Policy Actions For Reducing Emissions

For Medium- And Heavy-Duty Vehicles In Utah

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WESTERN RESOURCE ADVOCATES

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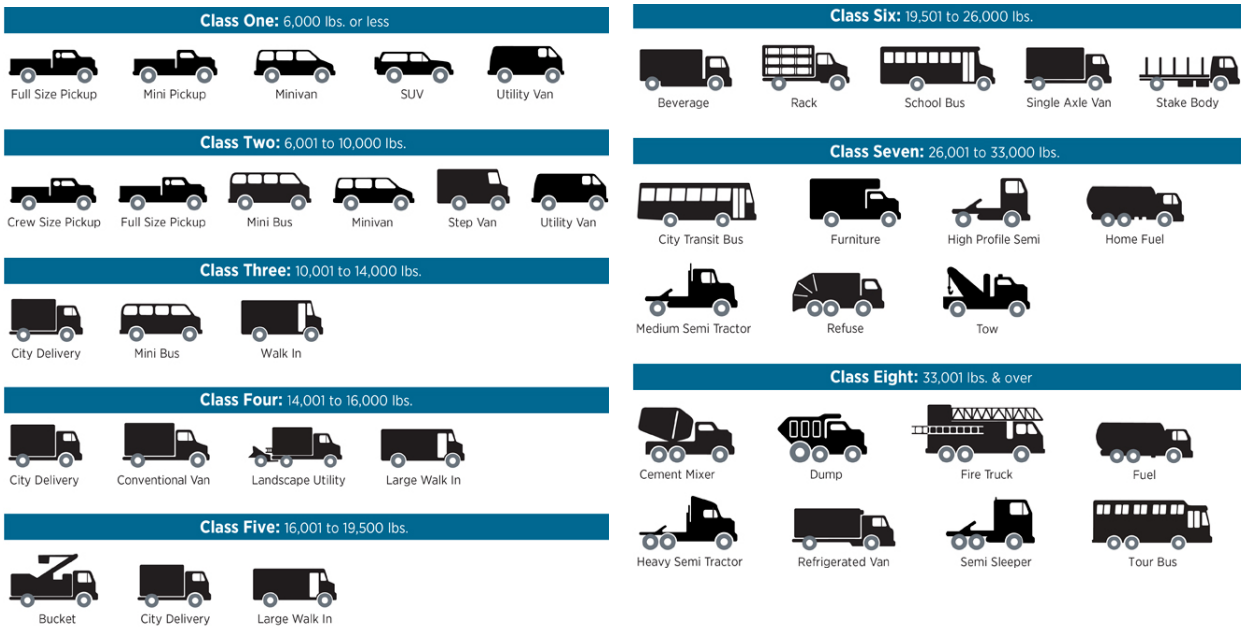
Introduction

This document presents several options for policies aimed at reducing harmful emissions from medium- and heavy-duty (MHD) vehicles in Utah, primarily focused on increasing vehicle electrification. Addressing pollution from MHD vehicles will be crucial to improving air quality in the state, especially as the state moves forward with the construction of the Inland Port. The key policy actions laid out in this document focus on leveraging federal funding to create incentives for MHD electric vehicles (EVs), introducing policy options to ensure more MHD EVs are available for sale in Utah, and examining ways the Inland Port can reduce its emissions.

Incentives for MHD EVs

What are MHD vehicles?

Medium- and heavy-duty vehicles are vehicles which have a gross vehicle weight rating (GVWR) over 10,000 pounds. Class 3-6 vehicles (10,000-26,000-pound GVWR) are classified as medium-duty, and class 7 and 8 (over 26,000 pounds GVWR) are classified as heavy-duty vehicles. MHD trucks make up a smaller portion of the total vehicle fleet, but these are the vehicles which emit the most carbon dioxide and ozone forming emissions per vehicle. Because these vehicles are heavier, they require more energy to move than their light-duty counterparts. Below is a visualization of the different types of vehicles that fit into the different vehicle categories:



Source: [Weight_Class-final.jpg (650×1299) (energy.gov)]

Why are incentives important for accelerating MHD EV adoption?

Each MHD vehicle that switches to zero emissions will significantly reduce the impact of climate change and improve local air quality. Yet this zero-emissions vehicle (ZEV) segment is far less developed than the light-duty sector, where ZEVs made up 5.2% of all vehicle sales nationally in quarter 1 of 2022. As Utah grapples with how to improve its air quality, kickstarting the transition to zero emission MHD vehicles will be an essential piece of the puzzle. Incentive programs are a key component to catalyzing this burgeoning market. In particular, point-of-sale rebates are crucial in helping to address the high incremental cost of electric MHD vehicles, which is often cited by fleet purchasers as a significant barrier to purchasing these vehicles. Indeed, an action plan released by a coalition of states who have signed a memorandum of understanding aimed at accelerating clean trucks states that “purchase incentives to reduce or eliminate the purchase price differential for MHD ZEVs… are among the most important actions that states can take to

accelerate electric truck and bus adoption in this early market." Given this, providing incentives for MHD trucks would be a great first step for reducing harmful pollution from trucks in Utah.

The most critical issue in creating a MHD Incentive Program in Utah will be how to supply the necessary funding. Fortunately, there are various federal funding sources which could support a MHD Incentive Program for Utah. There are also a number of analogous programs across the country which can be potential models for a Utah incentive-based program. Several ideas on methods to provide revenue for a MHD incentive program through federal funding are listed below. A successful incentive program may need to pursue multiple funding pathways.

Voucher Program (federally funded)

A voucher program could be created by dedicating a portion of funding from qualifying federal programs, and potentially supplementing it with one-time state-based funding. This could provide several years of funding to get an incentive program off the ground, while a longer-term source of funding (like those discussed below) is established.

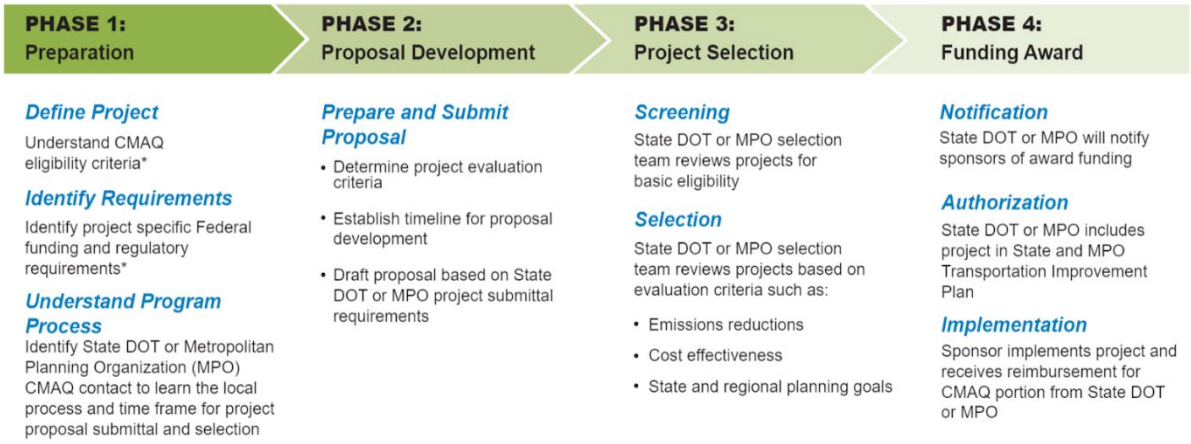
Where would eligible funding sources come from?

Several programs established by the Infrastructure Investment and Jobs Act of 2021 (IIJA) and Inflation Reduction Act (IRA) could provide funding for medium- and heavy-duty incentives. Although each of these funding sources could also be used for other things, all have a hook for medium- and heavy-duty EV incentives.

Congestion Management and Air Quality Improvement Program (CMAQ)

- $70.4 million over 5 years beginning in 2022
- The IIJA expanded the types of programs which are eligible for CMAQ funding to explicitly include "the purchase of diesel replacements, or medium-duty or heavy-duty zero emission vehicles."
- Even before the passage of the IIJA, the state of New York and city of Chicago used CMAQ funding to fund Electric Truck Voucher Programs.
- MHD EV incentive programs funded through CMAQ already exist today, and the expansion of eligibility under the IIJA makes it explicit that MHD incentives are within the CMAQ funding scope. Past projects supported through CMAQ funding can be explored through the Federal Highway Administration (FHWA) CMAQ data explorer. Results are filterable by geography and project type.
- To be eligible for CMAQ funding, projects must be located in areas that are currently or have historically been in an ozone, carbon monoxide, or particulate matter 2.5 nonattainment zone, like the Wasatch Front.
- CMAQ funding is subject to Buy America and Davis-Bacon provisions.
- The program has other programmatic and funding features which are discussed in detail here: Congestion Mitigation and Air Quality Improvement Program - FAST Act Fact Sheets - FHWA | Federal Highway Administration (dot.gov)

- Although the money is allocated to state Departments of Transportation (DOT), the money does not necessarily need to be administered by this agency. Many states shift funding allocated from the FHWA to state DOTs into other branches of state government to administer programs. For example, the New York Truck Voucher Incentive Program is administered by the New York State Energy and Research Development Authority, although it combines funding from the New York DOT and the New York State Department of Environmental Conservation. In Colorado, CMAQ funds allocated to Colorado DOT are administered by the Colorado Energy Office to fund the ALT Fuels Colorado program, which includes a number of vehicle electrification incentives, including for the purchase of all-electric MHD vehicles.
- See below for a graphic illustrating the process of procuring CMAQ funding:

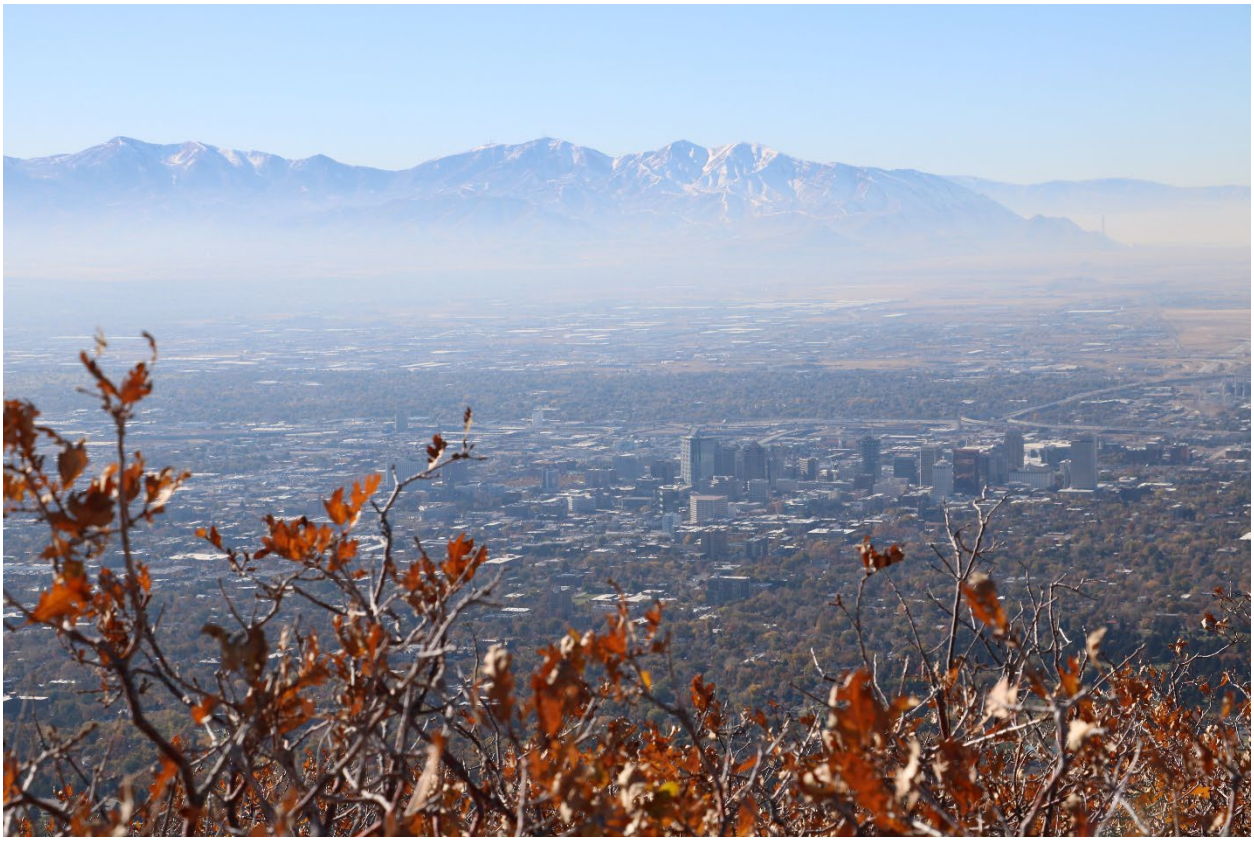


Source:[*https://www.fhwa.dot.gov/ENVIRonment/air_quality/cmaq/reference/cmaqfundingprocess.pdf*](https://www.fhwa.dot.gov/ENVIRonment/air_quality/cmaq/reference/cmaqfundingprocess.pdf)

Carbon Reduction Program (CRP)

- $57 million over 5 years for Utah beginning in 2022, administered by Utah Department of Transportation
- The purpose of the Carbon Reduction Program is to “provide funds for projects designed to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on-road highway sources.” An incentive program to expedite the transition to electric MHD vehicles meets several of the requirements from the eligible projects list, including:
    - “Efforts to reduce the environmental and community impact of freight movement”
    - “Projects to support deployment of alternative fuel vehicles”
    - Explicit support is also given for “purchase or lease of zero emission construction equipment and vehicles”
    - “Other projects that are not listed above may be eligible for CRP funds if they can demonstrate reductions in transportation emissions over the project’s lifecycle.”
    - The CRP provides considerable flexibility and discretion as to how the funds can be used, as long as they reduce CO2 emissions from on-road highway sources in the transportation sector. An MHD EV incentive program clearly fits within the

scope of projects which can be supported in the CRP, as does funding electrification of port vehicles and equipment such as those that will be used at the Inland Port.



State Energy Conservation Plans

- Roughly $3 million over 5 years administered by the Utah Office of Energy Development
- Allows for spending on a variety of programs that increase a state's energy efficiency and resiliency, and reduce energy costs.
- State Energy Plans already exist, but the IIJA injected new funding and added new optional activities, such as the following:

    § "Program activities to increase transportation energy efficiency, including programs to help reduce carbon emissions in the transportation sector by 2050 and accelerate the use of alternative transportation fuels for, and the electrification of, State government vehicles, fleet vehicles, taxis and ridesharing services, mass transit, school buses, ferries, and privately-owned passenger and medium- and heavy-duty vehicles."

Diesel Emissions Reduction Act (DERA)

- 70% of funding is national competitive grants, 30% is allocated to states
    - Approximately $64.4 million in competitive grant funding in 2022, $27.6 million for state programs
- For national competitive grants, eligible applicants include regional, state, local or tribal agencies/consortia or port authorities with jurisdiction over transportation or air quality, nonprofit organizations or institutions that represent or provide pollution reduction or educational services to persons, and organizations that own or operate diesel fleets or have the promotion of transportation or air quality as their principal purpose,
    - School districts, municipalities, metropolitan planning organizations, cities and counties are all eligible entities to the extent that they fall within the definition above.
- Prior state grant DERA projects have been administered by the Utah Department of Environmental Quality, specifically the Division of Air Quality.
- MHD incentives eligible: “Recipients may directly implement projects by targeting vehicles and equipment that are owned by the recipient organization. Alternatively, a recipient may partner with public and private fleet owners and provide them with subgrants or rebates so that they may address the emissions from their fleets.”
    - Budget availability needs to be more thoroughly evaluated and these funds are less flexible than others in this list. These funds can also be utilized for projects involving the Inland Port.

Grants for Clean Heavy-Duty Vehicles

- The IRA appropriated $1 billion to support class 6 and 7 Clean Heavy-Duty Vehicles for states, municipalities, Indian Tribes or nonprofit school transportation associations. To be eligible, a “zero-emission vehicle” must have a drivetrain that produces, under any possible operational mode or condition, zero exhaust emissions of any air pollutant or greenhouse gas.
- $600 million dollars of funding are available to any applicant and $400 million are appropriated exclusively for vehicles operating in areas designated as in nonattainment for any air pollutant.
- No later than 180 days after the passage of the bill, a program will be implemented to make awards of grants and rebates, which includes providing up to 100% of costs for class 6 and 7 Zero Emission Vehicles.

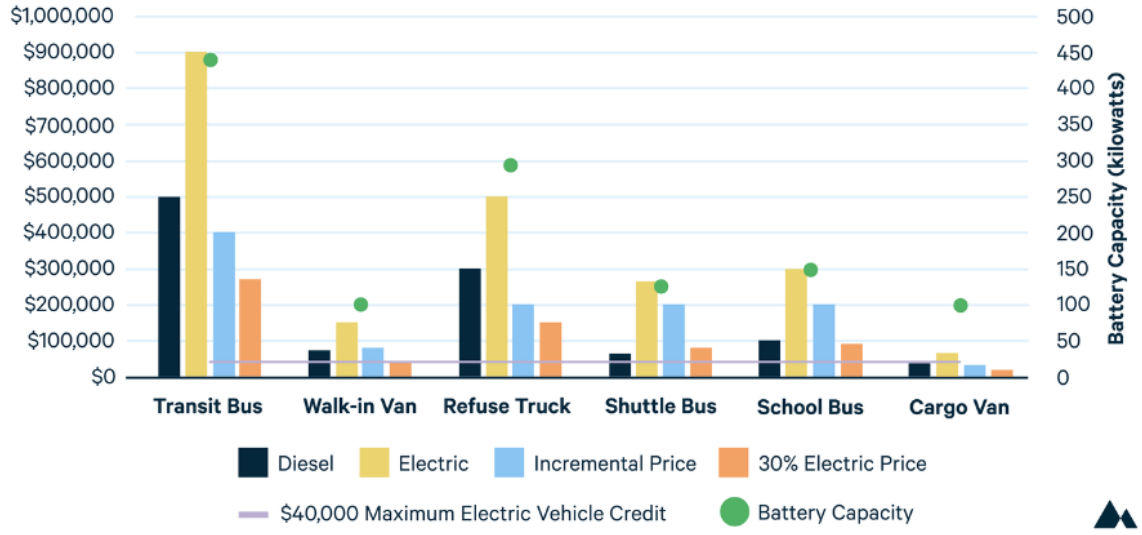
Volkswagen Settlement Funds

- Almost all the VW settlement funds have been allocated, but any remaining could be directed to this program. The Volkswagen Settlement funds would not be a significant component of program funding, but could be used as a supplement.

Layering Incentives with Tax Credits

While Utah currently has an alternative fuel heavy-duty tax credit program, additional measures to electrify MHD vehicles are likely necessary to develop the market. The tax credit program only covers class 7 and 8 vehicles, leaving a broad swath of medium- and heavy-duty vehicles ineligible. Additionally, the tax credit amounts, which vary from $15,000 to $1,500 and decrease each year until 2030, do not cover the incremental cost difference of buying a zero-emissions vehicle. While the state tax credit can provide additional funding for class 7 and class 8 vehicle purchases, it does not provide adequate coverage in terms of its vehicle class limitations and funding amount. Additionally, the IRA includes a Commercial Clean Vehicle Tax Credit, which provides incentives for zero emission MHD vehicles of up to $7,500 for class 2 and 3 and up to $40,000 for class 4-8. However, given the wide disparity between the upfront cost between diesel powered and zero emission MHD vehicles, additional support from voucher programs will still be critical to accelerating the market at the pace which is needed. This is particularly true for larger vehicles, where the price disparity between a traditional fossil fueled vehicle and an all-electric one is regularly several hundred thousand dollars. The below graphic demonstrates the wide disparity between fossil fuel vehicles and their EV counterparts.

Figure 1. Investment Costs for Different Types of Medium- and Heavy-Duty Vehicles



Source: *Inflation Reduction Act: Examining Electric Vehicle Subsidies for Medium- and Heavy-Duty Vehicles*

Program Design Specifics

The specifics of a MHD Incentive Program in Utah will depend on how it is funded. For example, a voucher program funded through federal sources (such as CMAQ) may have strict requirements while other sources of funding could be much more flexible. For a glimpse of how the voucher system might work, here is a breakdown of incentive values from an example program:

Proposed ZEV Incentive Amounts	
Vehicle Weight Class	**Base Incentive per Zero Emission Vehicle**
Class 2b	$7,500
Class 3	$45,000
Class 4-5	$60,000
Class 6-7	$85,000
Class 8	$120,000

Voucher Modifiers (reducing or increasing the base incentive)	
Disadvantage Community	+10% base incentive
Class 8 Fuel Cell	+100% base incentive
Public Transit Agencies	+15% base incentive
School Buses for Public School Districts	+65% base incentive
Plug-in Hybrid (>35 electric range)	-50% base incentive
In-Use Converted/Remanufactured	-50% base incentive

To illustrate how this program would work, take for example a class 8 plug-in hybrid truck operating in a disadvantaged community. If the truck didn't meet any of the voucher modifiers listed above (e.g. wasn't in a disadvantaged community, a public-school bus, etc.) it would receive an $85,000 rebate. However, because it is operating in a disadvantaged community it gets a +10% adder, but because it's a plug-in hybrid it gets a -50% subtractor. Thus, the total eligible rebate is -40% of the $85,000 base incentive, or $51,000.

A program in Utah wouldn't have to operate exactly like this one, but it provides an example of how a MHD incentive program can be tailored to give preference to certain attributes.

What is the Role of the Inland Port?

The upcoming construction and opening of the Inland Port has garnered concern from local communities about the effect the port will have on Utah's already serious air quality problems. It is essential to put into place pragmatic, proactive measures to limit the emissions impact of the Inland Port. Some of the programs and policies listed below can be implemented directly by ports themselves and some are state-wide policies that decrease emissions at the ports. These measures have helped other ports decrease emissions and other impacts to surrounding communities by encouraging the use of zero-emission technologies and regulating the types of vehicles that have access to the port, for example, by limiting the entry of especially old trucks with outdated and minimal pollution controls. Additionally, Utah has the opportunity to lead on clean transportation by leveraging federal funding to promote zero-emissions vehicle usage at ports. The Port Infrastructure Development Program and the Grants to Reduce Air Pollution at Ports Program, funded by the IIJA and IRA respectively, offer funding for helping Utah create a clean Inland Port.

Grants to Reduce Air Pollution at Ports Program

The Utah Inland Port Authority is eligible for funding from the IRA's competitive grant program. This program offers $2.25 billion, available until September 30, 2027, in rebates and grants for the following purposes:

- Purchase or installation of zero-emission port equipment or technology for use at, or to directly serve, one or more ports;
- Conducting any relevant planning or permitting in connection with the purchase or installation of such zero-emission port equipment or technology; and
- Development of qualified climate action plans.
    - Qualified climate actions plans must be detailed and strategic plans that:
        - Establish goals, implementation strategies, and accounting and inventory practices to reduce emissions at one or more ports of greenhouse gases, air pollutants listed in the Clean Air Act, and hazardous air pollutants;
        - Include a strategy to collaborate with, communicate with, and address potential effects on low-income and disadvantaged near-port communities and other stakeholders that may be affected by implementation of the plan; and
        - Describe how an eligible recipient has implemented or will implement measures to increase the resilience of the one or more ports involved.

In addition to these nationally competitive funds, there is $750 million in funding specifically for ports located in air quality nonattainment areas for any air pollutant. These funds can be utilized for the same purposes as the nationally competitive grants and are available until September 30, 2027.

For both the nationally competitive and nonattainment-specific funds, eligible entities include:

- Port authorities;
- State, regional, local, or Tribal agencies that have jurisdiction over a port authority or a port;
- Air pollution control agencies; and
- Private entities that apply for a grant under this section in partnership with an entity described above or own, operate, or use the facilities, cargo-handling equipment, transportation equipment, or related technology of a port.

Port Infrastructure Development Program

The Utah Inland Port Authority is eligible for funding from the IIJA's Port Infrastructure Development Program. This program could fund "projects that reduce or eliminate port-related criteria pollutant or greenhouse gas emissions," including the following:

- Projects for Port electrification or electrification master planning;
- Development of port or terminal micro-grids;
- Providing idling reduction infrastructure;
- Purchase of cargo handling equipment and related infrastructure;
- Worker training to support electrification technology;
- Electric vehicle charge or hydrogen refueling infrastructure for drayage, and medium or heavy duty trucks and locomotives that service the port and related grid upgrades;
- Other related activities, including charging infrastructure, electric rubber-tired gantry cranes, and anti-idling technologies.

These funds are awarded on a competitive basis with a yearly application cycle and applications for the next funding cycle will be due in spring of 2023. More information on program specifics is available here. In 2022, $684,310,000 was available and detailed restrictions on funding allocation can be viewed in DOT's 2022 Notice of Funding Opportunity.

Port-specific Rules

Port Emissions Rules for Drayage Trucks

Certain ports have instituted rules designed to limit the amount of air pollution emitted by vehicles in the port. For example, the Port of Long Beach and the Port of Los Angeles have a shared Clean Air Action Plan which outlines strategies to reduce port-related emissions, including requiring trucks to have updated engine year models to use the ports. This strategy of requiring trucks to have more modern engines eliminates the oldest, dirtiest trucks from the port, sparing the surrounding communities the emissions impacts of these trucks. By establishing a baseline engine model-year requirement for drayage trucks and removing the most polluting engines, ports can drastically decrease their emissions. Drayage trucks are an especially attractive option for electrification because their duty cycles are fairly defined and they often return to the depot where they can charge, or they can charge at the port if the necessary infrastructure is available.

Statewide Rules

State Emissions Rules for Drayage Trucks

Several states have established standards that drayage trucks must meet in order to enter all ports in the state. For instance, California's Air Resource Board's Truck and Bus rule will require drayage trucks to meet a 2010 or newer model year engine standard beginning in 2023. Additionally, one component of the proposed Advanced Clean Fleet regulation will be to require drayage trucks to start transitioning to zero-emission technology beginning in 2024, with full transition to all-electric drayage trucks by 2035.

Clean Trucking Rules – Advanced Clean Trucks and Heavy Duty Omnibus

While the federal government provides its own emissions standards for vehicles, the Clean Air Act provides a waiver under Section 177 for states to adopt rules governing tailpipe emissions that are stricter than the federal standards. There are a suite of rules that Utah could adopt under the Clean Air Act to set stricter standards and ensure that MHD vehicles are not contributing to Utah's air quality problems. Utah could currently adopt the Heavy Duty Omnibus Rule and the Advanced Clean Truck Rule to reduce the impact of freight pollution, as well as additional rules, like the previously mentioned Advanced Clean Fleets rule, which will be available for states to consider in the future. The Clean Trucking Rules, as they are called,

consist of two separate rules: the Advanced Clean Truck rule and Heavy Duty Omnibus rule, both of which would reduce emissions from MHD vehicles.

The Advanced Clean Truck rule requires that vehicle manufacturers deliver a certain percentage of zero-emissions vehicles to the state each year, ensuring that models are available for those wanting to purchase them. So far, six states have adopted this rule and many more are likely to in the next few years. This rule has a great level of specificity, using the maturity of various zero-emission technologies to determine the percentage requirement for different types of vehicles. Given this, the rule has different percentage requirements for vehicles from class 2b through 8. Additionally, there is flexibility within the rule for meeting compliance obligations, such as crediting and banking to meet each year's requirements. A visual of these requirements is presented below.

Zero-emission sales standards under the ACT			
Model year	Class 2b-3	Class 4-8 straight	Class 7-8 tractors
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035	55%	75%	40%

The Heavy Duty Omnibus rule addresses new diesel vehicles sold in adopting states. So far, three states have adopted this rule. The rule requires more stringent nitrogen oxides (NOx) and particulate matter (PM) emission standards on vehicle engines. The NOx standards would be cut below current standards beginning in 2024 and 90 percent below current standards in 2027. Furthermore, the rule includes provisions on warranties, useful life, and reporting requirements.

Appendix A: Information on MHD EV Voucher Programs in Other States

Many states have offered financial support to reduce the upfront cost of cleaner MHD trucks–most commonly through one time grant opportunities from Volkswagen Settlement funding. Many of these grant programs have also supported the purchase of non-electric “cleaner" truck options such as compressed natural gas, propane, or diesel electric hybrids. CALSTART provides a useful summary of all incentive programs offered by states in the U.S. on Table B-1 of the “Zeroing in on Zero Emission Trucks” report on pages 24 and 33. There are only five states that have launched a “voucher” style program like the one proposed in this memo, and they have been the most effective MHD EV incentive programs in the country. While the exact reason why these programs have been more effective than one time grant opportunities has not been academically researched, it is reasonable to assume that the long-standing nature of these programs leads them to be better understood by MHD truck dealers and prospective MHD EV purchasers. Although only five states have voucher programs, those states make up 80% of the U.S. all-electric MHD truck market. California and New York, which have the longest running MHD voucher programs, rank #1 and #2 in MHD EV deployment and collectively make up more than two-thirds of the U.S. market. In this section each of these five programs will be briefly highlighted, providing information on key program features and performance to underscore how these programs have been effective at driving this early market.

Texas: Texas Clean Fleet Program

- Funded through CMAQ
- 80% of vehicle replacement costs for diesel-powered vehicles which must be replaced by a hybrid vehicle or a vehicle fueled by an alternative fuel including electricity, compressed natural gas (CNG), liquefied natural gas (LNG), hydrogen, propane, or methanol (85% by volume).

California: Hybrid and Zero Emission Truck and Bus Voucher Incentive Program (HVIP)

- Point-of-sale discounts have funded more than 9,000 vehicles, including 438 all-electric trucks.
- Program has been in operation since 2009, originally focused on clean diesel and hybrids but with a shifting focus to all-electric models.
- Demand for funding has consistently outstripped the ability of the program to serve, and the program has grown year after year in response to strong customer demand.
- Data on program performance is available for download here. Some highlights:
    - 69% of redeemed vouchers for all-electric MHD trucks were for private entities, 31% for public entities
    - 52% of redeemed vouchers for all-electric MHD trucks are in disproportionately impacted communities
    - 130 dealers have been approved to administer HVIP rebates.

New York: New York Truck Voucher Incentive Program (NYTVIP) & New York City Clean Trucks Program (NYCCTP)

- NYTVIP provides vouchers for zero-emissions MHD vehicles, with incentives aimed at helping fleet owners or independent operators cover the price differential of purchasing a zero emissions vehicle. The program also covers port cargo handling equipment. Their voucher amounts are presented here:

Voucher Amounts and Caps for All Vehicle Types

Vehicle Type	Fuel Type	Incremental Cost %	Voucher Amount: Vehicle Weight Class (GVWR)					
			3	4	5	6	7	8
On-Road Trucks	BEV / FCEV	95%	$ -	$100,000	$110,000	$125,000	$150,000	$185,000
Transit Buses	BEV / FCEV	100%	$ -	$100,000	$125,000	$150,000	$250,000	$385,000
School Buses	BEV	100%	$ -	$100,000	$120,000	$150,000	$200,000	$220,000
Non-Road Port Cargo Handling Equipment	New BEV	90%	$170,000 across all classes					
	Repower BEV	90%	$140,000 across all classes					

- NYCCTP has mostly focused on CNG and hybrid diesel-electric trucks, but it has also funded six battery EV trucks.

Illinois: Drive Clean Truck

- Drive Clean Truck component of Drive Clean Chicago existed from 2014-2017, funded through CMAQ. More funding was approved by FHWA but never allocated to the program.
- Funded Class 2-8 All-Electric and Hybrid Trucks, providing 80% of incremental costs compared to standard vehicles.
- Supported 49 all electric MHD EVs in this timeframe. The State of Illinois has 52 all-electric MHD EVs. Illinois ranks fourth nationally on MHD EV deployment.

New Jersey: Zero Emission Incentive Program (NJ ZIP)

- Created January 2021, funding only recently became available for request.
- $44.25 million allocated for Phase 1.
- Over 99% of funding has been requested through voucher applications, and over 75% of those requests have been approved (data as of 7/7/2022).
- Due to high customer response, another $45 million was approved on July 13, 2022. Currently applications are on a waitlist until this money becomes available.
- Program offers base price vouchers based on the size of the vehicle, as well as bonus criteria to support local manufacturing, scrapping of old vehicles, women-, minority-, or veteran-owned businesses and if voucher redeemers offer driver education services.

Massachusetts: MOR-EV Trucks

- Approved February 2021
- $10 million allocated initially to support 334 rebates. Larger vehicle classes have fewer rebates allocated.

Minnesota: Heavy Duty Electric Vehicle Replacement Grant

- Grant program which provides funding for the replacement of heavy-duty diesel on-road trucks and transit buses, airport ground support equipment, forklifts, port cargo handling equipment, and freight switchers with new, all-electric replacements.
- $6.5 million allocated for the grant program in 2021.
- Uses Volkswagen Settlement funds.

Michigan: Fuel Transformation Program

- $30 million allocated over three years for funding the replacement of on-road vehicles, including medium- and heavy-duty trucks, port drayage vehicles, shuttle buses, and transit buses.
- $5 million allocated for funding the replacement of airport ground support equipment, port cargo handling equipment, and forklifts.
- Uses Volkswagen Settlement funds.

Hawaii: Diesel Replacement Rebate Program

- $2.1 million allocated for 2021 – 2022.
- Provides rebates for the replacement of medium- and heavy-duty diesel vehicles with new, battery-electric equivalents, up to 45% of project cost.
- Uses DERA and Volkswagen Settlement funds.

Appendix B: Individual Port Rules, Regulations and Programs in Other States

Certain ports have their own rules on vehicle technology standards which are required for vehicle entry to their ports. This limits the emissions associated with the port and keeps the oldest, most polluting vehicles from accessing the port. Below are a selection of ports that have instituted such programs.

Ports of Los Angeles and Long Beach
The Ports of Los Angeles and Long Beach must comply with California state regulations, but have adopted additional rules as well. Beginning in 2018, all drayage trucks accessing the port were required to have engines that were model year 2014 or newer, aside from trucks that have been grandfathered in. Additional details on the Clean Trucks Program and Clean Air Action Plan for the Ports of Los Angeles and Long Beach can be viewed here.

Port of Houston
In 2019, the Port of Houston carried out a Goods Movement Air Emissions inventory detailing the mobile source emissions associated with the port. The sources included cargo handling equipment, locomotives, heavy-duty vehicles and others. Crafting a complete emissions inventory allows for an accurate measure of the port's environmental impact and serves as a baseline for goal-setting with regards to emissions reductions.

Port of New York and New Jersey
Since 2019, only drayage trucks that are equipped with an engine that meets or exceeds federal Environmental Protection Agency (EPA) on-road emission standards for 2010 model year heavy-duty diesel-fueled engines are permitted new registrations for entry to the Port of New York and New Jersey. Additionally, the Truck Replacement Program provides rebates to independent owner operators or licensed motor carriers that own class 8 port drayage trucks equipped with an Engine Model Year (EMY) 1998 through 2006 and who frequently serve the port to cover the cost of replacing their trucks. The rebates cover up to 50% of total truck cost or a maximum of $25,000 per truck and replacement trucks must be equipped with an EMY 2014 or newer and certified to EPA emission standards. The Truck Replacement Program is funded by the federal Congestion Mitigation and Air Quality Improvement Program and U.S. EPA's Diesel Emission Reduction Program.

Port of Virginia
The Port of Virginia's Green Operator Program is a voluntary truck replacement program for drayage trucks with engine model years from 2006 or older. The Green Operator Program provides rebates of up to $30,000 for the purchase of drayage trucks with 2014 or newer engines.

Appendix C: References

Below are links directly to the relevant sections of the U.S. code. For IRA programs which have not yet been incorporated into code, the relevant section of the legislation is listed.

Congestion Management and Air Quality Improvement Program
Carbon Reduction Program
State Energy Conservation Plans
Diesel Emissions Reduction Act
Grants for Clean Heavy-Duty Vehicles, IRA Section 60101, see pages 659-663
Commercial Clean Vehicle Tax Credit, IRA Section 60102, see pages 400-404
The Port Infrastructure Development Program
Grants to Reduce Air Pollution at Ports Program, IRA Section 60102, see pages 663-666

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