Ozone Transport Commission
Mobile Sources Committee
Annual Report
2020

The Mobile Sources Committee

Tad Aburn, *Interim Chair, Maryland Department of the Environment*

Coralie Cooper, *Committee Lead/Technical Expert, Northeast States for Coordinated Air Use Management*

Paul Farrell, *Connecticut Department of Energy & Environmental Protection*

Valerie Gray, *Delaware Department of Natural Resources and Environmental Control*

Rama Tangirala, *District of Columbia Department of the Environment*

Tom Graham, *Maine Department of Environmental Protection*

Tim Shepherd, *Maryland Department of the Environment*

Sharon Weber, *Massachusetts Department of Environmental Protection*

Rebecca Ohler, *New Hampshire Department of Environmental Services*

Timothy White, *New Hampshire Department of Environmental Services*

Peg Hanna, *New Jersey Department Environmental Protection*

Steve Flint, *New York State Department of Environmental Conservation*

Robert McDonough, *New York State Department of Environmental Conservation*

Randy Bordner, *Pennsylvania Department of Environmental Protection*

Samantha Harmon, *Pennsylvania Department of Environment Protection*

Allison Archambault, *Rhode Island Department of Environmental Management*

Deirdra Ritzer, *Vermont Department of Environmental Conservation*

Sonya Lewis-Cheatham, *Virginia Department of Environmental Quality*

Tamera Thompson, *Virginia Department of Environmental Quality*

OZONE TRANSPORT COMMISSION

89 South Street | Suite 602 | Boston, MA 02111

www.otcair.org

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Overview

The Ozone Transport Commission (OTC) Mobile Sources Committee has worked on a wide variety of initiatives and issues in the past year. This report serves as a summary of major ongoing issues, initiatives, and actions. The Committee's highest priority issue is reducing nitrogen oxides (NO_x) emissions from heavy-duty diesel trucks as this is one of the major NO_x emitting sources in the Ozone Transport Region (OTR) and the United States as a whole. California is already moving forward with new stringent NO_x standards, and states are now urging the United States Environmental Protection Agency (EPA) to be similarly stringent in their latest advance notice of proposed rulemaking (ANPR) for heavy-duty engine standards.

Other ongoing Committee initiatives include anti-tampering and idle reduction. Within anti-tampering, EPA has taken strong enforcement action and many OTC states are working in partnership with EPA to address this issue. With respect to aftermarket catalytic converters, federal leadership is lacking resulting in state level initiatives. For idle reduction, almost all OTC states have implemented some form of an initiative, with OTC coordinating these efforts by sharing best practices. In addition, this report includes the latest updates on critical mobile sources initiatives, that are not driven by the OTC, but are likely to provide significant ozone co-benefits. These include the Volkswagen Settlement, the Transportation Climate Initiative, the Zero Emission Vehicle Task Force, recent efforts on electric vehicles (EVs), and how individual states are handling these latest issues.

Why Are Mobile Sources Important?

Mobile sources are now the number one contributor to high ozone levels in the OTR. Mobile sources and transportation are also the largest emission source of greenhouse gases (GHG) in the Northeast and Mid-Atlantic states. Table 1 summarizes 2016 emissions from mobile sources and all other sources for NO_x and Volatile Organic Compounds (VOCs) within the OTR. The 2016 inventory is based upon individual state inputs and is the best inventory available at this time. NO_x and VOC emissions react with sunlight to form ozone.

The OTC Modeling Committee has used models to determine source category contribution projections to ozone levels in 2023. Table 2 shows the projected contribution to ozone in four of the OTC's ozone non-attainment areas in 2023.

Table 1
Mobile Source Emissions in the OTR

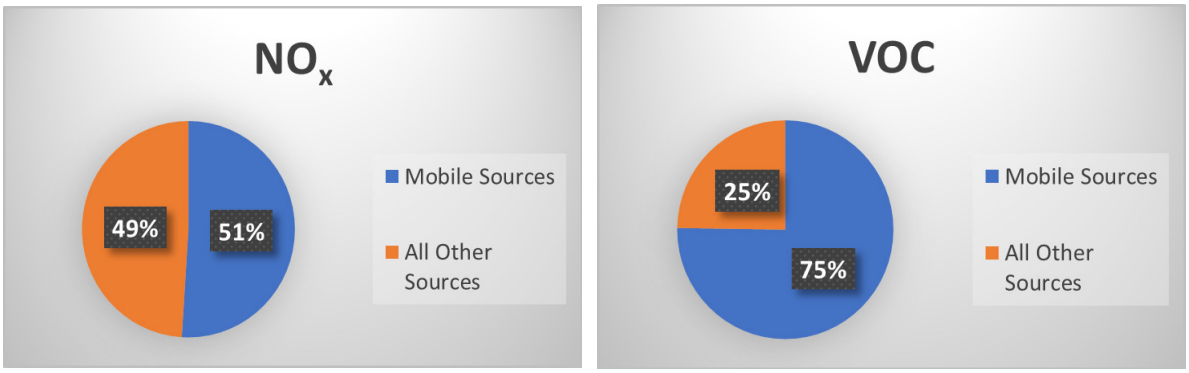
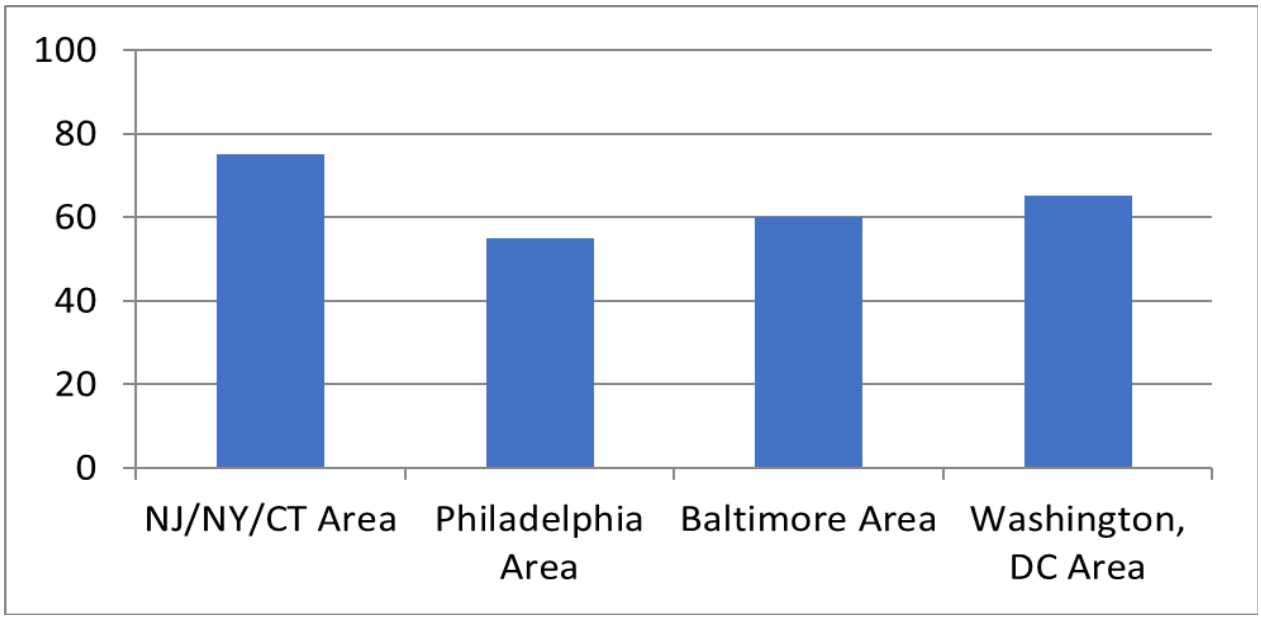


Table 2
Projected Contribution from Mobile Sources to High Ozone in OTR Nonattainment Areas



OTC Modeling Committee 2023 CAMX Contribution Modeling

Highest Priority – NO_x Reductions from Heavy-duty Diesel Vehicles

To address the region's persistent air quality problems, reducing NO_x from heavy-duty truck engines is of the utmost importance due to its role in local and regional ground-level ozone formation, as well as its contributions to fine particulate ($PM_{2.5}$) (especially in the winter). An OTC analysis, found that on-road diesel vehicles, including heavy-duty vehicles (HDVs), are the single largest NO_x emissions source in the OTR. Emissions from highway trucks are estimated to comprise 20 percent of the region's total NO_x emissions. Moreover, the modeled NO_x contribution from HDVs is potentially underestimated, because the mobile source model used in developing the inventory does not account for high emitting heavy-duty trucks, such as glider vehicles and HDVs with tampered emission control systems. In-use testing data suggest that real-world NO_x emissions are higher than modeled estimates, underscoring the need to achieve substantial NO_x emission reductions from the heavy-duty diesel truck sector.[1] The OTC modeled the contribution of on-road diesel to 8-hour maximum ozone concentrations at monitors in the OTR.[2,3] The modeled percent contribution to total ozone from on-road diesel vehicles at some monitors in the region show on-road diesel to be the second largest contributor to total ozone formed from controllable emission sectors.

Heavy-duty engine NO_x emissions standards were last updated nearly 20 years ago by EPA. Since that time, advances in exhaust after-treatment and engine hardware have been made that together can substantially reduce NO_x emissions while meeting existing and future GHG emission standards. EPA is currently developing a regulation to control heavy-duty engine NO_x emissions, the *Cleaner Trucks Initiative*. OTC engagement with EPA on the proposed rule making is critical to ensure a final *Cleaner Trucks Initiative* regulation results in substantial in-use NO_x emission reductions, sets stringent new engine emissions standards, and maintains state authority to adopt emission standards established by the Clean Air Act (CAA). Over the last year, the OTC Mobile Sources Committee has been actively engaged in the rule making. The OTC submitted comments to EPA on its *Cleaner Trucks Initiative* ANPR. The comments were developed through the OTC Mobile Sources Committee. OTC's comments requested that EPA establish a NO_x certification standard of 0.02 grams per brake horsepower hour, equivalent to a 90 percent reduction from current standards. The comments made the case that deep additional reductions in NO_x emissions are needed in order for states in the OTR to meet the National Ambient Air Quality Standards (NAAQS). The comments followed an August, 2019 letter from the OTC to EPA urging the agency to establish stringent new engine standards for NO_x. In a related effort, the Mobile Sources Committee, in conjunction with the Modeling Committee, have begun to analyze the NO_x emissions and ozone reductions that could be realized with the introduction of new federal heavy-duty engine NO_x emission standards.

EPA is expected to release a Notice of Proposed Rule making on the *Cleaner Trucks Initiative* in the summer of 2020. The work completed by the OTC Mobile Sources Committee on the Cleaner Trucks Initiative during the last 12 months positions the OTC to be actively engaged in EPA's rule development process in the coming year. The Mobile Sources Committee is proposing this issue for a potential action item at the Commission's June 2020 meeting.

[1]Tan, et al.., "On-Board Sensor-Based NO_x Emissions from Heavy-Duty Diesel Vehicles," Environmental Science and Technology, 53: 5504-5511 (2019).

[2]Ozone Transport Commission "Technical Support Document for the 2011 Ozone Transport Commission/Mid-Atlantic Northeastern Visibility Union Modeling Platform – 2nd Revision," December 2018.

[3]The modeling evaluated the 8-hour maximum ozone on the 4th highest day, which is the metric EPA uses to evaluate compliance with the ozone NAAQS.

Ongoing OTC Mobile Sources Committee Activities

There are several other issues that the Mobile Sources Committee has continued to work on over the past year. These include state initiatives to reduce unnecessary idling, efforts to ensure that the aftermarket catalysts being installed work as well as the original catalyst installed, and expansion of the state/federal partnership to prevent tampering with emissions control equipment on vehicles.

Aftermarket Catalytic Converters

Catalytic converters are one of the key components of emissions control equipment on a vehicle. Most repair shops have two options for installing a replacement catalytic converter on a vehicle: install a converter from the original equipment manufacturer or install an aftermarket converter. Due to the low quality of some aftermarket converters, the OTC has previously called on EPA to amend its enforcement policy on the sale and use of aftermarket converters. The existing EPA policy is lagging behind current available emissions control technology and EPA has yet to update the federal aftermarket converter policy. California has demonstrated the ability of a state program to ensure that aftermarket converters work in a manner to continue to effectively reduce emissions. There are significant NO_x reductions that can be achieved by ensuring that aftermarket catalytic converters work effectively.

> *"The Manufacturers of Emission Controls Association (MECA) appreciates the opportunity to provide comments in support of the actions taken by the Ozone Transport Commission (OTC) to urge the U.S. EPA to update the federal aftermarket catalytic converter policy for on-road, light-duty gasoline vehicles"*
>
> Rasto Brezny, Executive Director, MECA
> July 27, 2017

OTC has taken many formal actions, written letters and worked with EPA for the past five years to push for updated federal rules or guidance on this issue. In 2014, OTC adopted a model rule for consideration by OTR states. OTC has also worked in partnership with manufacturers of aftermarket catalysts, notably the Manufacturers of Emission Controls Association (MECA) and Autocare on this initiative. These manufacturers support OTC efforts to address the aftermarket converter problem. Because of the continued delays at the federal level, several states, New York, and Maine, have adopted their own aftermarket converter rules based upon the OTC model rule. New York has recently updated their existing rule. Other states including Maryland, New Jersey and Connecticut are working on or considering a similar state rule. Colorado is also working to adopt aftermarket catalyst regulations built from the OTC model and input from MECA.

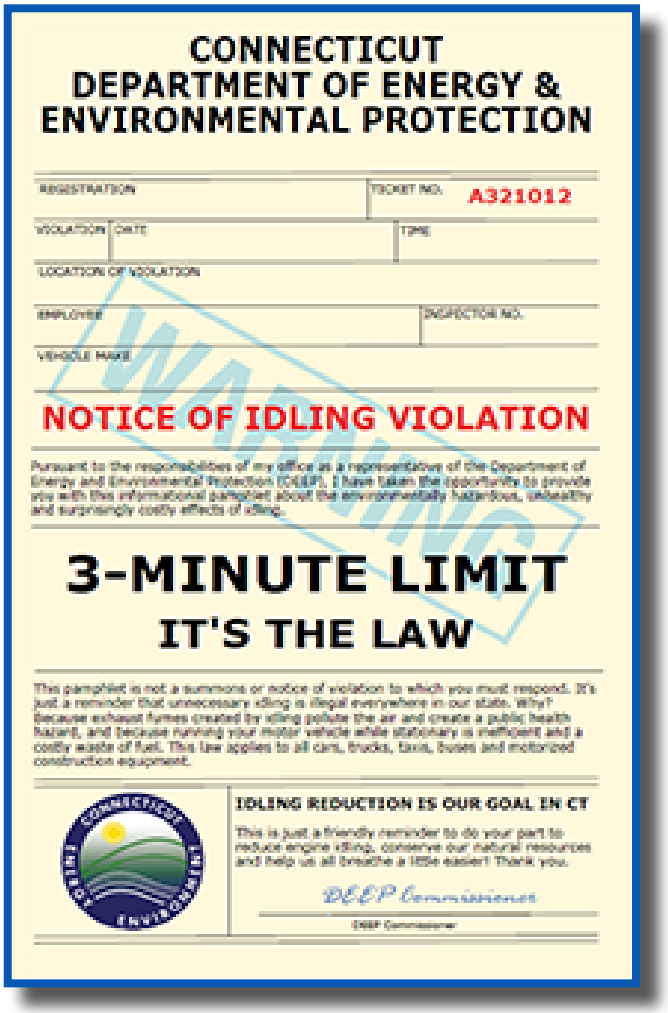
The Mobile Sources Committee will continue to work with EPA to push for an updated federal program because a strong federal program is preferable to a patchwork of state rules that often cross over between environmental and motor vehicle agencies and may encourage product dumping in states that do not adopt a rule.

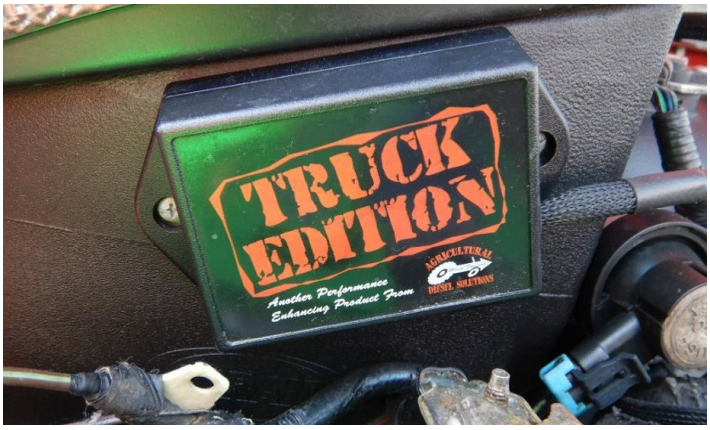
Idle Reduction

Idling is when a vehicle is left running unnecessarily while stopped and an engine is on but the vehicle is not otherwise in use or operation. In addition to effects on those nearby, idling puts everyone inside of the vehicle at risk by exposing them to a much higher concentration of pollutants than a vehicle in motion. The Mobile Sources Committee sees reducing vehicle idling as a way to improve air quality, help meet climate change goals, and reduce GHG emissions. Unnecessary idling can be a major source of NO_x emissions. Many states in the OTR have set a regulatory time limit for vehicle idling.

In 2017, the OTC adopted a resolution concerning state idling reduction programs. Technical analyses conducted by the Mobile Sources Committee identified the reduction of unnecessary idling from mobile sources, including heavy-duty vehicles, nonroad equipment, locomotives and other onroad and nonroad mobile sources, as a top strategy to achieve regional NO_x reductions. The resolution stated that OTR states would consider taking reasonable steps to put in place or improve idle reduction strategies in their jurisdictions. Each state would work with partners such as local government, the federal government, and the private sector to improve their idling reduction programs.

As part of the effort to implement the 2017 OTC resolution almost all OTC states have implemented some idle reduction initiatives which vary state by state. OTC has coordinated efforts by sharing best practices. Some examples include the District of Columbia using thermal imaging camera attachments for enforcement of idling limits, New Jersey's longstanding use of signs for awareness and education, and Maryland's voluntary Idle Free MD Program which partners with Maryland schools and the Maryland Motor Truck Association (MMTA) to reduce unnecessary idling of vehicles through fact-based education. Information on each state's efforts for idling reduction is provided in Appendix A.





Anti-Tampering

Over the last several years, illegal tampering with vehicles has surfaced as a major issue. The Volkswagen case (discussed below) is the highest profile enforcement action related to tampering, but there are many other situations where tampering is occurring. Vehicle emission controls include filters and catalysts installed in a vehicle's exhaust system and calibrations that manage fuel flow and other engine operations. The CAA and most state laws prohibit tampering with emissions controls as well as manufacturing, selling, and installing aftermarket devices intended to defeat those controls. Illegally-modified vehicles and engines substantially contribute to air pollution, in fact EPA has found that such modifications can cause a heavy-duty diesel vehicle to produce 300 times its normal amount of NO_x, equal to that of a vehicle with 1980s exhaust treatment technology. Federal law and in some cases state law prohibits emissions control system tampering and selling defeat devices. Many OTR states have laws that prohibit dealers from selling or offering for sale vehicles with tampered emissions controls. For these reasons, and the potentially significant emission reductions, several OTR states, including New Jersey, Massachusetts, Maryland and Maine, have begun to work in partnership with EPA to take enforcement actions when tampering has taken place.

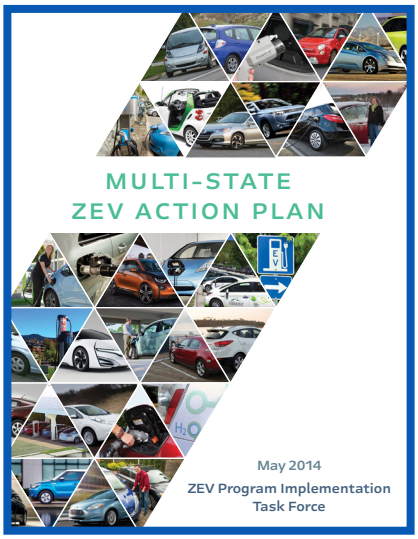
New Jersey has focused on sellers of tampered vehicles, especially medium-duty pickups, either advertising their tampered conditions in ads on community for-sale web sites or through used vehicle dealerships. Massachusetts has implemented stricter vehicle inspection requirements by requiring five cameras in each inspection bay to ensure proper inspection procedures are followed; Massachusetts also requires medium-duty vehicle On-Board Diagnostics (OBD)–based inspections that can catch tampered vehicles. Maryland recently passed legislation outlawing "rolling coal" which creates excessive amounts of black smoke emissions by overriding or tampering with diesel vehicle emission controls. OTC, the Northeast States for Coordinated Air Use Management (NESCAUM), the Mid-Atlantic Regional Air Management Association (MARAMA), and EPA have all offered training and workshops for states to share best practices on this issue. Anti-tampering efforts in OTR states are likely to increase over the next few years.

Leveraging Other Mobile Source Activities

The OTR states are also involved in several other very high profile mobile source initiatives that are not driven by OTC, but are likely to generate significant emission reductions and ozone co-benefits. These initiatives include the Zero Emission Vehicle (ZEV) Task Force, the Transportation and Climate Initiative (TCI), the Volkswagen (VW) Settlement, state electrification initiatives, and a new initiative – state Collaboration on medium and heavy-duty zero emission vehicles (MHD ZEVs)

Zero Emission Vehicle (ZEV) Task Force

Despite increasingly stringent emission standards, light-duty passenger vehicles continue to contribute a large portion of harmful emissions that plague the OTC efforts to meet the current ozone standard. Increasing the number of ZEV light duty vehicles (cars) is a viable strategy that has the potential to greatly reduce harmful emissions from the transportation sector. In an effort to spur the adoption of ZEVs, and to grow the market to the levels necessary to meet the ozone NAAQS as well as greenhouse gas reduction targets, eight states that adopted California's vehicle emission standards, including the ZEV requirements, signed the Zero Emission Vehicle Memorandum of Understanding (ZEV MOU) on October 24, 2013. New Jersey became the ninth state to sign onto the MOU on May 3, 2018.



The ZEV MOU led to the creation of the Multi-State ZEV Task Force which developed a ZEV Action Plan in 2014 and developed an updated ZEV Action Plan in 2018.

The OTC supports states efforts to grow the ZEV market to the levels necessary to meet the ozone NAAQS and encourages other states to adopt similar strategies outlined in the ZEV Action Plan to help facilitate these new advanced technology vehicles in their marketplaces. The 2018 ZEV Action Plan builds on the successful implementation of the 2014 ZEV Action Plan and outlines five strategies that are essential to achieving rapid ZEV market growth. The strategies include consumer education and outreach, charging and hydrogen fueling infrastructure, consumer purchase incentives, light-duty fleets, and dealerships.

Transportation and Climate Initiative (TCI)

TCI is a regional collaboration of 12 Northeast and Mid-Atlantic states and the District of Columbia that seeks to improve transportation, develop the clean energy economy and reduce carbon emissions from the transportation sector. Most OTR states are participating in TCI. The initiative builds on the region's strong leadership and commitment to energy efficiency and clean energy issues, and its programs to reduce carbon emissions in the power sector, which have resulted in the region becoming one of the most energy efficient areas in the nation. Many of the TCI participants are also members of the Regional Greenhouse Gas Initiative (RGGI).

Recognizing that more than one third of all carbon emissions come from the transportation sector, participating states started taking action through working groups focused on regional priorities, such as clean vehicles and fuels. Several TCI states are also now working together to explore potential regional policies to improve transportation systems and reduce pollution. In late 2019, TCI invited additional public input on a new draft proposal for a regional market based program to establish a cap on global warming pollution from transportation fuels and invest the proceeds to leverage additional benefits through reduced emissions, cleaner transportation, healthier communities, and more resilient infrastructure.

Understanding the public health protection benefits from reduced concentrations of ozone, fine particles and other air pollutants is part of the TCI process. Researchers from Harvard, Boston University School of Public Health, and the University of North Carolina are studying the health outcomes from a regional cap and invest program for the transportation sector in the TCI region. The Transportation,

Equity, Health and Climate Study is using projections of future emissions from on-road transportation and shifts in biking and walking and other active modes of transportation that could result from a range of regional emission cap reduction and investment scenarios. For additional information on TCI see https://www.transportationandclimate.org/.

Volkswagen (VW) Settlement

In September 2015, the EPA and California Air Resources Board (CARB) notified Volkswagen of CAA violations, alleging that Volkswagen diesel vehicles sold between 2009 and 2016 were equipped with defeat devices. The CAA requires manufacturers to certify to EPA and/or CARB that vehicles meet federal and/or CARB emissions standards. Vehicles with defeat devices cannot be certified. Use of defeat devices resulted in vehicles that met emissions standards in the laboratory but emitted significantly more emissions during normal on-road driving conditions. In this case, the impacted vehicles emitted NO_x emissions up to 40 times more than legally permitted. The settlement of this case required Volkswagen to pay $2.7 billion into an Environmental Mitigation Trust to fund projects across the country that will fully mitigate the excess NO_x emissions from the noncompliant vehicles.

All of the OTR states are beneficiaries of the Trust and are working to implement the many projects in their approved plans. The emissions reductions will help reduce NO_x pollution that contributes to the formation of harmful smog (ozone) and soot (diesel particulate), exposure to which is linked to a number of respiratory and cardiovascular-related health effects as well as premature death. In addition to the very meaningful NO_x reductions, these projects will help many states meet their GHG and regional haze goals. An area of particular focus in the mitigation plans is projects that can help to improve air quality in overburdened communities (communities that bear a disproportionate share of the air pollution burden).

The terms of the Trust also allow beneficiaries to use a maximum of 15% of the funds for electric and hydrogen fuel cell vehicle refueling infrastructure. Most states plan to leverage this funding with the additional $2 billion Volkswagen, through Electrify America, is required to invest toward improving infrastructure as well as access and education to support and advance zero emission vehicles. Information on each OTC state's efforts under the Volkswagen Environmental Mitigation Trust is provided in Appendix B.

Volkswagen Mitigation Trust Awards by State ($ Million)

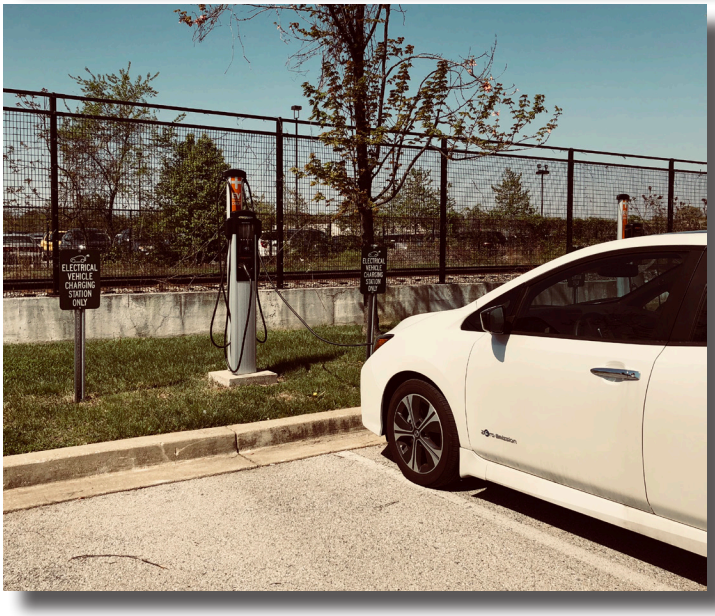
Connecticut	$55.0
District of Columbia	$8.1
Delaware	$9.6
Massachusetts	$75.0
Maryland	$76.0
Maine	$21.0
New Hampshire	$30.9
New Jersey	$72.2
New York	$128.0
Pennsylvania	$118.0
Rhode Island	$14.3
Vermont	$18.7
Virginia	$94.0
Total	$720.8

State Electrification Initiatives

With mobile sources accounting for approximately half of all NO_x and GHG emissions in the region, it is critical for states to reduce emissions from the mobile sector if we are to meet our air quality and greenhouse gas goals. An important component of this effort will be the introduction of EVs into the marketplace. Over the past several years, the OTR states have taken many steps to help accelerate the implementation of EVs into the region. One path has been to adopt or sign on to regulations or policies that set sales targets or requirements for EVs. These programs, such as California's ZEV mandate or the ZEV MOU Task Force (discussed above), send a strong message to original equipment manufacturers and encourages them to produce a growing range of EVs in their product lines.

In addition to these policies or regulations, many states have also implemented various initiatives designed to accelerate and encourage the implementation of EVs in their state, which serve to complement sales driven policies and regulations. These initiatives can vary from education and outreach to offering financial incentives. Many states have set up EV resource web pages and developed specific material that details the benefits and incentives available for EVs. This material is also distributed through numerous events and social media channels.

OTR states offer many different types of incentives to spur electrification that can range from preferential parking to commuter lane access. Probably the most common and effective incentives that states offer is a direct financial incentive for the purchase of EVs and/or charging infrastructure. Vehicle and infrastructure incentives can be based on many variables such as vehicle price, commercial or residential usage, charger size and vehicle electric only range. In addition to state government incentives, many utilities also offer incentives for EV purchases. Usually these incentives are for charging infrastructure, although sometimes vehicle incentives are also available. Information on each OTR state's electrification initiatives for EVs is provided in Appendix C.



State Collaboration on Medium and Heavy-Duty Zero Emission Vehicles (MHD ZEVs)

During the past year, a major new initiative in the OTR has been launched on medium and heavy-duty zero emission vehicles (MHD ZEVs). On December 12, 2019, six OTR states and the District of Columbia signed a Statement of Intent on MHD ZEVs. Signatory states, as well as other OTR states interested in the effort, are working on the development of a draft MOU to prepare for and encourage the development of the market for MHD ZEV. There are potentially significant NO_x, particulate, toxics and GHG emission reductions associated with this effort.

To address technical questions from the states, a webinar was held in March and the OTC Mobile Sources Committee will be receiving a packet summarizing research on MHD ZEV costs, performance, availability, and existing MHD ZEV requirements and targets. Using this and other information, states will continue to work in partnership on the MHD ZEV issue and work to finalize an MOU to present to governors in the future.

Appendix A
Idle Reduction Activities by State

Connecticut

1. Overview

- As part of Connecticut's commitment to improve its idling reduction program, we've conducted several outreach and education initiatives that further our anti-idling efforts.
- Idling reduction programs are a prioritized selection criteria for our Volkswagen and DERA grant programs.
- Regulation: 3-minute idling limit with exceptions – RCSA Section 22a-174-18(b)(3)

2. Education and Outreach (including social media work)

- Created a 30 second anti-idling public service announcement currently being looped on CCTV in CT Department of Motor Vehicles offices.
- Developed a children's book entitled Casey's Clean Air Week to teach young children the importance of air quality and advises children and adults of simple steps they can take to help prevent or reduce air pollution when using cars. It was distributed to all of CT's schools, licensed day care facilities, libraries and pediatrician offices. A companion parent/teacher guide and children's activity book are also available.
- Produced a four-minute video parody of the Mythbusters TV show – Wastebusters: Idling Myths available on YouTube.
- Idling "Ticket" Brochure used by field staff and available for public outreach events. Looks like an infraction ticket but it is just a friendly reminder to reduce idling.
- "Idling is Fuelish" poster available free to the public.
- Anti-Idling metal signs are available for free to Connecticut public schools. Nearly 80% of Connecticut school districts have received signage. Municipalities and businesses may purchase signs from DEEP or directly from the vendor. All materials to request a sign are available on our website.
- DEEP incorporated anti-idling education into the training given to department staff working at our state parks and forests.

3. Enforcement

- DEEP continues to target excessive idling of motor vehicles at rest areas, schools, truck stops and at commercial delivery points. DEEP field staff investigate complaints of excessive idling and pursue enforcement actions when they observe noncompliance. Individuals that witness excessive idling, particularly in areas with a high concentration of vehicles, are encouraged to report those observations to DEEP's air quality complaint line. Complaints are analyzed and investigated by DEEP field staff, who may pursue enforcement actions.

4. Additional Information

- Anti-Idling Web site:
  https://portal.ct.gov/DEEP/Air/Mobile-Sources/Anti-Idling/Anti-Idling—-Home

Delaware

1. Overview

1. DNREC adopted 7 DE Admin. Code 1145 Excessive Idling of Heavy-duty Vehicles in April 2005.
    - Limits the idling of on-road vehicle over 8,500 pounds gross vehicle weight to three minutes.
    - Heavy-duty vehicles subject to this regulation include long-haul and delivery trucks, and transit and school buses. Emergency fire, rescue, and lifesaving vehicles are exempt. Other vehicle operating situations also may fall under the Exemption Section of the regulation.
    - Violators are subject to penalties of not less than $50 and up to $500 for each offense. Subsequent violations carry fines of from $500 to $1,500.

2. Materials That Can Be Shared (including social media work)

- Leaflet

3. Additional Information (web site, etc.)

- https://dnrec.alpha.delaware.gov/air/mobile-sources/diesel-emissions/

District of Columbia

Prior to modifying engine idling enforcement in 2018 and 2019, DC attempted an outreach program which resulted in no appreciable improvement in engine idling reduction

1. **Citizens Enforcement Pilot Program:**
   - DOEE provides guidance online1 for citizens to use the DC311 mobile app2 to enter observations and evidence of engine idling infractions for DOEE to process
   - DOEE evaluates submissions for applicability and completeness and follows up with citizens providing entries
2. **Infrared camera usage**
   - DOEE uses Flir One Pro mobile-phone mountable infrared cameras to confirm suspected idling (retail at approximately $400 each)
   - Typically one infrared photo used at a range of less than 50 feet with vehicle hotspots such as engine compartment and/or exhaust outlet in view
3. **Enforcement Standardization**
   - DOEE photographs the beginning and end of an observation with time-stamped photos that have the vehicle and setting in view to show stationary operation. If vehicle's identifying markings not captured in initial photo, additional photos focused on USDOT number, fleet number, and license plates may be taken. Observations resulting in enforcement typi cally last two minutes longer than the regulatory idling limit[3]
   - Condensed enforcement documentation can be completed in 30-45 minutes
   - Allowed increased inspections (36 in 2017, 89 in 2018, and 217 in 2019)
   - Allowed increased enforcement of cases (14 in 2017, 20 in 2018 and 147 in 2019)
4. **DOEE prioritizes "hotspots" for inspection**
   - Areas with frequent engine idling complaints and/or enforcement prioritized
   - Union Station is a historical hotspot at which DOEE teamed with the DC Office of the AttorneyGeneral (OAG) to enforce idling, resulting in the OAG suing the largest violator at Union Station[4]

[1] Citizens Enforcement Pilot Program: https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/Engine%20Idling%20Citizens%20Enforcement%20Pilot%20Program%20-%20Guidelines.docx

[2] DC311 App: https://311.dc.gov/citizen/home

[3] Engine Idling Regulation (Adopted Rule): https://dcregs.dc.gov/Common/DCMR/SectionList.aspx?SectionId=7740

[4] Greyhound Complaint: https://oag.dc.gov/sites/default/files/2019-12/DC-v-Greyhound-Complaint.pdf

Maine

1. Overview

- Maine has a law that limits idling to 5 minutes per hour for commercial vehicles.
- Maine adopted California's clean idle engine requirements which certifies model year 2008 and newer heavy-duty diesel engines to an optional NO_x idling emission standard of 30 grams per hour.
- Maine developed a social marketing campaign for communities to adopt Clean Air Zones.
- Maine developed the Maine Clean School Bus program that promotes alternative fuels and no-idling.

2. Materials That Can Be Shared from the Clean School Bus Program

- Decals
- Signs
- Sample policies
- Factsheets

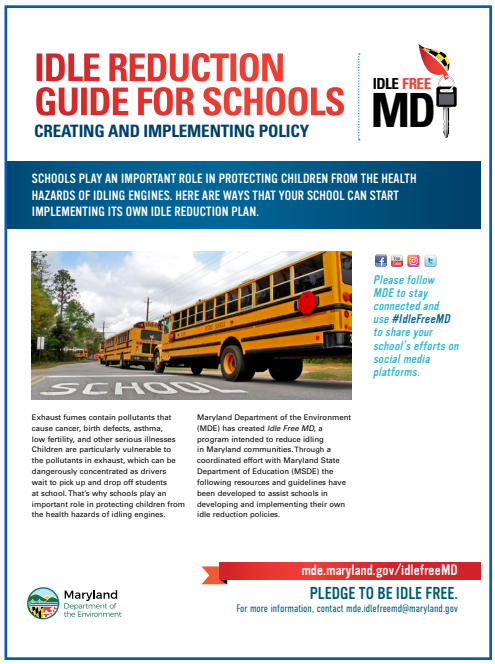
3. Additional Information (web site, etc.)

- http://www.mainelegislature.org/ros/LOM/lom123rd/123s1/public582.asp
- https://www.maine.gov/dep/air/mobile/schoolbus.html

Maryland

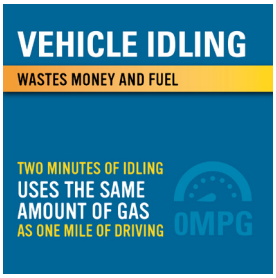
1. Overview

- Program entitled Idle Free MD
- Three areas of focus—general, trucking, schools
- Educational rather than punitive
- Emphasize limiting unnecessary idling, not all idling
- Uses social stigma of potential harm to health and environment
- Efforts work to develop program and then keep it going
- For schools, part of their state Green School certification



2. Materials That Can Be Shared (including social media work)

- All materials are available online
- Posters
- Decals
- Signs
- Fliers
- Factsheets
- Sample policies
- Sample letters to staff, parents, etc.
- Teachers' guides
- Powerpoint presentation
- Social media posts



- "Share your story" outreach to provide material for email newsletters and other communications

3. Additional Information (web site, etc.)

- Web site at mde.maryland.gov/idlefreeMD
- Schools that partner receive metal signage, window decals, signed participation certificate and other materials
- Partner schools are listed online on Honor Roll
- Presentations and trainings
- Booths at school and teacher events
- Handout package with keepsakes at trucking events

Massachusetts

1. Overview

- Maintaining basic idle reduction resources on website and for public inquiries (currently not conducting a specific idle reduction campaign)
- Conducting enforcement activities as resources allow
- Three areas of focus—general, trucking, schools
- Primary message is educational (enforcement as needed)
- Emphasizing limiting unnecessary idling (not all idling)
- For schools, idling-reduction is part of state's Green Team: https://thegreenteam.org/ and includes materials available for downloading
- Idling-Reduction Tool Kit available on-line
- Continuing participation with outside Idling-Reduction Groups (e.g., OTC)

2. Materials That Can Be Shared

All materials are available online in Toolkit (link above) including:

- Decals
- Signs and "static" stickers
- Fliers
- Factsheets
- Pledge sheets
- Sample policies
- Sample letters to staff, parents, etc.
- Newspaper coverage when MassDEP introduced municipal grants program to promote Schools Idling-Reduction program (no longer available)

3. Additional Information (web site, etc.)

- Web site at: https://www.mass.gov/files/documents/2018/02/20/idling-faq.pdf?a=2.49953637.275193625.1588083033-420035428.1582212334
- On-line complaints: https://www.mass.gov/guides/filing-environmental-complaints

New Hampshire

1. Overview

- RSA 200:48 – School Clean Air Programs – School Boards are required to develop and implement a policy governing air quality issues in schools, including methods of minimizing or eliminating emissions from buses, cars, delivery vehicles, maintenance vehicles and other motorized vehicles used for transportation on school property
- ENV-1102.02 – Administrative rule sets idling limitations for motor vehicles – maximum idling in consecutive minutes in any 60-minute period is determined by temperature – exceptions for emergency and enforcement vehicles

2. Programs

- Granite State Clean Cities Coalition – School Bus Driver In-Training Workshop in idling reduction to support fleet fuel and emissions reduction – includes driver pledge and distribution of educational materials
- Anti-Idling Signage – NHDES provides anti idling signs free of charge to schools and businesses in return for photographs of installed signs
- Idle reduction projects eligible for funding under NH State Clean Diesel Program (DERA)

3. Additional Information (web site, etc.)

- Granite State Clean Cities Coalition: https://www.granitestatecleancities.nh.gov/reduce-fuel/index.htm
- New Hampshire Administrative Rule Env-A 1100: http://www.gencourt.state.nh.us/rules/state_agencies/env-a1100.html

New Jersey

N.J.A.C. 7:27-14,15

1. Overview

- 3-minute idling limit for all gasoline and diesel vehicles except:
- Diesel-powered motor vehicles that are owned and operated by counties, municipalities, fire districts, or duly incorporated nonprofit organizations for first aid, emergency, ambulance, rescue, or fire-fighting purposes; and that is generally held in ready status.
- Penalties
  - $250 1st offense violation to commercial vehicle and property owner
  - $500 2nd offense violation to commercial vehicle and property owner
  - $1000 3rd offense violation to commercial vehicle and property owner

2. Current initiatives

- 2020 – Idling Investigators – An awareness campaign targeting middle school age students to become aware of the idling around them. Initially there will be a few pilot groups to test the program with a larger Idling Investigators Awareness Contest.
- 2019 – Grant funds to pilot auxiliary power units in Emergency Medical Services vehicles. This technology will allow the vehicle engine to be shut off and not idle while the body of the vehicle remains a constant temperature to regulate medicine and oxygen which may be on board.
- 2019 – Grant funds to electrify parking spaces at warehouses and distribution centers. Funds will also be used to retrofit diesel refrigerated trailers to be "plugged in".

3. Materials That Can Be Shared (including social media work)

- Brochures, car magnets, bookmarks, fake tickets, keychains
- Additional Information (web site, etc.)
- https://www.stopthesoot.org/sts-idle.htm
- Contains links to idling regulations
- Fact sheets
- Various No-Idling Pledges https://stopthesoot.org/sts-pledge.htm
- Order No Idling Signs https://stopthesoot.org/sts-no-idle-sign.htm

New York

1. Overview

- New York State has a statewide 5-minute anti-idling law for heavy-duty diesel vehicles (greater than 8,500 lb)
- There are exceptions for necessary work (e.g., concrete tumblers) or cold temperatures
- Statewide enforcement efforts with penalty structure
- New York City has a 3-minute anti-idling law for all motor vehicles. Many other local governments have anti-idling laws
- Schools can have anti-idling guidance

2. Materials That Can Be Shared (including social media work)

- Materials are available online
- Anti-idling posters are posted in areas with idling issues
- Additional anti idling signs are available
- Social media posts

3. Additional Information (web site, etc.)

- NYS information at https://www.dec.ny.gov/chemical/8585.html
- NYC information at https://www1.nyc.gov/nycbusiness/description/idling-regulations

Pennsylvania

1. Overview – Regulatory

- Program entitled Pennsylvania Diesel-Powered Motor Vehicle Idling Reduction Act.
- General Assembly enacted the program in Act 124 of 2009.
- General Assembly passed act to prevent patchwork of local idling ordinances.
- Allow 5 minutes of continuous idling for diesel vehicles over 10,000 lb.
- Allows 15 minutes of idling buses onboarding or discharging passengers.
- Exemptions granted for operation and passenger safety, work takeoff devices, and low NO_x idle engine.
- Regulation can be enforced by local or state law enforcement by summary citation or DEP inspectors by summary citation or NOV.
- Owners of locations and trucks or drivers may be cited.
- Requires "No Idling" signs to be displayed in places idling is likely to occur.
- Allegheny County Health Department follows state idling regulation.
- Philadelphia Air Management Services follows local ordinance which was deemed more stringent than the "Idling Act."

2. Overview – Outreach

- Worked with and funded three state environmental organizations to educate public after the state law was enacted.
- Distributed posters at rest stops, truck stops and school districts.
- Distributed paper place mats at truck stops across the state explaining the Idling Act
- Discussed the Idling Act with satellite radio show host frequently listened to by truck drivers.
- Information about the regulation is available on the DEP website at www.dep.pa.gov.

Rhode Island

1. Overview

- Diesel Idle Reduction Requirement
- Focus on schools and Port of Providence
- Some school districts have signs posted and receive reminders
- Emphasize limiting unnecessary idling, not all idling
- Uses social stigma of potential harm to children's health and environment
- Outreach program is under development
- Port of Providence, Schools, Department of Health, Department of Education involved

2. Materials That Can Be Shared

- All information on RI DEM website
- All signs and posters were received from EPA
- Posters
- Decals
- Signs
- Fliers
- Yearly letter mailed to school districts that participate
- Future plans to develop social media presence with specific hashtag
- Port of Providence agreement under development and will be distributed by Waterson Terminal, LLC.

3. Additional Information

- Web site at http://www.dem.ri.gov/programs/air/mobile.php, scroll down to Diesel Idle Reduction Requirement
- Regulation posted under this heading
- Plans to update website and create "Idle Reduction" specific page
  - Provide school specific information
  - Potential for schools to sign up for annual reminders/materials
  - Create signs, posters and decals for RI
- Create new social media channels with special hashtag
- Finalize and distribute Port of Providence agreement soon

Vermont

1. Overview

- Program entitled Be Idle Free.
- Three areas of focus—general, trucking, schools
- Educational program emphasizing limiting unnecessary idling

2. Materials That Can Be Shared (including social media work)

- Rack card (https://dec.vermont.gov/sites/dec/files/aqc/mobile-sources/documents/Vermont_Rack_Card.pdf)
- Poster (https://dec.vermont.gov/sites/dec/files/aqc/mobile-sources/documents/Vermont_Rack_d_18x24_Poster.pdf)

3. Additional Information (web site, etc.)

- https://dec.vermont.gov/air-quality/mobile-sources/be-idle-free
- As part of the Vermont Diesel Emissions Reduction Grant Program, all awardees adopt companywide idle reduction policies and receive "No Idling" signs for posting upon project completion.
- Several schools have also received and posted "No Idling" signage.
- Legislature requires that the driver education and training course include instruction on the adverse environmental, health, and economic effects of unnecessary idling, see https://legislature.vermont.gov/statutes/section/16/023/01045

Appendix B
Volkswagen Activities by State

Connecticut

1. **Funding: Connecticut was allocated approximately $55.7 million in funding.**
   - Up to 15% will be used for electric vehicle infrastructure (Option 9).
   - Remainder will be used for diesel mitigation actions and DERA match (Options 1-8, 10).
   - Administrative costs will be limited to the greatest extent possible.
2. **Status:**
   - Connecticut has completed two rounds of funding awarding over $18.4 million for 25 clean air projects (Options 1-8).
   - Equipment awarded funding over the two rounds include: 16 electric transit/shuttle buses, five diesel-electric hybrid bucket trucks, 27 CNG refuse trucks, six propane powered delivery trucks, two diesel marine ferry repowers, and multiple diesel school bus and truck replacements.
   - Just over $800,000 has been awarded to 7 additional clean air projects using DERA Option 10.
3. **Electrification**
   - Awarded over $7.35 million in funding for 17 electric transit and shuttle buses. This represents 38% of all VW funds awarded thus far.
   - The finalization of the State's Electric Vehicle Roadmap on April 22 will inform the design of an EVSE infrastructure funding round under Option 9.
   - Connecticut has begun consideration of an electrification focused funding round for diesel emission mitigation projects under Options 1-8.
4. **Emission Reduction Benefits**
   - Connecticut estimates that the VW defeat device vehicles registered in the state have caused approximately 1,500 tons of excess NO_x emissions since 2007.
   - Awarded projects have offset over 200 tons of NO_x emissions as calculated by the DEQ. This value does not include the future lifetime emission reductions from electric and alt fuel projects that would not have occurred if not for VW.
   - Connecticut also expects significant reductions in CO_2 and PM
5. **Ozone Benefits**
   - 200+ tons NO_x reductions from awarded projects through April 2020.
6. **Benefits to Overburdened Communities**
   - Connecticut prioritized projects located in environmental justice communities and severe nonattainment areas and projects received higher scoring for being located in such areas.
7. **Website**
   - Information about Connecticut's program can be found at: www.ct.gov/deep/vw

Delaware

1. **Funding: The State of Delaware received approximately $9.6 million dollars in funding**
   - Three Phased approach to spending the funds ($3.2 M/each phase):
     - Phase 1 – State-owned School bus replacements [multi-year program]
     - Phase 2 – Competitive Request for Proposal (RFP)
     - Phase 3 ($3.2 M) – Electrification and RFP
   - Leftover funds in Phase 2 to rollover to Phase 3.
2. **Status:**
   - So far, under Phase 1, Delaware has completed the replacement of 57 state – owned school buses in 2019. Delaware will be replacing another 24 state-owned school buses in 2020 (Phase 1 Year 2).
   - Under Phase 2, Delaware will be replacing 10 garbage trucks as compressed natural gas and one privately-owned school bus as an electric school bus in 2020.
   - Unused funds from Phase 2 rolled over. Delaware currently has a competitive Request for Proposal open for privately-owned school buses and projects in all eligible mitigation action categories for Phase 3.
   - The RFP for Phase 3 closes in June. Projects selected will begin in 2021.
3. **Electrification**
   - Electrification will be included in Phase 3. The program will be administered by the Division of Coastal, Climate, and Energy.
   - Funding has been set aside for Electric Vehicle Supply Equipment in Phase 3 – 15% of the funds ($1.45M).
   - This program is under development and a RFP is expected to be released in the fall of 2020 and will focus on workplace charging, state-owned, and corridor ("HUB") locations.
4. **Emission Reduction Benefits**
   - Tons of pollution reduced or avoided over the lifetime of the zero emissions vehicle supply equipment, specifically, NO_x, $PM_{2.5}$, GHGs such as CO_2 and black carbon,
5. **Ozone Benefits**
   - The range of emission benefits and actual NO_x emissions reductions will vary based on the type of projects received for funding consideration and the eligible mitigation projects funded.
6. **Benefits to Overburdened Communities**
   - Projects receive higher scoring for:
     - being located in an ozone non-attainment area or an air quality maintenance area;
     - being located in an environmental justice area or a related location that receives a disparate proportion of environmental impacts;
     - avoiding environmentally sensitive areas or areas containing critical habitats;
     - producing higher net reductions in NO_x emissions.
7. **Website**
   - All information can be found at https://dnrec.alpha.delaware.gov/air/mobile-sources/vw-mitigation-plan/

District of Columbia

1. Funding

- The District received approx. $8.125 million dollars in funding
  - The District Electrification And Low-NOX (DEAL) program will provide District government agencies with the means to overcome the high incremental cost of purchasing alternative fuel fleet. DC's Beneficiary Mitigation Plan allocated 62 percent of VW settlement funds (approximately $5.03 million) to the DEAL program.
  - DC's Beneficiary Mitigation Plan allocated 28 percent of VW settlement funds (approximately $2.3 million) to upgrade and repower five (5) old diesel-powered switcher locomotives.
  - DC plans to allocate one percent (approximately $89,000) of the VW settlement to provide rebates to public and private fleet owners to retrofit eligible diesel vehicles with EPA-verified idling reduction technologies and/or exhaust control retrofit technologies.

2. Status

- DEAL: DOEE solicited project proposals for the DEAL program from sister agencies in 2019. DOEE received one proposal from DDOT for a project to replace older diesel Circulator transit buses with all-electric buses for routes that serve Wards 5, 7, and 8.
- Switchers: In September 2019, a sub-grant was awarded to the Metropolitan Washington Council of Governments (COG) for coordinating the Locomotive Switcher project with Amtrak and DOEE. This project will be funded jointly by VW funds and the federal Diesel Emissions Reduction Act (DERA) grant along with Amtrak funds.
- The District has submitted proposals for both these projects to Trustee, which have been approved.

3. Electrification

- DOEE is currently working with DDOT on electrifying Circulator buses through the DEAL program.

4. Emission Reduction Benefits

- Together, these three projects are expected to reduce NO_x in the District by up to 114 tons per year, fine particulate matter pollution by up to 4.5 tons per year, and GHGs by up to 4,857 tons per year.

5. Benefits to Overburdened Communities

- Based on the review of asthma rates, mortality rates from cancer and heart disease, and income levels in Washington, DC, DOEE determined that Wards 7, 8, and 5 demonstrate the highest need for emission reduction. Accordingly, DOEE is prioritizing projects in Ward 7, Ward 8, and Ward 5 within the VW Spending Plan.
- Electric Circulator buses funded with VW money must have routes that operate 60% of time in Wards 8, 7, and/or 5.

6. Website

- All information can be found at https://doee.dc.gov/page/volkswagen-settlement

Maine

1. Funding

- Maine received $21,053,064 million from the Volkswagen (VW) Environmental Mitigation Trust. Maine DOT is the lead agency. In addition, Maine received $5.3 million from VW for penalties.
  - $7.4 million to state multimodal projects
  - $6.3 to vehicle replacement projects
  - $4.2 for the DERA option
  - $3.1 million for electric vehicle infrastructure

2. Status

- MaineDOT has disbursed all funding for vehicle replacements with the majority for new school buses. Funding to date:
  - $4.6 million to replace 73 school buses 2006 and older, new school buses include I electric and 16 propane
  - $2.0 million to DERA to repower commercial fishing vessels, replace school buses, short-haul trucks, and replace two refuse vehicles with all electric
  - $3 million to purchase 4 electric transit buses and electric vehicle supply equipment (EVSE).
  - $320,000 to replace 4 drayage trucks
  - $677,314 to replace 16 transit buses
  - $1,371,787 to replace municipal vehicles, including one new electric freight truck

3. Electrification

- Efficiency Maine is administering the VW environmental mitigation trust funds for Maine DOT. Phase 1 committed $1.7 million for DC fast charging EVSE. ChargePoint was selected to install Level 3 “fast charge” stations at seven locations along designated corridors. Our contract with ChargePoint includes 7 years of operational and maintenance costs.
- Phase II committed $300,000 on local level II charging at multi-unit residential dwellings, work place charging and public charging. 31 Level II charging applications were approved. The RFP allowed 80% funding or up to $8,000 for northern Maine vs 50% and up to $5,000 for the rest of the state. Five locations were selected in northern Maine
- Phase III commits $1 million to DC fast charging EVSE to fill in the gaps along Maine’s EV corridor and for destination locations. An RFP will be published this summer.

4. Emission Reduction Benefits

- For the DERA projects completed to date the NO_x benefits are 16.2 tons reduced annually

5. Ozone Benefits

- 162 tons of lifetime NO_x reductions from projects completed under the DERA option.

6. Benefits to Overburdened Communities

- Efficiency Maine administers $2.5 million to promote and subsidize FHWA class 1, 2, or 3 EVs and ancillary equipment for government and tribal vehicles and vehicles for non-profit organizations serving elderly, special needs or low-income communities
- Efficiency Maine administers $2.5 million for a rebate program for FHWA Class 1, 2 or 3 EVs for registered Maine consumers which includes additional funding for qualified low-income residents.

- Communities in rural northern Maine received a larger subsidy for Level II public charging infrastructure.

7. Website

- https://www.maine.gov/mdot/vw/

Maryland

1. Funding

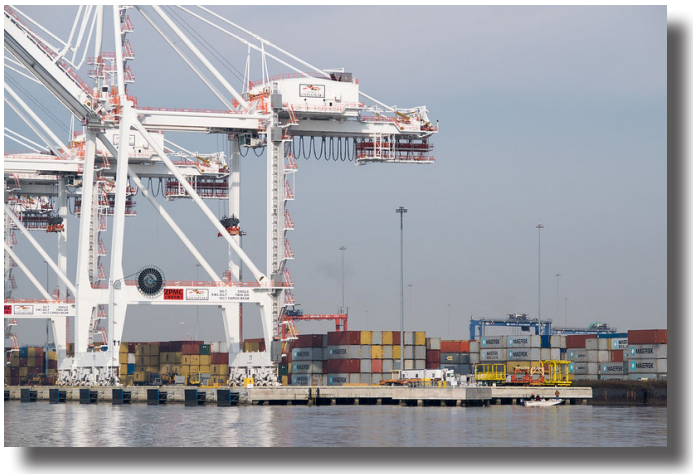
- Maryland received approx. $75.7 million dollars in funding
  - $11.3 million will be used for electric vehicle infrastructure
  - $ 63.4 million will be used for vehicle replacements
  - $1 million for administrative costs

2. Status

- Maryland received approx. 44 proposals for vehicle replacements (includes school and transit buses, dray trucks, shuttle buses, RTG Cranes, tug boats, switcher locomotives, trash haulers etc.)
  - Maryland has reviewed approx. half of these proposals
  - Maryland has submitted several proposal for final approval to Trustee
  - Maryland expects to have most proposal to the Trustee for final review by May
  - Maryland expects to have completed all reviews and have submitted everything to Trustee by June

3. Electrification

- MDE is working with Maryland Energy Administration to develop framework and RFP for charging infrastructure
- RFP will focus on workplace charging, state owned , and Corridor/HUB locations
- MDE anticipates opening the RFP and accepting proposals late June early July



4. Emission Reduction Benefits

- Based on modeling, Maryland estimates the Volkswagen defeat device vehicles emitted between 575 and 1,730 tons of excess NO_x between 2009 and 2016.
- Based on preliminary review, Maryland anticipates achieving NO_x reductions greater than 2,000 tons as a result of Workplan projects.
- Maryland also expects to see significant reductions in CO_2 and PM

5. Ozone Benefits

- 2,000 tons lifetime NO_x reductions

6. Benefits to Overburdened Communities

- Maryland specifically highlighted Overburdened Communities in its Workplan
- Projects received higher scoring for being located in Overburdened Communities
- Many projects that will be funded are located in Underserved Communities and/or Ozone nonattainment areas

7. Website

- All information can be found at: https://mde.maryland.gov/programs/Air/MobileSources/Pages/MarylandVolkswagenMitigationPlan.aspx

Massachusetts

1. Funding

- Massachusetts received approximately $75.1 million dollars in funding
  - $11.3 million will be used for electric vehicle (EV) infrastructure
  - $22 million will be used for electric transit buses
  - $7.5 million will be used for vehicle replacements and shore power
- Remaining funds have yet to be programmed

2. Status

- Grant programs were announced on January 18, 2019
- Massachusetts Electric Vehicle Incentive Program (MassEVIP):
  - $2 million for Public Access Charging (PAC): In November 2019, selected 49 entities with 195 Level 2 stations with 368 ports
  - $1.5 million for Workplace Charging (WPC): rolling offering; as of 12/31/19 selected 70 projects with 178 charging stations for $516,860.70, of which 6 completed projects with 16 stations and 32 ports (received $61,053)
  - $1.5 million for Multi-Unit Dwelling (MUD): rolling offering; as of 12/31/19 selected 11 projects with 24 charging stations for $92,639.40
- $7.5 million Open Solicitation: In December 2019, selected 98 projects to purchase EVs, diesel-hybrid electric waste collection trucks, liquid-propane-gas school buses, cleaner-diesel trucks and ferry engines, and a marine shore-power installation
- $22 million for electric transit buses at three Regional Transit Authorities; so far, Martha's Vineyard Transit Authority has received $3.9 million for 6 buses

3. Electrification

- The maximum allowed $11.3 million will be used for light duty EV infrastructure
- Replacement EVs and charging equipment includes $22 million for electric transit buses plus more than $3.7 million of the $7.5 million Open Solicitation grants

4. Emission Reduction Benefits

- Massachusetts anticipates 12.76 short tons per year of NO_x and 2,742 short tons per year of carbon dioxide reductions as a result of Open Solicitation grants

5. Benefits to Overburdened Communities

- Massachusetts Workplan highlighted a goal of serving environmental justice populations
- Project selection criteria include whether the project is located in an Environmental Justice area

6. Website

- https://www.mass.gov/guides/volkswagen-diesel-settlements-environmental-mitigation

New Hampshire

1. **Funding**
   - New Hampshire received approx. $30.9 million dollars in Environmental Mitigation Trust funding
     - $4.6 million (15 percent) will be used for electric vehicle infrastructure
     - $ 15.5 million (50 percent) is being used for municipal and state vehicle replacements
   - No more than $4.6 million to be used for administrative costs
2. **Status**
   - New Hampshire became a beneficiary of the Environmental Mitigation Trust in January 2018. Projects funded to date include:
     - DERA State Clean Diesel Program – approximately $1.2 million (including FY 2020) in VW funding being used to match EPA funds, leveraging an additional $573,000 in federal dollars
     - NHDOT Heavy Vehicle Replacement Program – $6.2 million
     - NH Departments of Safety, Corrections and Fish & Game Vehicle Replacements – $1.6 million
     - Manchester Transit Authority – $750,000 to replace diesel school buses with propane school buses
3. **Electrification**
   - Mitigation Plan Goals:
     - to serve the state's economically challenged communities;
     - support the state's tourism-based economy and
     - help attract and retain younger professionals all through investment in EV charging infrastructure
   - $2.0 million state-wide corridor-based DCFC EVSE solicitation to be re-released in early 2020
   - Level 2 EVSE projects (to be funded in 2020)
4. **Emission Reduction Benefits**
   - Between 5,000 and 6,000 vehicles with illegal software in NH at the time of the violations were discovered
   - New Hampshire anticipates replacement of heavy-duty highway vehicles may provide up to a 96 percent reduction in NO_x emissions per vehicle and between a 93 percent and 96 percent reduction in NO_x emissions for each engine for non-road equipment replacements
   - New Hampshire also expects to see significant reductions in GHG and PM
5. **Benefits to Overburdened Communities**
   - Feedback received during the development of the Mitigation Plan indicated support for use of the Mitigation Trust to reduce disproportionate level of emissions, including economically challenged communities
6. **Website**
   - Information can be found at https://www.nh.gov/osi/energy/programs/vw-settlement.htm

New Jersey

1. **Funding**
   - New Jersey received approx. $72.2 million dollars in funding
     - $10.8 million will be used for electric vehicle infrastructure
     - $ 61.4 million will be used for vehicle replacements
2. **Status:**
   - 1st phase of funding totaling $27.6, has been awarded
   - Solicitation for projects for the remaining $44.6 M is open until June 22, 2020.
3. **Electrification – 1st Phase of funding**
   - 10 electric garbage trucks
   - 8 electric transit buses
   - 5 electric school buses
   - 18 electric yard tractors
   - 39 electric ground support equipment
   - 1 electric "last mile" delivery truck
   - 5 electric drayage trucks
   - Under New Jersey's It Pay$ to Plug In–Electric Vehicle Charging Grant Program approximately 842 charging ports at 184 locations will be installed.
4. **Emission Reduction Benefits**
   - Phase 1 projects are estimated to see a reduction of:
     - ~47 tpy of NO_x
     - ~13 tpy of PM
     - ~3,000 tpy of CO_2
5. **Benefits to Overburdened Communities**
   - All phase 1 category 1-8 projects are in overburdened communities
6. **Website**
   - www.state.nj.us/dep/vw

New York

1. Funding

- New York State's allocation is $127.7 million dollars
  - $19.2 million will be used for light-duty electric vehicle charging infrastructure
  - $97.6 million will be used for vehicle and equipment replacements
  - $10.9 million for administrative costs

2. Status

- New York received over 220 comments including many detailed proposals for vehicle replacements (Electric school and transit buses, Class 4-8 trucks, airport GSE, cargo handling equipment, switcher locomotives, ferry & tugs, etc.)
  - New York has submitted its Beneficiary Mitigation Plan, Clean Transportation New York, to the Trustee
  - Five D-4 funding requests have been approved (medium and heavy-duty truck programs, transit buses)
  - Additional funding requests are in the final planning stages

3. Electrification

- New York is allocating over 60% of available VW funds towards electrification projects. Electrification projects will include transit buses, school buses, cargo handling equipment, light-duty EVSE, and Class 4-8 trucks
- DEC is currently working with NYSERDA and NYPA to develop several light-duty electric vehicle charging infrastructure projects

4. Emission Reduction Benefits

- New York estimated that the affected, light-duty Volkswagen vehicles operating in NYS emitted approximately 3,000 tons of excess NO_x between 2009 and 2016. See Mitigation Action Plan.
- New York expects additional reductions in CO_2 and PM

5. Ozone Benefits

- Significant NO_x reductions

6. Benefits to Overburdened (Environmental Justice) Communities

- New York will include program requirements to ensure that VW funded projects are completed in or near Environmental Justice areas.

7. Website

- Additional information on New York's VW plans can be found at:
  - https://www.dec.ny.gov/chemical/109784.html
  - https://www.dec.ny.gov/chemical/118556.html

Pennsylvania

1. Funding

- Pennsylvania was awarded approximately $118.5 million in funding:
  - Funds disbursed through eight grant and rebate programs under Driving PA Forward:
    - $17.7+ million designated for light-duty zero emission vehicle supply equipment (LD ZEV SE) project funding;
    - $100.8+ million designated for vehicle and equipment replacements and repowers (incl. some infrastructure costs for electric conversions).

2. Status

- Since 2018, PA has received over 1,000 applications across all programs.
  - Grant Programs: 125 applications received; 35 awards approved for $12,775, 120 (plus $832,243 in EPA funds)
  - Payments made: $1,543,091 Trust Funds and $486,041 EPA funds
  - Rebate Programs: 911 applications received; 623 rebate vouchers issued for $16,513,974
  - Redeemed vouchers/payments made: 450 rebate vouchers for $12,961,728
- All grant and rebate programs expected to be opened for applications during CY2020.

3. Electrification

- Pennsylvania has four programs focused exclusively on electrification and LD
  - ZEV SE (Level 2 EV Charger Rebate Program,
  - DC Fast Charging and Hydrogen Fueling Grant Program,
  - Ocean Going Vessel Shorepower Grant Program, and
  - Electric Cargo Handling Grant Program). Pennsylvania committed at least $29.5 million to these programs.
- Electrification is also eligible for funding as an option under other programs.
- Pennsylvania's EV charging infrastructure programs developed to complement other EV charger funding programs and the Pennsylvania Electric Vehicle Roadmap.

4. Emission Reduction Benefits:

- Pennsylvania's Beneficiary Mitigation Plan estimates potential lifetime NO_x emissions reductions of approximately 27,700 tons across all programs.
- Expected co-benefits reductions in VOC/HC, $PM_{2.5}$, PM10, CO and CO_2 emissions.
- Estimated annual and lifetime reductions (in tons) from completed grants and rebates:

	VOC	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	C
Annual	8.44	8.15	31.44	91.91	0.38	9.79	
Lifetime	51.07	48.84	182.68	621.59	1.88	60.95	2

5. Ozone Benefits

- 27,700 tons – estimated potential lifetime reduction in NO_x emissions for all programs

6. Benefits to Overburdened Communities

- Pennsylvania identifies Overburdened Communities (OC) as Environmental Justice Areas, EPA nonattainment areas, high traffic areas, and high population density areas.

- Preference given to projects located within OCs by awarding additional points during application scoring. Up to 100% project funding for financially distressed municipalities within OCs.

7. Website

- http://www.depgis.state.pa.us/drivingpaforward/

Rhode Island

1. Funding

- Rhode Island received approx. $14.4 million in funding
  - $10.7 million–Rhode Island Public Transit Authority (RIPTA) electric bus program
  - $1.5 million–light-duty EVSE infrastructure
  - $2.15 million–administrative costs

2. Status

- Phase I of the RIPTA electric bus program
- The first three all-electric transit buses have been placed into revenue service. Replacing three diesel buses.
- Phase II planning is underway: purchase of up to 20 additional electric transit buses.
- Procurement estimated in Q4-2020

3. Electrification

- RIDEM worked with the Rhode Island Office of Energy Resources (OER) to develop the Electrify RI Program which launched October 31, 2019.
- Program focus: Level II & DCFC at workplaces, multi-unit dwellings, state and local government properties, and publicly accessible locations. Incentives are offered on a first-come, first-served basis.
- The program leverages National Grid's Electric Transportation and Charging Programs.

	Application Status (As of April 22, 2020)	Level II DCFC
Approved	22 (49 stations)	4 (7 stations)
Pending Approval	10 (18 stations)	4 (7 stations)
Cancelled / Voided	4 (8 stations	3 (6 stations)
Completed Projects	12 (25 stations)	
Funding Allocated	$661,434	$545,000
Remaining Funds	For Publicly Accessible $12,566 For MUD $38,000 $50,566	$180,000

4. Emission Reduction Benefits

- Based on modeling, Rhode Island estimates the Volkswagen defeat device vehicles emitted between 29 and 98 tons of excess NO_x per year. Rhode Island anticipates achieving 12-30 tons of NO_x reductions per year from the RIPTA electric bus program.

5. Benefits to Overburdened Communities

- Electric buses are being deployed across routes that serve overburdened communities. Enhanced service on these bus routes will increase mobility, economic, and health prospects of these environmentally and economically disadvantaged communities.

6. Website(s)

- Beneficiary Mitigation Plan and Program Overview: http://www.dem.ri.gov/programs/air/vwsettle.php
- Rhode Island Public Transit Authority (RITPA) All-electric zero-emission transit buses
- Rhode Island Office of Energy Resources (RIOER) Electrify RI Program

Vermont

1. **Funding**
    - Vermont's allocation is approximately $18.7 million
        - $2.8 million will be used for EVSE
        - $10.7 million will be used for electric vehicle replacements
        - $3.1 million will be used for electric non-road, locomotive and marine engines
        - Up to $2.1 million is reserved for administrative costs
2. **Status**
    - Vermont is focusing on electrification projects only and has implemented an EVSE Grant Program and contracted with a third party to implement an electric school and transit bus pilot on behalf of the State.
        - More than $1 million in funding has been awarded for this installation of four DC fast charging (DCFC) and 27 Level 2 charging stations and proposals for the state's DCFC network expansion are currently under review.
        - Three schools and a transit agency are participating in the electric bus pilot and each awardee will replace two diesel buses with electric buses. Grant agreements are currently being executed and RFPs for buses are being drafted.
        - An RFP for all other eligible mitigation actions is currently being developed to be released later this spring.
3. **Electrification**
    - Vermont's EVSE Grant Program has focused on installing charging infrastructure at work places, multi-unit dwellings, major destinations, downtowns and along highway corridors. The last funding round will focus on expanding DCFC along highway corridors.
    - All of Vermont's VW funds will be spent on electrification projects only.
4. **Emission Reduction Benefits**
    - Actual emissions reduced will depend on the specific projects funded, but it is anticipated that tons of air pollution will be reduced over the lifetime of the engines/vehicles replaced, specifically, NO_x, $PM_{2.5}$, air toxics, and GHG.
5. **Ozone Benefits**
    - Actual emissions reduced will depend on the specific projects funded, however, replacing diesel powered vehicles/equipment will result in reductions of NO_x and VOCs emissions and therefore a reduction in ozone will be realized.
6. **Benefits to Overburdened Communities**
    - Project proposals receive higher scoring for targeting investments in locations that maximize health benefits, especially to those populations most vulnerable to the health impacts of air pollution – youngest, oldest, compromised respiratory and cardiovascular systems – and in over-burdened and under-resourced communities.
7. **Website**
    - https://dec.vermont.gov/air-quality/vw

Virginia

1. Volkswagen Settlement Initiatives

The fully executed Environmental Mitigation Trust Agreement for State Beneficiaries (State Trust Agreement) that took effect October 2, 2017, in the case, In Re: Volkswagen "Clean Diesel" Marketing, Sales Practices, and Products Liability Litigation. The State Trust Agreement is an element of the settlements resolving allegations that Volkswagen (VW) violated the CAA by the sale of approximately 590,000 2.0 and 3.0 liter diesel engine motor vehicles (model year 2009 to 2016) equipped with "defeat devices" in the form of computer software designed to cheat on federal emissions tests.

The Department of Environmental Quality (DEQ) is the designated Lead Agency acting on the State's behalf as beneficiary to manage Virginia's $93.6 million allocation of the $2.95 billion Trust through a Beneficiary Mitigation Plan (Plan). The primary goal of the Plan is to mitigate approximately 2,095 short tons of excess lifetime mobile NOx emitted in violation of federal emissions standards by more than 16,000 VW diesel vehicles registered in Virginia. To date Virginia has allocated $52.68M for the following eligible mitigation actions:

- $14M to build a statewide public electric vehicle charging network
- $14M to replace older diesel public transit buses with battery electric transit buses
- $20M to replace older diesel public school buses with battery electric buses or propane buses when electric is not feasible ($1.5M set aside for propane)
- $4.68M administration of eligible mitigation actions (Virginia may use up to 15% for administration but has Virginia has capped administrative expenditures at 5% allowing more Trust funds to be spent on actual mitigation actions).
- The remaining $41M will be allocated by the end of 2020.

2. State Clean Diesel Program

Title VII, Subtitle G, Section 793 of the Diesel Emissions Reduction Program (DERA) in the Energy Policy Act of 2005 (codified at 42 U.S.C. 16133) authorizes the U.S. Environmental Protection Agency (EPA) to support grant, rebate, and loan programs, administered by eligible states or territories designed to achieve significant reductions in diesel emissions through the State Clean Diesel Grant Program (the Program). Virginia DEQ has been participating in the Program since its inception (2008). These funds are primarily used to retrofit or replace old diesel dray trucks with newer and cleaner engine dray trucks to reduce emissions from carriers that service the Port of Virginia (the Port). Port activities generate significant diesel truck traffic in the surrounding metropolitan area. The goals of this program funding are to reduce impacts of diesel particulate emissions and to prevent the deterioration of air quality in the Port's metropolitan area. As part of the Ozone Advance action plan, this program will reduce emissions of ozone precursors, helping to ensure that the area continues to meet the 2008 Ozone NAAQS and the 2015 Ozone NAAQS.

To date, DEQ has received approximately $2 million in Program funds. These funds leveraged more than $882,000 in private sector funds and achieved significant emission benefits.

Virginia Lifetime Emissions Reduced 2008 – 2019 Funding (short tons)						
	Pollutant					
Reductions	**NO_x**	**PM**	**HC**	**CO**	**CO_2**	**Total**
2008 – 2011 (87 retrofits and replacements)	87.63	18.86	30.72	132.44	1,864.80	2,134.45
2012 – 2013 (32 retrofits)	0.00	6.88	12.99	64.18	0.00	84.05
2014 – 2016 (6 retrofits and 13 replacements)	132.12	6.23	7.3	44.54	879.12	1,069.31
2017 – 2019 (18 Replacements)	159.68	10.19	10.33	51.46	2,021.5	2,253.16
Total	379.43	42.16	61.34	292.62	4,765.42	5,540.97

Appendix C
Electrification Activities by State

Connecticut

1. Overview

- Connecticut is actively involved in advancing both light duty and heavy-duty vehicle electrification throughout the state utilizing incentives, grants, and outreach activities to achieve our clean air goals.

2. Purchasing Incentives

- CHEAPR is Connecticut's highly successful point of sale incentive program for EVs which offers up to $1,500 for the purchase of all-electric and plug-in hybrid vehicles and $5,000 for fuel cell EVs.
- Since May 2015, CHEAPR has awarded over $11 Million for nearly 6,000 EVs.

3. Infrastructure Incentives

- Connecticut will be developing a light duty EVSE infrastructure incentive program utilizing funding from the VW Settlement.
- To facilitate the seamless integration of ZEVs and ZEV-related technologies onto Connecticut's electric grid, on October 4, 2019, the Public Utilities Regulatory Authority (PURA) established a docket to explore four solutions tracks – infrastructure, rate design, innovation, and education and outreach. As part of this docket on May 6, 2020 PURA issued aRequest for Program Designs and Proposals (RFP) for EV infrastructure.
- Charge Up CT Buildings Program offers up to three free EV charging stations for building owners who finance a qualifying energy project with Connecticut Green Bank.
- Eversource offers a voluntary electric vehicle rate program which is available to any level 2 or level 3 charging station whose load is separately metered and available for use by the public.

4. Outreach and Education Activities

- On April 22, 2020, Connecticut released its Electric Vehicle Roadmap which represents a comprehensive strategy for accelerating the deployment of EVs through policies and regulatory tools.
- EVConnecticut.com provides the public easy to access information on charging locations, basic information on EVs, workplace charging, and much more.
- Drive Clean Connecticut Facebook page offers information on clean transportation programs and options available in Connecticut.
- Connecticut joined Drive Change Drive Electric to advance consumer awareness, understanding, consideration and adoption of electric cars.
- Connecticut is actively engaged in the Destination Electric campaign which showcases local businesses, venues and attractions throughout the northeast that are close to nearby public charging stations. Connecticut, with two participating communities, recently held a webinar to engage new communities interested in joining the campaign.
- Connecticut hosted a Heavy-duty Fleet Electrification Collaborative with CT municipalities to inform funding options for electrification. Towns provided an understanding of their fleet inventory, contracts, and budgets, technology experts presented information on heavy-duty electric options, and the state presented insight on its EV fleet experience.
- Since 2014, EVConnecticut and CHEAPR have presented the EV Champion Award to those auto dealers or manufacturers that made a significant contribution to the promotion of EVs in Connecticut.

- Connecticut joined 17 other European and North American governments as partners of an international ZEV alliance to accelerate global adoption of ZEVs and strive to make all new passenger vehicles in their jurisdictions ZEVs by no later than 2050.
- Connecticut joined the Multi-State ZEV Task Force and signed a multi-state MOU which committed the states to have at least 3.3 million ZEVs operating on their roadways by 2025.

5. Additional Information (web site, etc.) – See links above

Delaware

1. Overview

- The Division of Coastal, Climate, and Energy offers the Clean Vehicle Rebate and the Electric Vehicle Charging Rebate program.
  - The Clean Vehicle Rebate Program provides incentives for Delawareans and Delaware businesses to buy or lease new alternative fuel vehicles.
  - The Electric Vehicle Charging Equipment Rebate Program lowers the cost of electric vehicle charging stations that can be installed at your workplace, outside your businesses and in other public places.

2. Purchasing Incentives

- Rebates for the Clean Vehicle Program are available for battery electric, plug-in hybrid electric, propane, and natural gas passenger vehicles (classes 2 through 6). Rebates range from $1,350 to $2,500.

3. Infrastructure Incentives

- The Electric Vehicle Charging Station Rebate Program provides incentives for Delaware businesses, non-profits, state and local governments fleets and multi-unit dwellings for the purchase of Level 2 charging stations. The program covers up to 90% of the cost of the station, with a max amount of $3500 per port.

4. Outreach and Education Activities

- Distribute program information at community events in Delaware
- Printed materials such as brochures, flyers and alternative fuel related resources
- Ride-n-drive events
- Social media

5. Statewide Efforts

- State agency deployment of charging station to transition fleet
- DCFC Infrastructure installation

6. Additional Information (web site, etc.)

- https://dnrec.alpha.delaware.gov/climate-coastal-energy/clean-transportation/vehicle-rebates/
- https://dnrec.alpha.delaware.gov/climate-coastal-energy/clean-transportation/ev-charging-equipment-rebates/

District of Columbia

1. Overview

- The District currently offers incentives for the transition to alternative fuel vehicles as well as incentives for supporting infrastructure.
- Through the local utility, make ready for public charging infrastructure will be available
- The District is currently in the process of developing an official Transportation Electrification Roadmap. Tentatively to be completed in July of 2021.

2. Purchasing Incentives

- The District offers businesses and individuals are eligible for an income tax credit of 50% of the equipment and labor costs for the conversion of qualified AFVs, up to $19,000 per vehicle.
- Qualified PEVs are exempt from the excise tax imposed on an original certificate of title. The original purchaser and subsequent purchasers of the same vehicle are eligible for the excise tax exemption.
- A new motor vehicle with a U.S. Environmental Protection Agency estimated average city fuel economy of at least 40 miles per gallon is eligible for a reduced vehicle registration fee of $36.

3. Infrastructure Incentives

- The District offers a tax credit is also available for 50% of the equipment and labor costs for the purchase and installation of alternative fuel infrastructure on qualified AFV fueling property. The maximum credit is $1,000 per residential electric vehicle charging station, and $10,000 per publicly accessible AFV fueling station.

4. Outreach and Education Activities

- Mobile showcase: The District created outreach materials to educate the public on the benefits of EVs and answering common questions about EVs. This showcase was planned at public gatherings, such as the Washington Auto Show, the Electric Vehicle Grand Prix, and the Mayor's Truck Touch event.

5. Additional Information (web site, etc.)

- The District passed the Clean Energy DC Omnibus Amendment Act of 2018, which outlines the District's goals regarding transportation electrification in Title V: http://lims.dccouncil.us/Legislation/B22-0904
- The local utility, Pepco's current filing with the Public Service Commission has approved of the following:
  - Residential Whole House Time-Of-Use Rate for EVs
  - Thirty-five (35) Public Neighborhood Smart Level II Public Chargers for EVs
  - Up to twenty (20) DC Fast Chargers for EVs,
  - Up to ten (10) Smart Level II EV chargers and two (2) DC Fast Chargers accessible for taxis and rideshare services,
  - Five (5) Level II charging stations and one (1) DC Fast Charging station for public electric buses

Maine

1. Overview

- Efficiency Maine Trust, a quasi-state agency, offers a rebate program for the purchase of plug-in hybrid and EVs and funding for the purchase and installation of public charging equipment.
- Efficiency Maine Trust (EMT) also administers an enhanced rebate program for tribal and government vehicles and electric vehicle supply equipment (EVSE).

2. Purchasing Incentives

- EMT offers a $2,000 rebate for an electric vehicle and $1,000 for a plug-in hybrid vehicle for individuals and businesses. In addition, qualified low-income residents receive a $3,000 rebate for an electric vehicle and $1,500 for a plug-in hybrid vehicle.
- Government and tribal entities qualify for a $7,000 rebate for an electric vehicle and $2,000 rebate for a plug-in vehicle.
- Qualifying vehicles must not exceed a suggested retail price of $50,000.

3. Infrastructure Incentives

- Under the Volkswagen (VW) consent decree Maine has committed the full 15% which is $3.1 million allowed under Appendix D-2 for EVSE infrastructure.
- EMT is administering the Maine Electric Vehicle Charging Initiative using VW funds and committed $2.7 million to DC fast charging and $300,000 to Level II public EVSE.
- For Level II public EVSE, EMT awarded 80% of project costs up to $8,000 in northern Maine and 50% of project costs up to $5,000 for central and southern Maine.
- In addition, EMT has requested an additional $350K from the PUC to fund more Level II charging and develop outreach materials.

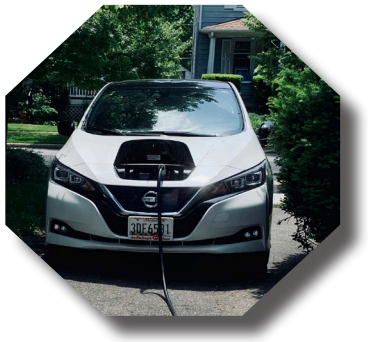
4. Outreach and Education Activities

- Participate in Drive Electric Maine, Maine Clean Communities, and Climate to Thrive organizations that organize education and outreach forums.
- EMT recently received a grant from Maine's Public Utility Commission for increasing consumer awareness of EVs and EVSE infrastructure. Specifically, EMT was funded to create and distribute 3 How to Guides with accompanying videos focused on the following:
  - Guidance on installing home charging stations
  - Guidance on best practices for charging at home and away
  - Instruction manual for prospective purchases of EV chargers for public, workplace and multi-unit development installations.
- In addition, EMT was also funded to organize and carry out 20 "show and tell" EV events at large employers to include educational and ride and drive components.

5. Additional Information (web site, etc.)

- https://www.efficiencymaine.com/at-work/electric-vehicle-supply-equipment-initiative/

Maryland



1. Overview

- Maryland offers a tax incentive for the purchase of plug-in hybrid and EVs and rebates for the purchase and installation of charging equipment (residential and commercial).
- Under a program from the Maryland Public Service Commission, utilities in Maryland offer incentives for the purchase and installation of charging equipment.

2. Purchasing Incentives

- Maryland offers a tax credit of up to $3,000 for the purchase of all-electric and plug-in hybrid vehicles.
- List Price under $63,000 eligible

3. Infrastructure Incentives

- State of Maryland offers a state tax credit of 40% of the cost of electric vehicle charging equipment and installation
  - Up to $700 for individuals,
  - Up to $4,000 for commercial businesses,
  - Up to $5,000 for retail service stations
- Alternative Fuel Infrastructure Program (AFIP): This program provides grants for the installation in the state of privately run and publicly accessible fast charger stations
  - Offered once a year
  - Covers up to 50% of the cost of purchase and installation
- PC44/Utilities
  - Residential: Utilities offer incentives for $300 for purchase and installation smart L2 charger
  - iMUDs: Utilities incentive covers up to 50% of the cost of charger and installation
  - Incentive capped at:
    - $5,000 per L2 (208 / 240V) charger unit
    - $15,000 per DC Fast Charge unit
    - Maximum award is $25,000 per site
- Public Charging Network: Utilities will build, own and operate a network of over 500 EV charging stations across the service areas in partnership with State, county and local municipal government to provide public access EV charging.

4. Outreach and Education Activities

- Attend Maryland events (state fair, car shows, local events) and distribute information r
- Surveys

5. Additional Information (web site, etc.)

- https://mde.maryland.gov/programs/Air/MobileSources/Pages/ZEV.aspx
- https://marylandev.org/
- https://www.bge.com/SmartEnergy/InnovationTechnology/Pages/ElectricVehicles.aspx
- Other state and organization webpages

Massachusetts

1. Overview

- Massachusetts Offers Rebates for Electric Vehicles (MOR-EV) program offers an incentive for the purchase or lease of plug-in hybrid and EVs (EVs) https://mor-ev.org/
- MassDEP's Massachusetts Electric Vehicle Incentive Program (MassEVIP)1 funds infrastructure and government fleet vehicles
- MA Department of Public Utilities oversees utility incentives for the purchase and installation of charging equipment and make-ready infrastructure

2. Purchasing Incentives

- Massachusetts MOR-EV offers a rebate to residents of up to $2,500 for purchase or lease of new EVs, including battery and fuel-cell EVs, and up to $1,500 for plug-in hybrid EVs; Purchase price under $50,000 eligible
- MassEVIP Fleets funds municipalities, state agencies and public universities and colleges for battery EV purchase ($7,500) or lease ($5,000) or plug-in hybrid purchase ($5,000) or lease ($3,000) or Zero Emission Electric Motorcycle purchase ($750)

3. Infrastructure Incentives

- MassEVIP: $11.3 million through VW for EV infrastructure, up to $50,000 per address
  - $2 million for Public Access Charging (PAC): up to 80% for hardware and installation
  - $1.5 million for Workplace Charging (WPC): up to 60% for hardware
  - $1.5 million for Multi-Unit Dwelling (MUD): up to 60% for hardware
  - Fleets: through non-VW funds, up to $7,500 per entity for hardware and installation
- Utility programs
  - Eversource to spend $45 million on make-ready infrastructure between 2018 and 2022 to support up to 72 direct current fast charging (DCFC) ports at 36 sites, and up to 3,500 Level 2 charging ports at 450 sites
  - 100% of installation cost, plus 100% of charging hardware cost in eligible EJ areas
  - National Grid to spend $25 million over 3 years for up to 80 DCFC ports at 20 sites, and up to 1,200 Level 2 charging ports at 120 sites
  - 100% of installation cost, plus 100% of charging hardware cost in eligible EJ areas and 50% or 75% of charging hardware cost in non-EJ areas at workplaces or MUDs

4. Outreach and Education Activities

- MASS DRIVE CLEAN is the nation's first state-sponsored EV test drive campaign. https://massdriveclean.org
- MassEVolves is a public/private partnership recognizing leaders in the transition to clean transportation in Massachusetts by providing information resources, sharing relevant experiences and mentoring others. https://www.massevolves.org/
- Drive Change. Drive Electric. is a partnership between auto manufacturers and northeast states to advance consumer awareness and adoption of EVs https://driveelectricus.com/

[1] https://www.mass.gov/guides/volkswagen-diesel-settlements-environmental-mitigation#-settlement-funded-grant-&-incentive-programs-

New Hampshire

1. Overview

- SB 517 passed by the NH State Legislature in 2018 resulted in the formation of the Electric Vehicle Charging Stations Infrastructure Commission to make recommendations on the development of zero emission vehicle technology and infrastructure in the state
- SB 575 passed by the NH State Legislature in 2018 establishes requirements for and restrictions on electric vehicle charging stations in the state
- New Hampshire committed the maximum 15 percent ($4.6 million) of the state's VW Environmental Mitigation Trust funding for the acquisition, installation, operation and maintenance of EVSE
- FHWA designated 12 Electric Vehicle corridors in New Hampshire through the state's participation in the FAST Act Alternative Fuel Corridor nomination program

2. Infrastructure Incentives

- New Hampshire Electric Coop (NHEC) – EVSE Rebates/Residential Off-Peak Charging Program – incentives for the installation of new EVSE and off-peak charging rate – incentive for the installation of up to two Level 2 or larger commercial charging stations
- NHEC – Rebates available to eligible NHEC members who purchase or lease a new or used electric vehicle or electric motorcycle

3. Utilities

- NH Public Utilities Commission (PUC) – Related to SB 575, PUC opened an Investigatory Docket, IR 20-004 – Investigation of Electric Vehicle Rate Design Standards, Electric Vehicle Time of Day Rates for Residential and Commercial Customers to examine these issues and obtain comment from interested stakeholders. Based on comments filed and technical sessions held, Staff filed recommendations on April 3rd with a 30-day comment period (until May 11th).

4. Outreach and Education Activities

- Granite State Clean Cities Coalition – Conducts EV Ride & Drives at local conferences and events such as NH/VT Bi-State EV Connector, Charge Forward EV Relay and National Drive Electric Week events
- Drive Change. Drive Electric – education campaign launched by a coalition of Northeast states and automakers to grow consumer awareness about the dozens of plug-in hybrid and battery EVs available

5. Additional Information (web site, etc.)

- NHEC Off-Peak Charging Rates: https://www.nhec.com/take-charge-save/
- NHEC Commercial EVSE: https://www.nhec.com/ev-commercial-charging/
- SB517: http://gencourt.state.nh.us/bill_Status/billText.aspx?sy=2018&id=1829&txtFormat=pdf&v=current
- SB575: http://gencourt.state.nh.us/bill_Status/billText.aspx?sy=2018&id=1828&txtFormat=pdf&v=current

New Jersey

1. Overview

- A new law signed in January 2020 outlines a comprehensive EV program for New Jersey for the coming years
  - Sets aggressive goals for NJ's network of public charging stations. Goals include 400 public fast charging stations at 200 locations along major highways and throughout NJ's communities by 2025,as well as goals for charging stations at multi-family homes and hotels.
  - Sets aggressive goals for electric vehicle sales. 330,000 EVs shall be registered in NJ by 2025, increasing to 2 million EVs by 2035. By 2040, 85% of all new light duty vehicles sold or leased in NJ shall be electric.
  - Requires NJ government to lead by example. Twenty-five percent of state-owned non-emergency light duty vehicles shall be electric by 2025, increasing to 100% by 2035. Ten percent of new bus purchases by NJ TRANSIT shall be zero emission buses by 2024, increasing to 50% by 2026 and 100% by 2032 and thereafter. Zero emission buses shall be prioritized for low-income, urban or environmental justice communities.
- The new law complements existing EV purchase and infrastructure incentives as well as outreach and education programs.

2. Purchasing Incentives

- New Jersey is offering up to $5000 "cash on the hood" for eligible EVs purchased after January 17, 2020 with MSRP less than $55,000.
- New Jersey remains the only state with a sales tax exemption for battery electric and fuel cell vehicles.
- NJDEP disbursed $24 million in VW grants for the electrification of medium and heavy-duty vehicles as well as port/airport equipment and intends to disburse the remaining $37 million for similar projects.
- The majority of Regional Greenhouse Gas Initiative auction proceeds will be spent on transportation electrification per the Strategic Funding Plan released on April 17, 2020.

3. Infrastructure Incentives

- NJDEP continues to offer grants for EV charging stations under the It Pay$ to Plug In program. To date, over $4 million has been disbursed with another $7.6 million anticipated from VW funding.

4. Outreach and Education Activities

- NJDEP is an active participant in the Drive Change. Drive Electric campaign and has several towns participating in Destination Electric, with several more expected to be added soon.
- NJDEP's mobile source program has an active social media presence (Facebook and Instagram) which is used to promote EVs.
- Numerous Ride & Drives were conducted in 2019 with more expected in 2020.
- NJDEP supports PlugStar, a new dealer training and certification program launched in early 2020 by PlugInAmerica which improves the ability of sales teams to articulate the benefit of EVs and the customer's experience when buying an electric vehicle.

5. Additional Information (web site, etc.)

- www.state.nj.us/dep/vw
- www.drivegreen.nj.gov

New York

1. Overview

- New York State adopted the California's zero emission vehicle (ZEV) program in 1990.[2] New York State has implemented a comprehensive set of programs and strategies to accelerate the adoption of EVs.

2. Electric Vehicle Purchase Incentives

- Drive Clean Rebate Program (NYSERDA): Point of sale rebate up to $2,000 for the purchase oflight-duty all-electric and plug-in hybrid vehicles3
- DEC Municipal ZEV Vehicle Rebate Program: Rebates of up to $5,000 for the purchase of municipal-owned PEVs4
- New York Truck Voucher incentive Program: Statewide, point of sale incentives for the purchase or lease of Class 3-8 electric and plug-in hybrid electric trucks and buses
- New York City Clean Trucks Program: Point of sale incentives for Class 4-8 electric and plug-in hybrid electric trucks located within NYC Industrial Business Zones
- Governor Cuomo has identified five public transit sponsors to electrify no less than 25 percent of their fleets by 2025; with a goal of 100 percent electrification by 2035. MTA to have all electric transit buses by 20405,6
- Alternative fuel and clean vehicle projects are eligible uses of Congestion Mitigation and Air Quality Improvement Program CMAQ funds and such projects have received awards in previous grant solicitations.
- Acquisition of 138 PHEVs for light duty NYSDOT fleet use

3. Electric Vehicle Charging Infrastructure

- Charge Ready NY: Statewide rebate program offering rebates up to $4,000 per port for Level 2 chargers for public, multi-unit dwelling, and employee charging applications7
- DEC Municipal ZEV Infrastructure: Rebate for up to 80% of the cost for municipalities to purchase and install Level 2 and DCFC EVSE or hydrogen filling stations for public use8
- EVolve New York (New York Power Authority): Statewide investment in EVSE, services, and consumer awareness of up to $250 million through 2025.9,10
- New York City Fast Charging Hubs: Installation of DCFC hubs in each of New York City's five boroughs[11]

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[2] https://www.dec.ny.gov/chemical/74086.html
[3] https://www.nyserda.ny.gov/All%20Programs/Programs/Drive%20Clean%20Rebate
[4] https://www.dec.ny.gov/docs/administration_pdf/2cv19fs.pdf
[5] https://www.dec.ny.gov/press/119918.html
[6] https://cleantechnica.com/2020/01/04/15-new-electric-articulated-buses-deployed-in-nyc-500-soon-to-serve-all-5-boroughs/
[7] https://www.nyserda.ny.gov/All%20Programs/Programs/ChargeNY/Charge%20Electric/Charging%20Station%20Programs/Charge%20Ready%20NY
[8] https://www.dec.ny.gov/docs/administration_pdf/2in19fs.pdf
[9] https://www.nypa.gov/innovation/programs/evolveny
[10] https://www.nypa.gov/innovation/programs/chargeny
[11] https://www1.nyc.gov/office-of-the-mayor/news/600-17/leading-charge-mayor-fast-charging-ev-hubs-all-5-boroughs

- New York State DOT Welcome Center DCFC[12, 13, 14]
- New York State Income Tax: Tax credit of up to $5,000 for the purchase and installation of an electric vehicle charging station.[15]
- Utility Programs include Residential time of use rates; commercial rate reduction and "per plug[16] rebates for new installation of publicly accessible DCFC; and pending Make Ready investments[17]
- Installation of Level 2 EV chargers for NYSDOT fleet usage with 29 operational and 10 more planned publications on guidance for siting and designing curbside EV chargers and EV charging plan for the I-90 Corridor18

4. Outreach and Education Activities, Additional Information

- EValuate New York reporting[19]
- New York EV Events (NYS Fair, NYC International Car Shows, Green Your Commute Day, Drive Electric Week)
- Best Practice Guides and Case Studies[20]
- NYS Thruway Green Pass Program: toll discounts[21]
- Port Authority Green Pass Program: toll discounts[22]
- Clean Pass: Eligible PEVs have access to Long Island Expressway High Occupancy Vehicle (LIE/HOV) lanes regardless of the number of occupants in the vehicle.[23]
- Participation in FHWA Alternative Fuels Corridor designation program

[12] https://www.dot.ny.gov/regional-offices/statewide-rest-areas/adirondackswelcomecenter
[13] https://www.dot.ny.gov/regional-offices/statewide-rest-areas/southerntierwelcomecenter
[14] https://www.dot.ny.gov/regional-offices/statewide-rest-areas/long-island
[15] https://www.tax.ny.gov/pit/credits/alt_fuels_elec_vehicles.htm
[16] https://jointutilitiesofny.org/utility-specific-pages/electric-vehicles/
[17] http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=18-e-0138&submit=Search
[18] https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Transportation-Reports
[19] https://atlaspolicy.com/rand/evaluateny/
[20] https://www.nyserda.ny.gov/All-Programs/Programs/ChargeNY/Charge-Electric/Best-Practices
[21] http://www.thruway.ny.gov/ezpass/greentag.html
[22] https://www.panynj.gov/bridges-tunnels/en/tolls.html
[23] https://www.dot.ny.gov/programs/clean-pass

Pennsylvania

1. Overview

- Pennsylvania offers grant and rebate funding via the Driving PA Forward initiative, for the replacement of older fossil fuel commercial and industrial vehicles, with equivalent electric vehicles (EV), and the installation of EV charging and electric cargo handling equipment.
- Drive Electric PA Coalition established in 2016 to promote the use of EVs among business owners, local governments, and private citizens.
- PA Electric Vehicle Roadmap outlines approaches to expanding EV markets and charging infrastructure in PA and promotes benefits of transitioning vehicle fleets to electric.
- Pennsylvania offers competitive grant funding via the Alternative Fuels Incentive Grant (AFIG) to incentivize the transition of fleets to alternative fuel vehicles, including EVs, and electric vehicle supply equipment (EVSE).

2. Purchasing Incentives

- Financial incentives for the purchase of electric, on-road vehicles as well as electric cargo and freight handling equipment. Funds available through various grant and rebate programs. *Note: EV funding is for vehicle replacement projects only (transition to EV).
  - Class 4-7 On-Road Rebate: Up to 75% reimbursement for government project; Up to 40% reimbursement for non-government project costs;
  - Class 8 Truck and Transit Grant: Up to 90% reimbursement for government project costs; up to 75% reimbursement for non-government project costs;
  - Electric Cargo Handling Equipment Grant: Up to 60% reimbursement for government project costs; up to 40% reimbursement for non-government project costs;
  - Marine and Rail Freight Equipment Grant: Up to 80% reimbursement for government project costs; up to 75% reimbursement for non-government project costs.
  - AFIG offers between $3 to $5 million per year to incentivize fleet transitions (class 1-8) to alternative fuels via a competitive grant program by providing the incremental cost to purchase new alternative fuel vehicles, which includes EVs.

3. Infrastructure Incentives

- Financial incentives for EV and electric equipment charging equipment installation projects.
  - Ocean-Going Vessel Shorepower Grant: Up to 75% reimbursement for government projects; up to 25% reimbursement for non-government projects;
  - DC Fast EV and Hydrogen Fuel Cell Charging Equipment Grant: Up to 75% of project costs or $500,000 max. reimbursement per individual applicant.
  - Level 2 EV Charging Equipment Rebate:
    - Up to $4,500 per plug or 90% reimbursement for government project costs;
    - Up to $4,500 per plug or 70% reimbursement for non-government project costs. (Max. reimbursement amounts are for “Public-Use” plugs).
  - AFIG funds both fleet refueling for single-entity fleets of 10 or more EVs and workplace and home-based refueling at the home location or base of operation.

4. Outreach and Education Activities

- Frequent funding program updates posted to the PA Bulletin. Grant and rebate awards posted regularly on Driving PA Forward website.
- Webinars provided for each funding program.
- Telephone and written outreach to relevant industry sectors by Program staff, as needed.

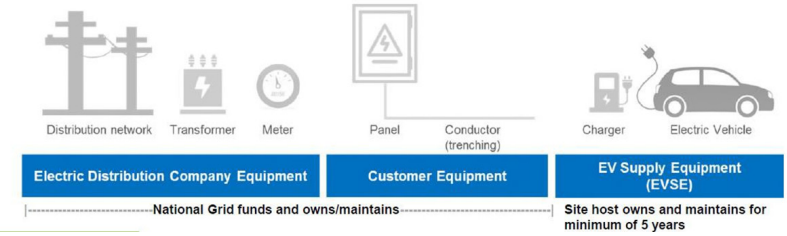
5. Additional Information (web site, etc.)

- http://www.depgis.state.pa.us/drivingpaforward/https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/State-Energy-Plan/Pages/Drive-Electric-PA-Coalition.aspx
- http://files.dep.state.pa.us/Energy/OfficeofPollutionPrevention/StateEnergyProgram/PAEVRoadmap.pdf.
- AFIG Guidelines, can be found online at: https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Alternative-Fuels-Incentive-Grant/Pages/default.aspx.

Rhode Island

1. National Grid's RI Electric Transportation Program

- With funding from the RI Public Utilities Commission, National Grid developed an EV Charging Infrastructure Program to assist with the installation and costs of EVSE's.
- For approved projects, National Grid funds 100% of the costs related to providing electric service to EVSE. In addition, National Grid provides a rebate for charging stations to be used by the business/establishment installing the EVSE.
- National Grid will own and maintain the electric service to the charging stations. In return, the site host must install, own, and maintain all charging stations, pay energy costs and station network/service fees for a minimum of 5 years. Site hosts must also share station usage data with National Grid.



Level II EVSE Rebates (percentage of total costs)	DCFC EVSE Rebates (percentage of total costs)
Workplace, Public Transit Stations, Gov't LD Fleet,Corporate LD Fleet – 50%	Public DCFC – 0%
MUDs – 75%	Rideshare Company Charging Hub – 25%
Income Eligible Community Sites – 100%	Public Transit Buses, Other HD/DCFC (port/airport) – 50%
	Municipal School Buses – 75%

- Qualified Equipment Lists are available online to determine what EVSE National Grid will provide rebates for. Approved EV vendors for Level II and DCFC are: ChargePoint, EV Connect, EV-Box, Greenlots, and EVgo Services.
- DCFC Distribution Demand Discount
  - Reduced operating costs for publicly accessible DCFC. If a business/establishment owns a publicly accessible DCFC, National Grid will offer a discount on electric bills. This applies to new and existing public DCFC. Discount available on a first come, first serve basis.
- Off-peak Charging Rebates for Residential Customers
  - Off-peak charging for residents 9pm-1pm
  - Summer (June-September): 6 cents/kwh | All other months: 4 cents/kwh
  - Residents save money by charging their EV when electricity demand is low.
- SmartCharge RI
  - 3-year pilot ending August 31st, 2021. Earn rewards with National Grid, in return they will study your charging behavior as an EV owner.

For more information about the National Grid's program, visit: https://www.nationalgridus.com/RI-Business/Energy-Saving-Programs/Electric-Vehicle-Charging-Station-Program

2. For other electrification programs see VW Activities – Rhode Island.

Vermont

1. Overview

- Vermont is offering a statewide incentive ($1,500 to $5,000) for the purchase or lease of new plug-in EVs.
- Under Vermont's Renewable Energy Standard Energy Transformation (Tier III) obligations, the state electric distribution utilities are offering customers who purchase/lease EVs a variety of incentives.

2. Purchasing Incentives

- The Vermont Legislature has authorized $1.1 million in EV incentives to Vermont residents.
  - Eligible residents include those with household incomes at or below 160% of Vermont's median household income and lower income households qualify for a higher incentive.

Vehicle Type	Incentive for Medium Household Income ($96,122 or less)	Incentive for Lower Income Household
Plug-in Hybrid	$1,500	
All-Electric	$2,500	

  - Incentives are available for plug-in EVs sold/leased as new with a base MSRP of $40,000 or less.

3. Infrastructure Incentives

- Under Vermont's Renewable Energy Standard Energy Transformation (Tier III) obligations, the state electric distribution utilities are offering customers who purchase/lease EVs a variety of incentives such as rebates, bill credits, discounted rate for EV charging, pro viding up to $40,000 toward the electrical interconnection of a DC fast charger, and free level 2 chargers.

4. Outreach and Education Activities

- Vermont's partner, Drive Electric Vermont, is a statewide coalition of policy makers, industry leaders, and citizens dedicated to promoting the spread of electric transportation in the State. Educational events are hosted around Vermont.

5. Additional Information (web site, etc.)

- Vermont ZEV Program: https://dec.vermont.gov/air-quality/mobile-sources/zev
- Purchase Incentives: https://www.driveelectricvt.com/why-go-electric/purchase-incentives
- Infrastructure Incentives: https://www.driveelectricvt.com/why-go-electric/purchase-incentives#utility and https://greenmountainpower.com/product/charge-fast/
- Outreach and Education: https://www.driveelectricvt.com/

Virginia

1. **Infrastructure Incentives**
    - A Virginia electric investor owned utility (IOU) is launching a "Smart Charging Infrastructure Pilot Program" as part of its Grid Transformation Plan required by the "Grid Transformation and Security Act."
2. **Additional resources:**
    - https://www.dominionenergy.com/company/electric-projects/grid-transformation