



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**
DIVISION OF AIR QUALITY
STATE STREET COMMONS
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September 8, 2020

PM Advance
U. S. Environmental Protection Agency
c/o Erin Malone
1650 Arch Street, 3AP30
Philadelphia, PA 19103-2029

Dear Ms. Malone:

I am pleased to submit the State of Delaware's *Year 4 Summary and Year 5 Plan* for the U. S. Environmental Protection Agency's (EPA) "PM Advance" program. The Delaware Department of Natural Resources and Environmental Control, Division of Air Quality (DAQ) is pleased to continue this collaborative and voluntary effort between DAQ, EPA and stakeholders, in order to maintain Delaware's fine particulate (PM_{2.5}) attainment status under the current National Ambient Air Quality Standards (NAAQS), as well as any new PM_{2.5} NAAQS in the future.

The effective date of Delaware's original *Path Forward* (the Plan) was September 5, 2015, which began "Year 1" of a 5-year Plan. As part of the 5-year Plan, DAQ will report annually to EPA on the programs contained within this document, as well as new programs developed during each year and anticipated in the subsequent year. The attached report summarizes activities through December 31, 2019 and identifies projects and activities anticipated to take place in 2020.

Please feel free to contact me or Shane Cone, (302) 323-4542, if you have any questions concerning the attached report.

Sincerely,

A handwritten signature in blue ink that reads "David Fees".

David F. Fees, P.E.
Director

Attachment

Cc: Valerie Gray, DNREC
Rena Held, DNREC
Shane Cone, DNREC

**Delaware Particulate Matter (PM)
Advance Program**

Year 4 Summary & Year 5 Plan



**Delaware Department of Natural Resources
and Environmental Control**

Division of Air Quality

September 2020

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Section 1 Introduction

In January of 2013, the United States Environmental Protection Agency (EPA) announced the Particulate Matter (PM) Advance program, which continues and expands the U.S. EPA's cooperative work with states, tribes, and local governments to reduce air pollution. PM Advance is a collaborative and voluntary effort to encourage fine particulate matter (PM_{2.5}) attainment or maintenance areas to reduce emissions of PM_{2.5} and its precursors, so they can continue to meet both current and future National Ambient Air Quality Standards (NAAQS) for PM_{2.5}. PM Advance encourages the use of local strategies to reduce PM_{2.5} and its precursors, with results expected to:

- help ensure continued health protection over the long term
- provide state, tribal, and local governments with a margin against potential future violations of the PM_{2.5} NAAQS
- better position an area to achieve air quality concentrations that enable it to avoid a nonattainment designation with respect to any future revised NAAQS
- allow for greater ability to choose from control measures and programs that make the most sense for the area and that are cost-effective, and
- result in multi-pollutant benefits; for example, reductions of nitrogen oxides can lead to lower ambient fine particulate matter levels as well as lower ambient ozone levels, and energy efficiency programs can reduce greenhouse gases.

On July 30, 2013 the State of Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Air Quality (DAQ), sent a letter to EPA requesting acceptance of Delaware into the PM Advance program. EPA responded with a letter to Delaware on August 13, 2013 accepting Kent and Sussex Counties into the Advance program, but not New Castle County, because at that time New Castle County was designated as nonattainment under the 1997 and 2006 PM_{2.5} National Ambient Air Quality Standards (NAAQS).

On August 5, 2014, EPA finalized rulemaking that re-designated New Castle County as attaining the 1997 and 2006 PM_{2.5} NAAQS, with an effective date of September 4, 2014.¹ Consequently, the DAQ received a letter from EPA on September 5, 2014 that included New Castle County, and thus *all* of Delaware, into the PM Advance program. Furthermore, EPA designated all of Delaware as attainment for the 2012 annual PM_{2.5} NAAQS on December 18, 2014.

On September 2, 2015, the DAQ submitted the "Path Forward Plan"² to EPA Region 3, which provided the following:

- The motivations for Delaware's participation in the PM Advance program,
- The status of ambient air quality in Delaware relative to the current daily and annual fine particulate NAAQS,
- The sources and magnitude of emissions of fine particulate matter and its precursors,
- Existing and on-going efforts that contribute to the reduction of PM emissions, and
- Projects planned for Year 1 of the program.

¹ 79 Federal Register 45350

² <http://www.dnrec.delaware.gov/Air/Documents/PM%20Advance/Path%20Forward%20Plan.pdf>

Delaware's participation in the PM Advance program began in 2015 and is anticipated to end in 2020. Delaware may opt to renew or discontinue its participation post-2020. This report summarizes the projects and activities from the fourth year of the program and identifies projects and activities planned for the fifth year.

Section 2 Year 4 Projects, Control Measures, and Activities

The following sections provide information on projects and measures initiated or completed in the fourth year of the PM Advance program. The projects implemented in the fourth year are contributing to the reduction of primary PM_{2.5} and its precursors, as well as reducing ozone precursors (New Castle County is nonattainment for the 2015 8-hr ozone standard).

2.1 PM Advance Webpage

Delaware's PM Advance webpage includes information about the PM Advance Program, copies of Delaware's annual PM Advance Reports, and basic information and links related to reduction of PM emissions. The webpage is located at <http://www.dnrec.delaware.gov/Air/Pages/PM-Advance.aspx>.

2.2 Diesel Emission Reduction Act Projects

In 2019, DAQ completed several Diesel Emission Reduction Act (DERA) projects³, school bus replacements, as detailed below. Air pollution from diesel vehicles has health implications for everyone, but children are more susceptible because they breathe more air per pound of body weight than do adults. Diesel exhaust from school buses contains significant levels of fine particulate matter. Children riding older school buses may be exposed to higher levels of these harmful diesel pollutants.

The DAQ identified and replaced 31 DERA school buses for 2019 with the Delaware Department of Education in the following school districts:

- Brandywine – Replaced six existing model Year 2003-2007 diesel school buses with new, cleaner propane buses.
- Capital – Replaced five existing model Year 2000-2003 diesel school buses with new, cleaner propane buses.
- Christina – Replaced thirteen existing model Year 1999-2005 diesel school buses with new, cleaner diesel buses.
- Red Clay – Replaced six existing model Year 2003-2006 diesel school buses with new, cleaner propane buses.
- Woodbridge – Replaced one existing model Year 2005 diesel school bus with a new, clean propane bus.

³ Federal Fiscal Year 2019 DERA Grant.

The entire replacement project cost \$2,771,733.00. DERA grant funds and Volkswagen Environmental Mitigation Trust Funds covered 25% of the project costs, \$670,592.25 while the Department of Education paid the remaining cost share, \$2,101,140.75. The estimated lifetime emission reductions for the 31 school buses in short tons of NO_x and PM_{2.5} is 8.204 and 0.0611, respectively.

2.3 Adopt/Amend Air Regulations

Delaware remains in non-attainment of federal ground-level ozone requirements and volatile organic compounds (VOC) emissions contribute to the formation of ozone. Since VOC is also a precursor of PM_{2.5}, VOC reductions obtained from ozone control measures will assist in meeting the goals of the PM Advance Plan. In addition, SO₂ is also a precursor of PM_{2.5}. The sections below summarize activities related to VOC and SO₂ regulations.

2.3.1 Solvent Cleaning and Drying

Delaware based its Solvent Cleaning and Drying Regulation, 7 DE Admin Code 1124 - Control of Volatile Organic Compound Emissions, Section 33.0, on the 2001 Ozone Transport Commission (OTC) Model Rule for Solvent Cleaning. In 2012, OTC revised the 2001 model rule. The 2012 OTC Model Rule determined that a VOC emission reduction of 89 tons per day would result in the Ozone Transport Region (OTR) in 2014. Based on population, a VOC emission reduction of about one ton per day will result in Delaware upon adopting the OTC rule.

Delaware has begun the regulatory development process to amend 7 DE Admin. Code 1124 to incorporate the 2012 OTC model rule revisions. A final regulation is expected in 2020.

2.3.2 Sandblasting

In DE Admin. Code 1102 – “Permits”, sandblasting qualified for an exemption from the requirements to have an air quality permit in Delaware. The DAQ completed the regulation revision process to remove the permit exemption for outdoor dry abrasive blasting of certain water tanks.

Effective January 11, 2019, a Source Category Permit is required for the removal of lead-containing exterior coatings from outdoor water tanks by dry abrasive blasting. DNREC has developed permit requirements that will require that dry abrasive blasting operations for tanks with lead-containing exterior coatings have sufficient containment measures, to prevent the abrasive material from traveling beyond the property line where the operation is being conducted. Permitting of this activity will lead to a reduction of particulate and lead emissions.

In 2019, Delaware received 2 applications, 1 notification, and issued 2 permits under the new sandblasting source category permit.

More information about the Source Category Permit can be found at:

<https://dnrec.alpha.delaware.gov/air/permitting/sandblasting/>

2.3.3 Stage II Decommissioning

Stage II vapor recovery is technology that prevents gasoline vapors from escaping into the air during refueling. This process takes the vapors normally emitted directly into the atmosphere when pumping gas and recycles them back into the fuel storage tanks, preventing them from polluting the air. For the same vapor-control purpose, since 1998, new passenger cars, light-duty trucks, and most heavy-duty gasoline powered vehicles have been equipped with onboard refueling vapor recovery (ORVR) systems. Since ORVR controls are now widespread in use, EPA has allowed states to phase-out Stage II vapor recovery systems.

In addition, the ORVR system and the vacuum-assist Stage II system, such as those mainly installed in Delaware's gasoline stations, are incompatible. Such an incompatibility causes increased vapor emissions when refueling an ORVR-equipped vehicle at a Stage II-equipped station.

DAQ began the regulatory development process in 2018 to amend pertinent sections in 7 DE Admin. Code 1124 to allow decommissioning of Stage II vapor recovery systems in Delaware along with incorporating improved technology, inspections and testing requirements for a well-controlled Stage I system to ensure gas stations remain vapor tight. In 2019, DAQ worked with the regulated community and went through several iterations of draft language for the proposed regulation.

2.3.4 I/M Program Updates

DAQ is in the process of updating two regulations related to Delaware's Inspection and Maintenance (I/M) Program:

- 7 DE Admin. Code 1126 – Motor Vehicle Emissions Inspection Program
- 7 DE Admin. Code 1131 – Low Enhanced Inspection and Maintenance Program

The purpose of these actions is to amend regulations for vehicles registered in Delaware in order to address the emission increases resulting from legislative action to lengthen the new car exemption from emissions testing from five years to seven. Most significantly, DAQ is proposing to require On-Board Diagnostic (OBD) emissions testing for 1996 and newer vehicles registered in Sussex County.

DAQ has begun the regulatory development process to amend 7 DE Admin. Code 1126 and 1131. Overall, the proposed changes will strengthen Delaware's current I/M program, with a net reduction in emissions expected.

2.4 Mobile Sources and Measures

2.4.1 California ZEV requirements

During the first year of the PM Advance program DAQ performed preliminary analyses to determine if Delaware should adopt the California Air Resources Board (CARB) Zero Emission Vehicle program. The DAQ continues to evaluate the feasibility of adopting the ZEV program.

2.4.2 Evaluate Inspection and Maintenance (I/M) Program for Diesel Trucks

DAQ has held discussions with the Division of Motor Vehicles to consider inclusion of medium and heavy-duty diesel vehicles in the I/M program. The DAQ continues to evaluate the feasibility of a medium and heavy-duty diesel I/M program.

2.4.3 SmartWay® Program

The [SmartWay®](#) Program is a public-private initiative between EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both greenhouse gas emissions and air pollution) of the goods movement supply chains.

EPA helps SmartWay® Partners move more goods, more miles with lower emissions and less energy. SmartWay® Affiliates are organizations that are helping to spread the word about sustainable supply chain transportation efforts and growing the SmartWay Program.

In May 2016, the Delaware Division of Air Quality became a SmartWay® Affiliate. Delaware currently has two affiliates (DAQ and the Produce Marketing Association) and six partners. DAQ has been unable to develop the program further because of limited staff resources.

2.4.4 Roadside Monitoring

The Clean Air Act Amendments of 1990 require Enhanced I/M program areas to supplement emissions testing at stations with on-road testing. On-road testing is defined as testing of vehicles for conditions impacting the emission of Hydrocarbons (HC), Carbon Monoxide (CO), Nitrogen Oxides (NO_x) and/or Carbon Dioxide (CO₂) on any road or roadside in the nonattainment area or the I/M program area. DAQ has implemented a multi-year remote sensing design (RSD) study to be completed as a supplemental emission measurement on at least 0.5% of vehicles subject to I/M testing.

During September 2019, 16,830 RSD emission measurements from on-road vehicles in Delaware were analyzed. The analysis found that average emissions for vehicles registered in the Enhanced I/M area (New Castle and Kent Counties), were lower for HC and NO_x than for vehicles registered in the Basic I/M area (Sussex County).

2.5 DAQ's Moveable Monitoring Platform

In September of 2016, the Department of Natural Resources and Environmental Control's Division of Air Quality launched the Eden Park Project using the Moveable Monitoring Platform (MMP) to investigate air quality for the community of Eden Park. Eden Park is a neighborhood south of Wilmington, Delaware. The community is surrounded by industrial neighbors, including the Port of Wilmington, several asphalt plants, material storage and processing facilities and various other facilities. The Eden Park community specifically described visible "dust" as a cause for concern and questioned what was in the dust. In 2016, Department staff approached the Eden Park community about conducting an air quality study in their community and received support from the local community. The project investigated the air quality from September 2016 through January 2019 with a focus on large particles, referred to as Total Suspended Particulate (TSP) or simply as "dust", to address these concerns.

Air pollution levels monitored in the community were found to be below state and federal air quality standards, with the exception of dust⁴. Air quality in Eden Park is very similar to air quality found at other state monitoring locations, particularly in the nearby City of Wilmington. However, the amount of dust was confirmed to be higher than seen at other sites. The amount of dust was above state standards on several occasions.

A dust distribution study was also conducted from October 2018 to February 2019. To determine the distribution of dust along the Route 9 Corridor south of Wilmington, a total of three sites were selected for TSP sampling. In addition, at the MMP Monitoring Site, Department staff investigated where the dust may be coming from and what was in the dust. In October 2018 a study was initiated using a near real-time metals monitor for metals analysis of PM₁₀ in Eden Park. This project included collection of hourly metals data using a Cooper Environmental Services Xact 625i instrument (Xact) to complement the 24-hr integrated monitoring. A more detailed description of the monitoring study results and dust mitigation measures that the Department plans to pursue will be found in the project's final report, when published.

2.6 Transportation and Development Planning

The Planning Branch of the DAQ was very active in participating in work groups and committees associated with transportation and development planning. DAQ participation provides input and recommendations on air quality and environmental health concerns that currently exist in a community or that may result from a proposed project. Some of DAQ's contributions to development planning efforts are highlighted here.

2.6.1 Transportation Corridor Master Plans

The DAQ provided extensive comments to WILMAPCO, the largest metropolitan planning organization in Delaware, regarding their proposed Route 9 Corridor Master Plan. Route 9 passes through communities directly south of downtown Wilmington. These communities are near the Port of Wilmington and other heavy industry. Truck traffic serving these industries travel along

⁴ There are no Federal Air Quality Standards for TSP/dust. Delaware has State Air Quality Standards for TSP/dust: Primary = $\geq 260 \mu\text{g}/\text{m}^3$ and Secondary = $\geq 150 \mu\text{g}/\text{m}^3$.

Route 9 and through the communities, contributing to diesel fine particulate matter and road dust emissions.

In September 2017, WILMAPCO initiated the Route 9 corridor transportation and land use master plan monitoring committee to help guide recommendations of the master plan. The Department has participated in the monthly Monitoring Committee meetings. Other participants include local civic and community leaders, and state and county governmental agency representatives.

2.6.2 Volkswagen Settlement

In response to the Volkswagen Settlement, the Division of Air Quality has developed a [Volkswagen Environmental Mitigation Plan](#) to accept and distribute funds to eligible projects. The plan is focused on the eligible types of mitigation actions that can produce the greatest air quality benefit in terms of NOx emission reductions, reduce public exposure, and promote clean vehicle technologies.

The state has developed a three-phase mitigation plan between 2018 and 2021, with about one third of the funds used in each phase.

In **Phase 1** (2018/2019), DNREC will replace old diesel school buses with new cleaner school buses.

In **Phase 2** (2019/2020), DNREC will release a competitive request for proposals (RFP) for projects in all categories. Projects will be determined by eligibility criteria set forth in the plan.

In **Phase 3** (2020/2021), DNREC will allocate 15% of the funds for electric vehicle supply equipment.

Under Phase 2, The Department awarded funds to replace ten (10) diesel solid waste collection haulers as compressed natural gas (CNG) with Waste Management, Inc. of Delaware. These units will primarily be used in New Castle and Sussex County. The cost share will be provided through Diesel Emission Reduction Act (DERA) grant and VW funds. The lifetime emission reductions (in short tons) for the project are expected to be 10.271 NOx and 0.538 PM_{2.5}. The Department also awarded funds to replace one (1) diesel school bus as an electric bus with The Teen Warehouse, Inc. The Teen Warehouse, Inc. is located in the City of Wilmington in the Riverside community. The lifetime emission reductions (in short tons) for the project are expected to be 0.484 NOx and 0.040 PM_{2.5}.

Under Phase 1 Year 1, DAQ replaced 26 school bus in 2019 with the Department of Education, utilizing VW funds:

- Brandywine – Replaced ten existing model Year 2001-2007 diesel school buses with new, cleaner propane buses.
- Cape Henlopen – Replaced five existing model year 2002-2006 diesel school buses with new, cleaner diesel buses.

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- Capital – Replaced four existing model Year 2000-2001 diesel school buses with new, cleaner propane buses.
- Colonial – Replaced four existing model Year 2003-2005 diesel school buses with new, cleaner diesel buses.
- Red Clay – Replaced three existing model Year 2000-2001 diesel school buses with new, cleaner propane buses.

The entire replacement project cost \$2,403,484.00. VW Environmental Mitigation Trust funds covered 30% of the project costs, \$721,045.20, while the Department of Education paid the remaining cost share, \$1,682,438.80.

2.6.3 Other Multi-modal Transportation Initiatives

In the past year, the Division of Air Quality has participated in the following initiatives:

- Participated in Dover/Kent County Metropolitan Planning Organization's Technical Advisory Committee.
- Participated on the following WILMAPCO Committees:
 - Technical Advisory Committee
 - Air Quality Subcommittee
 - Congestion Management Subcommittee
- Assisted in the implementation of more alternative fueling stations, electric vehicle supply equipment, and electric/alternatively-fueled fleet vehicles; in partnership with the Division of Climate, Coastal & Energy (DCCE), the Office of Management and Budget, and DelDOT.

2.7 Other Delaware Emission Reduction Projects, Control Measures, and Activities

2.7.1 Division of Climate, Coastal & Energy (DCCE) - DNREC

Renewable Energy

- [Green Energy Program](#) – Provides rebates for residential and small-scale renewable energy systems. In 2019, DNREC awarded over \$668,000 in grant funding to the following projects: 192 solar photovoltaics, 20 geothermal heat pumps, and 2 solar thermal.
- [Renewable Energy Portfolio Standards](#) – The state has mandates that Delaware's utilities derive 25% of their energy portfolios from renewable sources by 2025.
- [Offshore Wind Power Working Group](#) – Identifies ways Delaware can benefit economically and environmentally from offshore wind power.
- [Delaware Renewable Energy Taskforce](#) – Established to provide recommendations on establishing renewable energy trading mechanisms and other structures to support the growth of renewable energy in Delaware.

Energy Efficiency

- [Delaware Energy Efficiency Advisory Council](#) – Helps reduce energy loss and cost by developing statewide programs to increase energy efficiency, reduce energy usage, and lower consumer energy costs.
- [The Delaware Energy Efficiency Investment Fund](#) – Helps commercial and industrial customers replace aging, inefficient equipment and systems with energy efficient alternatives. In 2019, DCCE funded 67 projects, for over \$1.25 million.
- [Weatherization Assistance Program](#) – Free program that helps homeowners and renters cut their energy bills by weatherproofing and improving the energy efficiency of their homes. In 2019, DCCE provided weatherization services to over 180 Delaware residents. This amounts to a projected gross annual electric savings of over 55,000 kWh.

Clean Fuel and Transportation Initiatives

- [Electric Vehicle Rebates](#) – Offers clean vehicle and charging station rebates. DNREC provided 865 rebates for alternative fuel vehicles purchased in 2019, for a total of \$2,487,000. Individual rebates ranged from \$1,000 - \$3,500.
- [Propane and Natural Gas Vehicles](#) – Delaware offers rebates for clean, bi-fuel and heavy-duty vehicle rebates. Although Delaware still offers these rebates, no rebates were claimed in the 2019 year for propane or natural gas vehicles.
- [Delaware Clean Cities Coalition](#) – Helps Delaware residents, businesses, and fleet operators work together to reduce the use of petroleum, develop regional economic opportunities, and improve air quality.
- [Transportation and Climate Initiative](#) – Regional collaboration of 12 Northeast and Mid-Atlantic jurisdictions that seeks to develop the clean energy economy, improve transportation, and reduce carbon emissions in the transportation sector.

Green Infrastructure

- [Green Infrastructure Primer](#) – Provides an introduction to green infrastructure projects and their benefits, as well as information on selecting, building, and maintaining them.

2.7.2 DelDOT

- Routes 1, 13, and 113 were designated Alternative Fuel Corridor designations in 2018. The U.S. Department of Transportation establishes Alternative Fuel Corridors to support alternative-fueling stations, including electric, hydrogen, propane and natural gas fueling infrastructure at strategic locations along major national highways.
- Congestion Mitigation and Air Quality Improvement Program – This project is part of Delaware's Transportation Improvement Program (TIP). It supports completion of a statewide network of pedestrian and bicycle pathways, bicycle routes and pedestrian connections, and promotes travel by non-motorized modes for reduced congestion, active transportation choices, access to recreation, and reduced vehicle emissions.
- [Pedestrian Council](#) – Assists DelDOT with re-evaluation, implementation, and recommendations regarding the Statewide Pedestrian Action Plan and prioritization of pedestrian infrastructure improvements.
- [First State Trails and Pathways Initiative](#) – Public outreach for bicycling, walking, and providing safe and convenient ways to reach local work, shops, schools, recreational sites and transit.
- [RideShare](#) – Delaware Authority for Regional Transit (DART) - Aids commuters with finding and using alternative modes of transportation.

2.7.3 State of Delaware – Office of Management and Budget

- [Fleet Link](#) – Statewide commuter program for State employees. Vanpools operate on a statewide basis and provide a shared-cost alternative to commuting to work in privately owned vehicles.

2.7.4 Electric Utilities

Delmarva Power

- [Peak Energy Savings Credit](#) – Customers earn a credit off their bill for every kilowatt hour (kWh) they save below their baseline average energy use. Savings for 2019 were 797 MWh and 199 MW.
- [Delaware Energy Wise Rewards™ Program](#) – During the peak electricity demand times in the summer, Delmarva Power automatically cycles off and on participating central air conditioners and heat pumps to help reduce the region's demand for electricity. Customers earn a one-time installation credit and a choice of a programmable thermostat or outside switch and an annual participation credit. Savings for 2019 were 45.8 MWs.

Delaware Electric Cooperative (DEC)

- [Switch and Save](#) – When periods of peak demand occur, DEC automatically signals participating central air conditioning/heat pump cooling units to reduce consumption.
- [Beat the Peak](#) – Member-owners receive text alerts when DEC is approaching a period when the price for energy is expected to be high. Encourages voluntary energy-conservation measures. Customers can also sign up to have an in-home “Beat the Peak” indicator installed.
- [LED Light Discounts](#) – Member-owners can receive exclusive deals on energy efficient bulbs.
- LED Roadway Area Lighting – DEC is in the process of converting existing outdoor lighting fixtures to the more efficient, energy saving LED lighting.
- [Solar Grants](#) – Grants for home or business solar systems. In 2019, the DEC completed 237 solar installations with a combined capacity of 2,273 kW/DC. DEC provided \$287,000 in grants funding for member-owners installing solar systems in 2019.
- Geothermal Grants – Grants for home or business for installation of energy efficient geothermal HVAC systems. In 2019 DEC provided \$15,500 to 9 member-owners installing geothermal systems.
- Heat Pump Water Heater Grants – Grants for member-owners installing high efficient heat pump water heaters. DEC provides \$300 grants for members installing heat pump water heaters. In 2019 2 member-owners took advantage of the grants.
- [Variable Frequency Drives Program](#) - DEC offers farmers an energy efficient way to irrigate their crops. DEC expanded its irrigation grant program in 2012 to include funding for variable frequency drives (VFDs). By installing a VFD on an irrigation unit, farmers will be able to lower their energy consumption and save money. Through 2019, the program has converted 272 diesel motors to electric.
- [Beat the Peak With Nest](#) – DEC has partnered with Nest's Rush Hour Rewards Program to offer a new money-saving program to members. Members who install or who have already installed a Nest thermostat are eligible for the program. Members agree to allow DEC to adjust their thermostats a few degrees during summer Beat the Peak alerts. By the end of 2019 DEC had 717 thermostats enrolled in the program.
- [Beat the Peak With Electric Vehicles](#) – DEC is offering a billing credits for electric vehicle (EV) owners who do not use their EV chargers during Beat the Peak alerts. A WIFI signal is sent to the charger that regulates the flow of power during Beat the Peak alerts. By the end of 2019 a total of 31 electric vehicles were participating in this program.

DEC also initiated a new program in late 2019:

- Commercial EV Program - Availability is limited to those Members who have a commercial interest and wish to install at least two commercial type vehicle chargers on a property they own or lease. Each Member served under this Rider shall be provided 100% of the cost to upgrade and/or provide electric service to the commercial fleet location with a limitation of \$20,000 per location. If the cost is greater than the \$20,000 limit, the remaining cost will be split 50/50 as per the DEC tariff.

Delaware Municipal Electric Corporation (DEMEC)

- **Power Savers Business:** 23,112 kWh of savings in 2019. When the potential for a demand response event is found DEMEC uses sophisticated models to determine when customers should be asked to reduce the electric load. Forecasts are typically given about 24 hours in advance of an upcoming peak and preparations are made to notify customers that have registered to reduce their electric load by a certain amount. DEMEC uses a combination of municipal notification systems, contractor support, website and social media to notify business customers.
- **Power Savers (voluntary):** DEMEC sends out alerts to municipal customers through social media, municipal notification systems, and radio commercials on days that large increases in electric usage are expected. DEMEC encourages people to voluntarily avoid activities during certain hours in order to decrease energy consumption.
- **DEMEC Energy Efficiency Program:** 2,599,000 kWh of savings in 2019. DEMEC helps member communities and their residential and business customers use less energy and save money through a program that provides technical assistance and financial incentives. They offer multiple options, including advanced technical support and financial incentives.
 - **LED Markdown Program:** 5,709 LED bulbs sold through program in 2019.
 - **Appliance Rebates:** 88 appliances upgraded to more efficient appliances in 2019 including refrigerators, dehumidifiers, washer/dryers, and heat pump water heaters.
 - **Small Business Solutions:** incentives provided to small business customers, yielding 98,000 kWh of energy savings in 2019.
 - **Large Business Solutions:** incentives provided to large business customers, yielding 2,360,000 kWh of energy savings in 2019.
- **Municipal Green Energy Fund:** Program designed for DEMEC member communities to invest in and maintain renewable energy infrastructure and energy efficiency measures that reduce emissions and provide long-term energy savings. Customer grants are also given for residential solar and geothermal.
- **McKees Community Solar:** 230 kW solar facility located on a brownfield in the City of Newark designed to allow City of Newark electric customers the opportunity to invest in renewable energy and receive a discount on their electric rate.
- **Holiday LED Light Discount:** Coupon that discounts holiday LED lighting for all Delawareans. Promoted on social media, website, radio, and in local communities' customer service centers.
- **UD Wind Turbine Partnership:** DEMEC purchases 100% of the renewable energy credits (RECs) generated by the University of Delaware's 2 MW wind turbine located in their Lewes campus. In addition, DEMEC supports student research fellowships on wind energy in the University's College of Earth, Ocean, and Environment.
- **DEMEC Delaware Solar Development:** 26 MW of utility-owned solar generation has been installed in DEMEC member service territories, the latest being a 1.5 MW facility located in the Town of Smyrna in 2018. DEMEC is committed to helping its members

develop renewable energy systems in their communities, reducing emissions for years to come.

2.7.5 Delaware Sustainable Energy Utility (DESEU)

- In August 2018, Governor Carney signed Senate Bill 113, authorizing the creation of a Delaware Voluntary Property Assessed Clean Energy (D-PACE) program to establish a clean energy financing program for the installation of energy efficiency technologies and clean energy systems for qualifying commercial properties statewide. DESEU will serve as the administrator of the PACE program.
- In August 2019, New Castle County Council passed an ordinance to adopt Property Assessed Clean Energy (D-PACE) Financing for projects in New Castle County. This program establishes a clean energy financing program for the installation of energy efficiency technologies and clean energy systems for qualifying commercial properties. Each county in Delaware must adopt the program. The DESEU will serve as the statewide administrator of the D-PACE program. <https://www.delawarecpace.org/>
- [Energize Delaware](#) – Energy savings programs for Delaware’s homes, businesses, non-profits, farms and schools.
 - In 2019, Energize Delaware Programs resulted in \$2,384,403 in annual energy savings and 12,050 metric tons of annual emissions avoided (CO₂, SO₂ and NO_x).
 - The Low-Interest Revolving Loan Fund encourages the adoption and installation of end-use energy efficiency measures and customer-sited renewable generation and greenhouse gas reduction measures. The program resulted in installation of 1,684 kW capacity of solar PV systems in 2019.
 - In 2019, Energize Delaware received an ENERGY STAR Partner of the Year Award for Sustained Excellence in Efficiency Program Delivery. The award recognizes states, utilities, and other organizations for sponsoring energy efficiency programs to improve the efficiency of products, homes, and buildings within their community. The DESEU has received ENERGY STAR Awards for the past three years.
 - In 2019, Energize Delaware Launched the Home Energy Checkup and Counseling Program (HEC²). The program will bring energy-savings education and counseling to families most in need while also providing them with an energy efficiency checkup of their home and the installation of energy savings measures such as LED Lightbulbs and efficient flow shower heads and faucet aerators.

2.7.6 The Air Quality Partnership of Delaware

The mission of the Air Quality Partnership of Delaware (AQP), a public/private coalition of businesses, agencies, and individuals interested in clean air, is to raise awareness and inform Delawareans about practices that improve air quality and citizen health. AQP programs include:

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- Tropo – The AQP Mascot assembly program. Tropo helps raise awareness of air quality issues in a fun and memorable way through a school assembly program, activity booklet and mascot.
- Wilmington Earth and Arbor Day event – AQP is helping to coordinate Wilmington’s Earth and Arbor Day event and conducting a transportation safety rodeo in partnership with Safe Kids Delaware. The rodeo will include bicycle and pedestrian safety stations and air quality messaging.
- Air Quality Awareness Week – throughout the week leading up to Wilmington’s Earth Day event, alternative modes of transportation are promoted via social media and a selfie contest.
- Air Quality Champion Award – Nominations are solicited for a business taking measures to improve air quality. During Wilmington’s Earth and Arbor Day event, the winning business is awarded the Air Quality Champion plaque.
- Try it Days – throughout the year, the partnership holds several “Try it Days” to encourage the use of alternative modes by asking people to try a new mode of travel to work for just one day.

2.7.7 Delaware Transit Corporation

The Delaware Transit Corporation (DART) received 2.6 million dollars in grants from the Federal Transit Administration in 2019. In total, DTC has received \$5.6 million and plans to have 20 electric buses state-wide by the beginning of 2021. The state is already operating six electric buses in Kent County.

In addition, on January 31, 2019, Best Workplaces for Commuters recognized DART as one of 300 U.S.-based employers who meet the program’s National Standard of Excellence, by offering exceptional commuter benefits to employees.

2.7.8 Department of Education

The Department of Education’s Green Ribbons Schools program honors schools for their innovative efforts to reduce environmental impact and utility costs, improve health and wellness, and ensure effective sustainability education. In 2019, the Jefferson School in Georgetown, Delaware and the Caesar Rodney school district in Wyoming, Delaware were awarded the US Department of Education’s Green Ribbon Schools awards.

2.7.9 Green Building United

[Green Building United](#) provides grants, support, and resources to K-12 schools in the state of Delaware. This program helps schools achieve recognition in the U.S. Department of Education’s

green ribbon schools award. In 2019, the organization provided \$10,000 in mini grants to ten schools in the state of Delaware. All projects had a positive impact on the environment by reducing greenhouse gas emissions, saving energy, and helping cultivate a generation of good environmental stewards in K-12 students.

2.7.10 League of American Bicyclists

The League of American Bicyclists (LAB) has ranked Delaware as the sixth most bike friendly state in the US, up one place in the listing since last year. In addition, LAB recognized three communities (Lewes, Newark, and Dover) and two government entities (City of Newark and DelDOT) as bicycle friendly.

Section 3 Year 5 Planned Projects, Control Measures, and Activities

The following subsections provide information on new and ongoing measures that will provide additional emission reduction benefits to Delaware in 2020. These control measures will not only reduce primary PM_{2.5} and its precursors, but many of these measures will also reduce ozone precursors and help Delaware in reducing greenhouse gases.

3.1 Develop and Launch Wood Burning Webpages

DAQ developed draft webpages for residential wood burning in year 1 of the PM Advance program. DNREC has begun rolling out a new web page platform, which will provide a consistent look and feel across the Department. DAQ plans to launch webpages for residential wood burning using DNREC's new web page platform.

3.2 Adopt/Amend Air Regulations

In 2019, DAQ plans to pursue the following regulatory actions:

3.2.1 Solvent Degreasing

Work on the solvent degreasing regulation will continue with anticipated completion in 2020.

3.2.2 Stage II Decommissioning

A public hearing was held in January 2020 and the regulation was finalized in June 2020. The effective date of the regulation is July 11, 2020. Affected gas stations will be required to decommission Stage II vapor recovery systems by December 31, 2021 and install Stage I enhanced vapor recovery systems by December 31, 2025.

3.3 Mobile Sources and Measures

3.3.1 Idling Workgroup

DAQ plans to continue the Idling Workgroup in 2020.

3.3.2 SmartWay® Program

DAQ plans to develop and launch a webpage for the SmartWay® Program.

3.4 Transportation and Development Planning

The Planning Section of DAQ plans to continue to be very active in participating in work groups and committees associated with transportation and development planning. Some of DAQ's planned activities for Year 5 are listed below:

3.4.1 Review of Comprehensive Plans

The Division of Air Quality will continue to provide recommendations for proposed comprehensive plans in Delaware. The Cities of Wilmington, New Castle County, and Rehoboth Beach are currently updating their comprehensive plans.

3.4.2 Transportation Corridor Master Plans

WILMAPCO, DelDOT, and New Castle County are in the process of developing Master Plans for Southern New Castle County and Concord Pike.

The objective of the Southern New Castle County master plan is to inform development and preservation decisions, recommended physical improvements and governmental policies regarding transportation and land use for Southern New Castle County, as implemented through the New Castle County Comprehensive Plan.

3.4.3 Volkswagen Settlement

In January 2019, DNREC published a request for proposals (RFP) for VW Mitigation Trust Fund Projects that reduce nitrogen oxide and other emissions, are cost-effective, and provide environmental benefits to communities disproportionately impacted by air pollution.

The DAQ has identified 24 school buses for replacement in 2020 with the Department of Education under Phase 1 Year 2:

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- Cape Henlopen – Replace one existing model year 2007 diesel school bus with a new, cleaner diesel school bus.
- Capital – Replace one existing model year 2008 diesel school bus with a new, cleaner diesel school bus.
- Christina – Replace nineteen existing model year 2002-2008 diesel school buses with new, cleaner diesel buses.
- Colonial – Replace two existing model year 2005-2008 diesel school buses with new, cleaner diesel buses.
- Red Clay – Replace one existing model year 2000 diesel school bus with a new, cleaner propane school bus.

DNREC will publish a request for proposals (RFP) in the first quarter of 2020 for Volkswagen (VW) Mitigation Trust Fund Projects that reduce nitrogen oxide and other emissions, are cost-effective, and provide environmental benefits to communities disproportionately impacted by air pollution under Phase 3. DNREC plans to award approximately \$4.5 million in 2020 in the following areas:

- Up to \$2 million for the replacement of older diesel school buses as propane or clean diesel to private transportation providers under contract with a Delaware school district.
- Up to \$2 million for the replacement of vehicles and equipment under Appendix D-2 of the Volkswagen Environmental Mitigation Trust Fund Agreement (8 categories).
- Up to \$500,000 for the replacement of eligible Department owned equipment.

3.4.4 Other Multi-modal Transportation Initiatives

In Year 5, the DAQ anticipates participating in the following initiatives:

- Dover/Kent County Metropolitan Planning Organization's Technical Advisory Committee.
- WILMAPCO Committee meetings
 - Technical Advisory Committee
 - Air Quality Subcommittee
 - Congestion Management Subcommittee
- Assist in the implementation of more alternative fueling stations, Electric Vehicle Supply Equipment, and electric/alternatively-fueled fleet vehicles; in partnership with DCCE, the Office of Management and Budget, and DelDOT.

3.4.5 DERA

The DAQ is partnering with the Division of Fish and Wildlife (DFW) in 2020 to replace a department-owned excavator. The existing excavator will be replaced with a newer, cleaner excavator, powered by an engine certified to the 2019 model year or newer standards for heavy-duty engines.

3.5 NATA Data

DAQ will continue using the most recent NATA data to help identify areas with elevated PM emissions and to assist in prioritizing local emission reduction efforts in Year 5 and beyond.

3.6 Roadside Monitoring

DAQ plans to continue the multi-year remote sensing design (RSD) study in 2020.

Section 4 Year 5 Planned Stakeholder Engagement

Stakeholder engagement and collaboration is an important aspect of accomplishing PM_{2.5} emission reductions through voluntary and regulatory measure under the PM Advance program. DAQ plans to complete the following activities in Year 5.

- DAQ has developed a PM Advance website to inform stakeholders and the public of the PM Advance program. The website will be maintained and updated, as new projects are developed and existing projects progress. The website will also serve as a resource for the citizens of Delaware to understand the adverse health effects of fine particulate matter, and to know the sources of PM_{2.5} that impact Delaware air quality.
- Engage with DelDOT and the metropolitan planning organizations within Delaware to identify PM emission reducing projects in the context of transportation planning.
- Meet with health and environmental advocacy groups throughout the state to obtain concerns they have regarding emissions of and exposure to PM_{2.5} in Delaware. Solicit ideas on approaches that DAQ could implement to reduce emissions and exposure.
- Inform health and environmental advocacy groups of potential funding sources, such as grants. Encourage these local groups to develop ideas for community driven projects to reduce PM emissions and exposure to PM.

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- As DAQ assesses disparate air quality impacts on certain communities within Delaware as part of its on-going strategic plan, DAQ will work with communities through the PM Advance program to find solutions when the impacts are a result of fine particulates.
- Seek public input of Delaware's PM Advance program through direct interaction with civic and environmental advocacy groups. DAQ will post PM Advance plans on its website and seek public input on proposed PM Advance projects and activities.
- Develop outreach materials regarding PM Advance for local communities and stakeholder groups.
- Set up informational booths about PM Advance related projects at local environmental and health outreach events such as the local health fairs, Delaware Coast Day, etc.

Section 5 PM Advance Reporting Requirements

As part of the 5-year Plan, DAQ will report annually to EPA on the programs contained within this document, as well as new programs developed during each year and anticipated in the subsequent year. The next report to EPA will summarize activities through December 31, 2020. Also, by the end of 2020, the DAQ will have decided whether to continue our participation in the voluntary PM Advance program.