs require scrapped vehicles to be pre-2010 model year, as this model year represents a significant shift to cleaner, lower emitting engine technology. Some programs allow newer model year vehicles to be retired on a rolling model year basis to ensure eligible vehicles are available.

### Estimating Scrappage Benefits

There are a number of tools that can be used to evaluate the costs and benefits of scrapping one vehicle and replacing it with another, for

instance, the Diesel Emissions Quantifier and the Alternative Fuel Life-Cycle Environmental and Economic Transportation. Heavy-duty vehicle emissions calculators allow users to input the vehicle type and fuel used (i.e., diesel, electric, natural gas, or propane) to compare nitrogen oxides, particulate matter, and greenhouse gas emissions from the vehicle being scrapped to the cleaner vehicle being placed in service and to evaluate the cost effectiveness of vehicle replacement projects. These tools allow programs to prioritize the retirement of the oldest and dirtiest trucks and ensure that public funds are used in the most cost-beneficial way to reduce emissions.

## Some Challenges with Requiring Scrappage

Scrappage requirements can provide more certainty that quantifiable emissions reductions are being achieved as vehicle incentives are disbursed, but they can also create participation barriers for large and small sized fleets, which could inadvertently slow the pace of electric truck and bus deployment by early adopters and result in inequitable disbursement of incentive funding.

For larger commercial fleets, the main barrier to participation is not having older model year vehicles that are eligible to scrap. Due to fleet management policies, large fleets tend to sell their trucks when they are between three and five years old. The availability of eligible vehicles is even more limited in colder climates where vehicle chassis tend to degrade sooner. As a policy matter, states may not want to preclude large fleets that are early market movers, especially those operating in disproportionately impacted and overburdened communities, from participating in incentive programs.

While small fleets have the greatest need for financial support to reduce the cost of new zero-emission trucks, they may not be able to economically retire a vehicle before the end of its useful life, even with the benefit of a purchase incentive for a cleaner vehicle to replace it. These fleets are more vulnerable to operational disruption and associated costs that could occur, for example, if new zero-emission vehicles do not perform exactly as expected, needed charging stations come online later than planned due to time required for electric system upgrades or permitting, or charging stations are not working properly. In addition, small fleets that are expanding business operations may be unable to take an existing diesel truck out of service at the time of an electric truck purchase. For small fleets, scrappage requirements could produce the unintended consequence of making incentive programs less equitable and slowing growth in and diversification of early adopters of electric vehicle technology.

Scrappage can also create an administrative and technical burden for program staff that are under-resourced. Providing assistance to fleets that are unfamiliar with scrappage, collecting evidence of scrappage, and verifying that the scrappage requirement has been satisfied can take up a large amount of a small program's capacity. Finally, attitudes about scrappage can create communications and optics challenges. Scrappage is sometimes criticized as being wasteful and uneconomical, so programs may have to think proactively about how to address these sentiments with their communications and outreach counterparts.

## Alternative Program Design Options for Addressing Scrappage

When deciding whether and how to incorporate scrappage into state zero-emission truck and bus incentive programs, agencies should carefully consider and prioritize their policy goals for incentive funding. The goal of achieving verifiable emissions reductions by getting the oldest and highest emitting vehicles off the road is well served with scrappage requirements.

Other goals – such as maximizing program participation by large first adopter fleets and smaller fleets that want to deploy a new technology while limiting business risks – may best be addressed with incentives that encourage or allow for flexible scrappage or even forego scrappage.

Some organizations are concerned that incentive programs without scrappage requirements will not adequately reduce the number of high-polluting vehicles either driving on U.S. roads or sold to fleets in other countries. States may consider committing to revisit program goals and design as the market matures. States may also choose to conduct a cost-benefit analysis to determine if foregoing or not requiring scrappage is an appropriate choice to meet policy goals and air quality targets. The following three approaches represent alternatives to the traditional scrappage requirement.

***Requiring scrappage but allowing some flexibility*:** Scrappage is required as a condition of incentive awards, but a fleet that does not have an eligible vehicle to scrap can obtain and scrap an eligible vehicle from another fleet, or arrange for the other fleet to scrap the vehicle. Alternatively, fleets can be given an option to meet a scrappage requirement by "trading down" a cleaner internal combustion engine vehicle to another fleet that has a vehicle that is eligible for scrappage. The eligible vehicle is scrapped using a verified process, and the second fleet gets a cleaner vehicle. This option also helps to sustain a network of entities that are knowledgeable and able to scrap vehicles in accordance with technical program standards.

***Prioritizing and incentivizing scrappage*:** Fleets are encouraged but not required to scrap a vehicle in exchange for receiving a purchase incentive. For example, scrappage is awarded additional points in project evaluation criteria; a scrappage "adder" is available to provide additional incentive funding where an eligible vehicle will be scrapped; or, a separate, decoupled, scrappage program offers a voucher that can be stacked with other incentives and put toward the purchase of a cleaner vehicle. Giving awardees additional funding when they commit to retire an eligible vehicle provides additional resources to complete the scrappage, which can be costly. This option can help to balance and retain both the air quality and technology goals of the underlying incentive program.

***Neither requiring nor prioritizing scrappage:*** Fleets are not required or incentivized to scrap an eligible vehicle as a condition of receiving a new purchase incentive. This gives primacy to the goal of enabling a broad range of fleets to adopt and test new MHD ZEV technology, which will in turn help to grow the secondary ZEV market faster. This approach also eliminates the technical, administrative, and sometimes financial burdens associated with scrappage for fleets and for state agencies. Especially if coupled with other program features designed to meet the needs of smaller fleets (e.g., fleet advisory services that support electrification planning and decision-making), this approach could enable fuller participation by smaller and less well-resourced fleets and improve program equity.

## Examples of State Programs

The design options described above have been employed in several existing state incentive programs. As noted above, all state programs that administer DERA and Volkswagen funding require vehicle scrappage as a condition of incentive funding.

### *Flexible Scrappage*

NYSERDA's Truck Voucher Incentive Program allows fleets to meet scrappage requirements by purchasing qualifying trucks from other fleets.

The fleet receiving the incentive is responsible for managing the transaction and ensuring compliance with the scrappage requirement. NYSERDA also places geographic restrictions on fleet-to-fleet transactions to ensure that emission reduction benefits take place in New York.

***Scrappage Prioritization or Adder***

Maryland's Medium- and Heavy-duty Zero Emission Vehicle Grant Program does not require Grantees to replace an existing conventional vehicle in the applicant's fleet, nor is there any scrappage requirement. However, vehicles associated with the replacement or retirement of existing gas/diesel vehicles will be viewed more favorably during the application review process.

Colorado's Clean Fleet Vehicle and Technology Grant Program is a competitive grant for new vehicles, vehicle conversions, and clean fleet technology. Incentives are based on the vehicle's weight, and an additional 10% enhanced incentive is provided per vehicle that is scrapped. Colorado's Electric School Bus Grant Program is another competitive grant for new school buses that allows applicants to request an additional $1,000 to support costs associated with vehicle scrappage. Awardees are required to scrap 20% of the vehicles they are retiring for replacement with electric buses. For example, one diesel bus is scrapped for every five electric buses placed in service. Awardees deploying fewer than five electric buses are not required to retire/scrap a vehicle.

***No scrappage requirement or prioritization***

Massachusetts Offers Rebates for Electric Vehicles or "MOR-EV" provides rebates for the purchase or lease of new battery electric or fuel-cell electric Class 3-8 trucks, vans, and buses. Rebate amounts are determined by a vehicle's weight class and decline as funds are exhausted. Individuals and fleets are eligible for the rebate.

California's Hybrid and Zero Emission Bus and Truck Voucher Incentive Project ("HVIP") provides a point of sale purchase incentive for a variety of truck and bus applications. Like other programs, the amount of the incentive varies according to the vehicle weight class, battery size, and vehicle range.

*This fact sheet is part of a fact sheet series on designing and administering state incentives for medium- and heavy-duty zero-emission vehicles and charging. The complete series can be found here. Please contact Megan O'Toole with questions or ideas for additional topics.*