Chapter 3

Attainment Strategy

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Over the past decades, under previous District attainment plans (*2007 Ozone Plan, 2008 PM2.5 Plan, 2012 PM2.5 Plan, 2013 Plan for the Revoked 1-hour Ozone Standard, 2015 Plan for the 1997 PM2.5 Standard, 2016 Plan for the 2008 8-Hour Ozone Standard, and 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*) the San Joaquin Valley Air Pollution Control District (District) and CARB have implemented generations of emissions control measures for stationary, area, and mobile sources in the Valley. Together, these efforts represent the nation's toughest air pollution emissions controls. In addition to having the toughest air regulations in the nation, the District also operates the most effective and efficient incentive grants program, investing over $4.5 billion in public/private funding towards clean air projects to date that have achieved over 222,000 tons of emissions reductions.

Due to the significant investments made by Valley businesses and residents, and stringent regulatory programs by the District and CARB, the Valley's ozone precursor emissions are at historically low levels. Ozone air quality in the Valley is improving, and this improves public health in the region.

However, meeting the 2015 ozone standard requires significant additional emissions reductions, particularly from mobile sources that make up the majority of emissions in the San Joaquin Valley. As the District and CARB continue to implement adopted control measures, Valley ozone concentrations will continue to improve. The District and CARB must build on decades of effective control strategies and reach beyond regulations alone to expedite air quality improvements. This chapter outlines the regulations and other emissions controls strategies that will contribute to the Valley's attainment of the 2015 8-hour ozone standard.

3.1 APPLICABLE ATTAINMENT STRATEGY REQUIREMENTS

Nonattainment areas must "provide for implementation of all control measures needed for attainment as expeditiously as practicable."[1] In the attainment planning process, regions evaluate control measures both individually and collectively.

The District evaluates individual sources of emissions to determine whether there are any feasible opportunities to strengthen requirements to achieve additional emissions reductions. A "feasible" control is both technologically and economically feasible. Ozone nonattainment areas evaluate several levels and types of controls:

- **Reasonably Available Control Technology (RACT):** RACT is the most stringent emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.[2] Regions consider EPA's established **Control Techniques Guideline (CTG)** and **Alternative Control Techniques**

[1] 40 C.F.R. §51.1308
[2] EPA's 2018 Implementation Rule, 83 FR at 63,007.

(ACT). The District adopted its *2020 RACT SIP* for the 2015 Ozone Standard in June 2020 to demonstrate that all District rules at that time met RACT requirements. For this *2022 Ozone Plan*, the District evaluated any changes in RACT since it adopted the 2020 RACT SIP.

- **Other federal control levels:** Although not required by the implementation rule, the District reviews a variety of other federal control levels for additional opportunities to reduce ozone precursor emissions at existing sources in the Valley. For example, EPA's **New Source Performance Standards (NSPS)**[3] already apply to all new, modified, and reconstructed facilities in the Valley under federal law, and District Rule 2201 (New and Modified Stationary Source Review Rule) applies to new and modified stationary sources. In the attainment planning process, the District evaluates whether NSPS technologies are also appropriate for facilities built and permitted before EPA's latest NSPS.
- **Analogous rules at other air districts:** The District compared all District control measures to analogous regulations adopted by California's other major ozone nonattainment areas. Local and regional agencies tailor their regulations, analysis, and innovation based on their unique situations. Therefore, regional regulations will differ in language and structure due to differences in local needs and priorities. Thus, comparing individual lines of regulatory text from a range of jurisdictions out of context does not establish RACT or RACM on its own. Instead, the District carefully reviews differences between rules with focus on what the regulation as a whole accomplishes while acknowledging differences in regional situations.

The District also considered several state control guidelines during its control measure analysis, such as Suggested Control Measures (SCM) and Best Available Retrofit Control Technologies (BARCT). California Health and Safety Code section 40406 defines BARCT as, "an emission limitation that is based on the maximum decree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." Regions in California occasionally conduct BARCT analyses to satisfy state law requirements. For example, AB 617 requires state nonattainment areas to perform a BARCT analysis of existing rules and regulations for all categories of units at facilities subject to the state Cap-and-Trade program, and to propose an expedited schedule for revising rules that do not already meet BARCT requirements[4]. As the District amends regulations for BARCT purposes, these rule amendments may reduce ozone precursor emissions and contribute to this Plan's attainment strategy. However, as BARCT is a state requirement, and a SIP is a federal requirement, BARCT analysis is not a formal component of this Plan.

Collectively, the SIP must include control measures achieving sufficient emissions reductions to meet reasonable further progress (RFP) milestones and demonstrate attainment by the applicable deadline. Regulating agencies must present a **Reasonably Available Control Measure (RACM)** analysis to show that all reasonable

[3] CAA Section 111, 40 C.F.R. Part 60
[4] https://ww2.arb.ca.gov/expedited-barct

measures (including but not limited to RACT) are being implemented to demonstrate attainment as expeditiously as practicable[5]. Chapter 5 presents the District's, CARBs, and Valley Metropolitan Planning Organizations' (MPO) RACM analyses, and shows that this Plan's control strategy achieves the emissions reductions necessary for expeditious attainment.

3.2 OVERVIEW OF SOURCES AND CONTROL OPTIONS

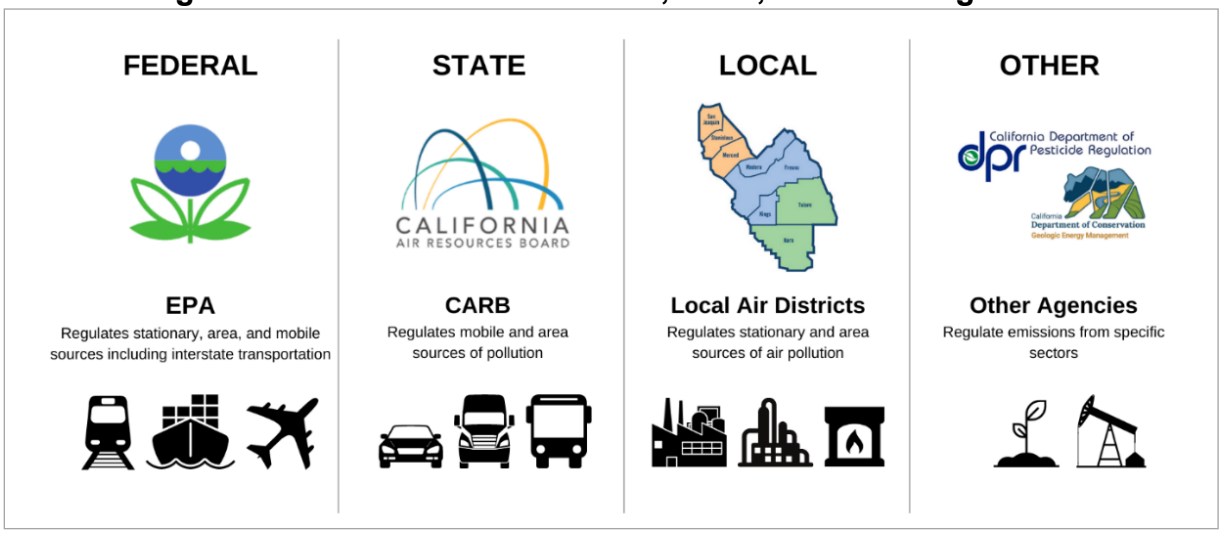
The Clean Air Act is a system of "cooperative federalism," where regions, states, and federal agencies work together to improve air quality and public health. Different levels of government and different types of agencies regulate different sources of emissions:

- The District has jurisdiction to regulate stationary and some area sources of emissions within the District's boundaries. "Stationary sources" include manufacturing facilities, power plants, oil refineries, and other industrial sources. The "area sources" under the District's regulatory authority include solvents, agricultural operations, and residential fuel combustion.
- CARB has jurisdiction to regulate mobile (on-road and off-road) and some area sources (such as consumer products) throughout the state.
- EPA has jurisdiction to regulate heavy-duty trucks, locomotives, ships, aircraft, off-road diesel equipment, and some types of industrial equipment.
- Additionally, various other agencies regulate certain sectors. For example, the Department of Pesticide Regulation has the primary authority to regulate pesticide usage. The Valley's Metropolitan Planning Organizations engage in transportation planning, and cities and counties have authority over land-use decisions.

Regulations reducing precursor emissions are the foundation of a SIP's attainment strategy. The District and CARB supplement these conventional strategies with incentive programs, public outreach, legislative platforms, further study measures, and other policy initiatives to expedite emissions reductions for the 2015 ozone NAAQS. These strategies also assist the Valley in meeting any more stringent NAAQS that EPA may implement in the future.

[5] EPA's 2018 Implementation Rule, 83 FR at 63,007.

Figure 3-1 Jurisdiction of Federal, State, and Local Agencies



3.3 DISTRICT CONTROL STRATEGY

The District's regulatory authority is limited to stationary sources and some area-wide sources, and the District's stringent and innovative rules on these sources have set benchmarks for California and the nation. The District has implemented a comprehensive regulatory control strategy for over thirty years. Since 1992, the District has adopted over 650 rules and amendments to implement this aggressive control strategy. Many current rules are fourth or fifth generation, meaning that they have been revised and emission limits have been lowered, as new emission control technology has become available and cost effective. Additionally, the District has adopted innovative regulations such as Indirect Source Review and Employer-based Trip Reduction to reduce emissions from mobile sources within the District's limited jurisdiction over these sources.

3.3.1 Current Control Program

The District's current rules and regulations reflect technologies and methods that are far beyond minimum required control levels. The aggressive regulations already adopted under previous District attainment plans (*2007 Ozone Plan, 2008 PM2.5 Plan, 2012 PM2.5 Plan, 2013 Plan for the Revoked 1-hour Ozone Standard, 2015 Plan for the 1997 PM2.5 Standard, 2016 Plan for the 2008 8-Hour Ozone Standard, and 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*) serve as the basis for this *2022 Ozone Plan*. These adopted regulations will reduce emissions of oxides of nitrogen (NOx) and volatile organic compounds (VOCs) as they are fully implemented over the upcoming years, contributing to the Valley's progress toward attainment of the 2015 8-hour ozone standard.

The following table identifies many of the adopted District rules achieving new emissions reductions in and after 2017, the base year for this plan. It is important to

note that even pre-2017 emissions reductions contribute to the Valley's progress toward attainment. The emissions inventory for this Plan shows a 62% reduction in NOx emissions between 2017 and 2037 (Appendix B), based on measures included in the current control strategy.

Table 3-1 Adopted District Rules Achieving Reductions in and After 2017

District Rules		Date Adopted or Last Amended	Implementation Begins
4103	Open Burning	6/17/2021	2021-2025
4308	Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr	11/14/2013	2015-2034
4311	Flares	12/17/2020	2024
4306/ 4320	Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr	12/17/2020	2024
4352	Solid Fuel Fired Boilers, Steam Generators and Process Heaters	12/16/2021	2024
4354	Glass Melting Furnaces	12/16/2021	2024, 2030
4601	Architectural Coatings	4/16/2020	2022
4702	Internal Combustion Engines	8/19/2021	2024, 2030
4901	Wood Burning Fireplaces and Wood Burning Heaters	6/20/2019	2019
4902	Residential Water Heaters	3/19/2009	2010-2017
4905	Natural Gas-Fired, Fan-Type Residential Central Furnaces	12/16/2021	2015-2035
9410	Employer Based Trip Reduction	12/17/2009	Ongoing
9510	Indirect Source Review	12/21/2017	Ongoing
9610	State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	6/20/2013	Ongoing

Rule 4103 (Open Burning)

The District first adopted Rule 4103 on June 18, 1992, to regulate and coordinate the use of open burning while minimizing smoke impacts on the public. In 2003, California Senate Bill (SB) 705 (Florez, 2003) established a schedule to phase out the open burning of agricultural material, including consideration of technical and economic factors in implementing the phase-out. As approved by the Governing Board on June 17, 2021, and approved by CARB on June 18, 2021, the District developed updated requirements establishing the near-complete phase-out of remaining open burning by January 1, 2025.

Rule 4308 (Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr)

Adopted in 2005 and amended in 2009 and 2013 to include more stringent NOx limits, Rule 4308 controls emissions from boilers, steam generators, and process heaters in the size range of 0.075 to less than 2 MMBtu/hr. As a point-of-sale rule, emissions are reduced when consumers replace older units with new, low-NOx units as of the January 1, 2015, compliance date.

Rule 4311 (Flares)

Rule 4311 limits emissions of NOx, sulfur dioxide (SOx), and VOC emissions from the operation of flares in the Valley. In December 2020, the District Governing Board amended Rule 4311 to remove exemptions for non-major source facilities and landfill facilities, and to establish requirements for the installation of ultra-low NOx control systems for flares used in oil and gas operations, at landfills, and at wastewater treatment facilities. Operators are required to reduce flaring below applicable thresholds, or to install ultra-low NOx flare technology by 2024.

Rule 4306 and 4320 (Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr)

Rules 4306 and 4320 control emissions from boilers, steam generators, and process heaters from a wide range of industries, including but not limited to electrical utilities, cogeneration, oil and gas production, petroleum refining, manufacturing and industrial processes, food and agricultural processing, and service and commercial facilities. The District Governing Board adopted amendments to Rules 4306 and 4320 in December 2020 to include lower NOx emissions limits for a variety of unit classes and categories, as well as establish dates for the submission of required emission control plans, authority to construct applications, and final compliance deadlines.

Rule 4352 (Solid Fuel Fired Boilers, Steam Generators, and Process Heaters

Rule 4352 controls emissions from boilers, steam generators, and process heaters fired on a variety of solid fuels: coal, petroleum coke, biomass, tire-derived fuel, and municipal solid waste (MSW). On December 16, 2021, the District Governing Board adopted amendments to Rule 4352 to include even more stringent NOx emission limits for solid fuel fired boilers, steam generators, and process heaters operating in the Valley, as well as establish PM and SOx emission limits.

Rule 4354 (Glass Melting Furnaces)

Rule 4354, adopted in 1994 and subsequently amended seven times, is one of the most stringent rules in the nation for controlling emissions from industrial glass manufacturing plants that make flat glass (window and automotive windshields), container glass (bottles and jars), and fiberglass (insulation). On December 16, 2021, the District Governing Board adopted amendments to Rule 4354 to include even more stringent NOx, PM10, and SOx emission limits for glass melting facilities operating in the Valley.

Rule 4601 (Architectural Coatings)

The District adopted Rule 4601 on April 11, 1991, and subsequently amended it six times, to reduce VOC emissions from sources subject to this rule by establishing VOC content limits for architectural coatings. Rule 4601 is applicable to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufactures, blends, or repackages any architectural coating for use within the District. In April 2020, the District Governing Board adopted amendments to Rule 4601 to include VOC coating limits from CARB's 2019 SCM. The District was the first air district in California to adopt the provisions of the 2019 SCM.

Rule 4702 (Internal Combustion Engines)

Internal combustion engines are used in a variety of different Valley operations including schools, agriculture, oil and gas production, petroleum refining, and electrical power generation. On August 19, 2021, the District Governing Board adopted amendments to Rule 4702 to lower emission limits for NOx and VOCs for several categories of engines, establish PM requirements for all categories of IC engines affected by the rule, and establish SOx control requirements for agricultural engines. Compliance with these lower emission limits is required by 2024.

Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)

The District takes a multifaceted and proactive approach to reducing emissions from wood burning fireplaces and wood burning heaters in the Valley. Rule 4901 reduces emissions from residential burning through stringent curtailment requirements during the wood-burning season. Through the District *Residential Woodsmoke Reduction Program*, the District has declared and enforced episodic wood burning curtailments, also called "No Burn" days, since 2003. The *Residential Woodsmoke Reduction Program*, including regulatory curtailments under District Rule 4901, reduce harmful species of PM2.5 when and where those reductions are most needed, in impacted urbanized areas when the local weather is forecast to hamper particulate matter dispersion. The District most recently amended Rule 4901 in June 2019, establishing the most stringent regulatory curtailments in the nation.

Rule 4902 (Residential Water Heaters)

Rule 4902 controls NOx emissions from natural gas-fired residential water heaters with heat input rates less than or equal to 75,000 Btu/hr by enforcing NOx emissions limit of 40 nanograms of NOx per Joule of heat output (ng/J). The District amended Rule 4902 in 2009 to further reduce emissions by lowering the limit to 10 ng/J for new or replacement water heaters and to a limit of 14 ng/J for instantaneous water heaters. As a point-of-sale rule, compliant units will be installed as the older units are replaced through attrition in the years following 2012. The rule has controlled NOx emissions by approximately 88% for this source category.

Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces)

Rule 4905 limits NOx emissions from central furnaces supplied, sold, or installed in the Valley with a rated heat input capacity of less than 175,000 Btu/hour. Amendments in January 2015 lowered the NOx emission limit from 40 ng/J to 14 ng/J with an associated sell-through period and emission fee period to allow manufacturers time to develop new compliant furnaces. Due to the limited number of certified compliant units that would have been available by the deadline dates set in the 2015 amendment, the rule was recently amended in 2018, 2020, and 2021 to extend the implementation period to allow the use of emissions fees in lieu of complying with the 14 ng/J limit, until September 30, 2023.

Rule 9410 (Employer Based Trip Reduction)

The goal of the eTRIP Rule is to reduce single-occupancy-vehicle work commutes. The eTRIP Rule requires the Valley's larger employers, representing a wide range of locales

and sectors, to select and implement workplace measures that make it easier for their employees to choose ridesharing and alternative transportation. Because of the diversity of employers covered by the eTRIP Rule, the rule was built with a flexible, menu-based approach. Employers choose from a list of measures, each contributing to a workplace that encourages employees to reduce their dependence on single-occupancy vehicles. Each eTRIP measure has a point value, and employer eTRIPs must reach specified point targets for each strategy over a phased-in compliance schedule (2010 – 2015). The District has continually provided employer assistance through training, guidance materials, promotional information, and online reporting options.

Rule 9510 (Indirect Source Review)

Rule 9510 is the first and only rule of its kind in the State of California and throughout the nation which applies to new development projects, including residential and commercial development projects, and transportation and transit projects. The District's rule is recognized as the benchmark, or best available control, for regulating these indirect sources of emissions. The purpose of this rule is to reduce the growth in emissions from mobile and area sources associated with construction and operation of new development projects in the Valley, by encouraging clean air designs to be incorporated into the development project, or, if insufficient emissions reductions can be designed into the project, by paying a mitigation fee used to fund off-site emissions reduction projects.

Rule 9610 (State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs)

Rule 9610, adopted on June 20, 2013, serves as an administrative mechanism for the District to receive credit towards SIP requirements for emission reductions achieved in the Valley through incentive programs administered by the District, NRCS, and CARB. Through program implementation and reporting, the goal is to receive credit for incentive-based emission reductions that satisfy EPA requirements.

3.3.2 Summary of Control Measure Review Process

The District conducted a robust and exhaustive effort to identify potential emission reduction opportunities, presented in Appendix C. The District has evaluated all sectors and equipment types for additional emission reduction opportunities, using the following key factors to evaluate potential emission reduction opportunities:

- **Technological Feasibility.** The District looked for any control technologies not already required that might be available to further reduce emissions from sources of air pollution in the Valley. This includes new technologies and technologies that may not have been cost-effective in the past. The technologies used in BACT guidelines; permits; and other air districts' rules, regulations, guidelines, and studies were reviewed for their feasibility, including how commercially available the technology currently is and whether the technology has been used in practice.

- **Cost-Effectiveness.** Cost-effectiveness is the cost of emissions controls compared to the amount of emissions reductions that would be achieved by those controls. The District does not have a pre-determined cost-effectiveness threshold, but control options with extremely high cost-effectiveness (high dollars per ton of pollutant reduction) are unreasonable and inappropriate for regulation.

The evaluations capture rule applicability, emissions inventory, background information, federal regulations and analogous rules from other areas, potential emission reduction opportunities for technological and economic feasibility, potential opportunities for contingency provisions, and recommendations for appropriate District actions moving forward.

3.3.3 Conclusions for Regulatory Control Measure Analysis

The analysis in Appendix C demonstrates that the vast majority of the District's individual regulatory control measures are already the most stringent measures that are technologically and economically feasible. Photochemical modeling for this plan demonstrates the significant emissions reductions achieved under District's current regulatory control strategy (including several recently-adopted regulations for industrial sources) coupled with CARB's State SIP Strategy (see Section 3.5) will bring the Valley into attainment of the 2015 8-hour ozone standard by the 2037 attainment deadline.

The *2022 Ozone Plan* includes a number of measures committing the District to explore and implement a variety of stationary source emission reduction opportunities. In line with recent developments at the state and federal level, the District's analysis indicates that rules for Leak Detection and Repair (LDAR) in the oil and gas sector may be strengthened through potential enhancements currently under consideration, including lower leak thresholds, more frequent LDAR inspections, use new leak detection technologies, and other potential changes. Many of these potential enhancements are impacted by recent guidance from U.S. EPA, and the District is working closely with CARB and U.S. EPA to evaluate and integrate enhancements into the District's LDAR regulations as appropriate. Additionally, recent state Best Available Retrofit Control Technology analysis indicates potential opportunities for further reducing emissions from crude oil production sumps, particularly with respect to exemption thresholds for sumps and ponds storing produced water. The rule development process for these rules is in progress, and will be completed in 2023/2024 based on the public engagement and interagency consultation processes. These potential enhancements to the District's regulations are included as SIP-strengthening measures.

Table 3-2 Regulatory Control Measure Commitments

Regulatory Measures	Action Date
Rule 4401 Steam-Enhanced Crude Oil Production Well Vents	2023/2024
Rule 4402 Crude Oil Production Sumps	2023/2024
Rule 4409 Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities	2023/2024

Regulatory Measures	Action Date
Rule 4455 Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants	2023/2024
Rule 4623 Storage of Organic Liquids	2023/2024
Rule 4624 Transfer of Organic Liquid	2023/2024

3.3.4 Beyond Regulatory Control Measures

3.3.4.1 Incentives

Incentive programs have become a crucial component of the District's overall strategy for achieving the emissions reductions necessary to bring the Valley into attainment. The District operates one of the largest and most well-respected voluntary incentive programs in California. Through strong advocacy at the state and federal levels, the District has appropriated $564 million in incentive funding in the 2022-2023 District Budget.[6] Since the District's inception in 1992, the District has invested considerable funding into thousands of clean-air projects throughout the Valley. These projects have achieved significant emissions reductions with corresponding air quality and health benefits.

The District typically requires match funding of 30% to 70% from grant recipients. To date, grant recipients have provided $2,323,139,000 in matching funds, with a combined District and grant recipient funding investment of more than $4,229,374,000.

Table 3-3 Summary of Grant Expenditures and Results

District Incentive Funding ($)	Grant Recipient Match Funding ($)	Emissions Reductions (tons)	Cost-Effectiveness ($/ton)
$1,906,235,000	$2,323,139,000	212,000	$8,970

Over the past 10 years, the District's incentive programs have purchased, replaced, and retrofitted thousands of pieces of equipment.

In addition to funding the existing core incentive programs that have traditionally achieved highly cost-effective emissions reductions, the District continues to evaluate additional potential opportunities to expand the portfolio of programs available. As the District identifies new funding sources and opportunities, the District will continue to look for additional incentive programs and expansions to existing programs. More information on the District's incentive programs is available in Appendix E and on the District's website at https://ww2.valleyair.org/grants/.

3.3.4.2 Areas for Further Study

As supported by extensive photochemical modeling conducted by CARB, the significant emissions reductions achieved by the District's existing regulatory control strategy,

[6] SJVAPCD. Recommended Budget 2022-2023. p.86. June 16, 2022. Retrieved from https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2022/June/final/06.pdf

coupled with commitments from CARB as detailed in Section 3.5, are projected to bring the Valley into attainment of the 2015 8-hour ozone standard by the 2037 attainment deadline. While the District and CARB's programs are the most aggressive and innovative in the nation, the District is committing to evaluate the next generation of innovative control technologies and seek additional emission reduction opportunities across a number of stationary and area source sectors, including residential and commercial heating, stationary NOx and VOC sources, energy and climate change programs, clean landscaping equipment and practices, and other innovative measures to pursue additional emission reduction opportunities as technologies, practices, and policies evolve in the future, as listed below.

Table 3-4 Stationary and Area Source Sectors for Further Study
Residential and Commercial Heating Measures
Stationary Combustion NOx Measures
Stationary Source VOC Measures
Energy and Climate Change Programs
Clean Landscaping Equipment and Practices
Other Innovative Measures

3.3.4.2.1 Residential and Commercial Heating

Many appliances and devices, such as water heaters and furnaces, use natural gas or liquefied petroleum gas (fossil fuel) as a fuel source. These appliances have the potential to emit a significant amount of NOx during combustion and VOCs from gas leaks. The District enforces stringent requirements through District Rules 4902 (Residential Water Heaters), 4308 (Boilers, Steam Generators, and Process Heaters – 0.075 MMBtu/HR to Less Than 2.0 MMBtu/HR), and 4905 (Natural Gas-Fired, Fan-Type Central Furnaces), to reduce emissions from these source categories. In addition to reducing emissions from this source category through regulatory requirements, the District offers incentives though the Burn Cleaner incentive program to purchase and install cleaner space heating devices such as heat pumps.

Limiting fossil fuel consumption from building appliances remains one of the emphasized strategies by many other agencies including local air districts, local governments, and CARB. CARB's *2022 State Strategy for the State Implementation Plan* (*2022 State SIP Strategy*) included a commitment to develop a zero-emissions standard for space and water heaters sold in the state to go into effect in 2030.[7] Further, CARB's *2022 Scoping Plan for Achieving Carbon Neutrality* (*2022 Scoping Plan*), published on November 16, 2022, seeks to transition the sale of appliances to electric for residential and commercial buildings by 2035 and 2045, respectively.[8]

[7] CARB. *2022 State Strategy for the State Implementation Plan*. Retrieved from: https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy

[8] CARB. *2022 Scoping Plan for Achieving Carbon Neutrality*. (November 15, 2022). Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp.pdf

Additionally, the *2022 Scoping Plan* aims to convert 100% of new residential building appliance sales to electric power by 2026 and commercial appliances in 2029. The feasibility of building electrification requirements and air quality needs vary by region; therefore, these requirements would not be applicable to all areas. In addition to these efforts, other air districts, including Bay Area Air Quality Management District (BAAQMD) and South Coast Air Quality Management District (SCAQMD), are evaluating potential amendments to require building electrification in their regions. The District continues to monitor the work of other regions.

On the federal level, the Inflation Reduction Act, passed on August 16, 2022, provides significant tax credits or rebates to install electric heat pumps and other energy efficient devices.[9] The Act will provide up to $14,000 to every homeowner throughout the nation to install electric heat pumps and other electric, energy efficient devices. Installation of a vast number of new, energy efficient devices will reduce energy usage and emissions associated with energy production. In addition to reducing electricity usage, the Inflation Reduction Act also aims to increase residential electricity production by offering $950 million dollars of funding to install residential solar panels.[10] The increased residential electricity generation will reduce the reliance on natural gas, coal, and other forms of electricity generation, resulting in a reduction in emissions of greenhouse gases and ozone precursors.

The District currently requires the most stringent measures feasible to implement in the Valley for residential water heaters, boilers, and furnaces. Feasibility issues have previously prevented widespread electrification around the nation. However, in an effort to identify potential emission reduction opportunities, the District will conduct a further study to evaluate current and upcoming work from CARB, SCAQMD, and other agencies related to reducing emissions from residential and commercial combustion sources, and evaluate the feasibility of implementing zero emission or low-NOx requirements for sources in the Valley. The District will also evaluate opportunities to advocate for funding under the Inflation Reduction Act, and other funding sources.

3.3.4.2.2 Stationary Combustion NOx Measures

The District currently has in place the most stringent measures feasible for stationary combustion sources in the Valley, and has recently amended a number of stationary combustion source rules to further requirements for boilers, internal combustion engines, petroleum refineries, and glass melting furnaces. The District's regulations have reduced NOx emissions from stationary sources by over 93%, including reductions from stationary combustion sources.

[9] Congress. *H.R.5376 - Inflation Reduction Act of 2022*. August 16, 2022. Retrieved from: https://www.congress.gov/bill/117th-congress/house-bill/5376/text

[10] The White House. *By the Numbers: The Inflation Reduction Act*. August 15, 2022. Retrieved from: https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/15/by-the-numbers-the-inflation-reduction-act/

Although the District is currently implementing stringent regulations for stationary combustion sources throughout the Valley, technology continues to evolve and improve resulting in significant advancements in performance and NOx removal efficiencies. The District will continue to evaluate the feasibility and potential of emerging technologies as they become available through the Plan's attainment year of 2037.

3.3.4.2.3 Stationary Source VOC Measures

The District currently enforces one of the most stringent stationary source control programs in the nation, including wide-ranging controls to capture and control VOC emissions across oil and gas production, petroleum fueling, waste processing, livestock, composting, coatings, and other sectors. Notably, as discussed above, the District has included commitments as part of this Plan to amend a number of District regulations for Leak Detection and Repair and crude oil production sumps, which will achieve additional VOC reductions in sectors addressed under these regulations. The District will continue to evaluate the feasibility and potential of emerging technologies as they become available through the Plan's attainment year of 2037.

3.3.4.2.4 Energy and Climate Change Programs

Federal, state, and local mandates and programs aim to reduce greenhouse gas emissions and energy usage, and improve energy efficiency. The District's traditional air quality strategies focus on regulatory measures to reduce emissions of criteria air pollutants (NOx, VOC, PM2.5, etc.). However, in an effort to pursue all available opportunities, the District will continue to identify opportunities to gain co-benefits from existing and future programs related to greenhouse gas reductions, energy efficiency, energy usage, and other climate change initiatives, and seek opportunities to provide incentives funding to promote building decarbonization throughout the Valley. In particular, there are unprecedented funding opportunities through the Bipartisan Infrastructure Law[11], which provides $550 billion over fiscal years 2022 through 2026 in new federal investment in infrastructure, and the Inflation Reduction Act[12,13], which seeks to reduce greenhouse gas emissions and energy usage through tax credits or rebates. The District will collaborate with federal, state, and local air districts and other agencies to identify and evaluate opportunities, including advocating for incentives from state and federal sources.

[11] Congress. *H.R.3684 – Infrastructure Investment and Jobs Act (IIJA)*. November 15, 2021. Retrieved from: https://www.congress.gov/117/bills/hr3684/BILLS-117hr3684enr.pdf
[12] Congress. *H.R.5376 - Inflation Reduction Act of 2022*. August 16, 2022. Retrieved from: https://www.congress.gov/bill/117th-congress/house-bill/5376/text
[13] The White House. *By the Numbers: The Inflation Reduction Act*. August 15, 2022. Retrieved from: https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/15/by-the-numbers-the-inflation-reduction-act/

3.3.4.2.5 Clean Landscaping Equipment and Practices

The District has long supported efforts to address emissions from the use of landscaping equipment, including through the deployment of clean zero-emissions equipment under the Clean Green Yard Machines (CGYM) program, which provides funding for the replacement of old gas-powered lawn and garden equipment with new electric equipment. The Residential CGYM program, launched in 2001, has replaced over 7,400 lawn mowers with over $1.5 million in funding. In May 2019, the District launched the Commercial CGYM program, which provides incentive funding for the replacement of gas powered landscape maintenance equipment, with battery operated zero emission technology. Additionally, the Commercial CGYM program provides incentive funds for up to two batteries and one charger to ensure that the equipment is capable of operating for a full day of work. In support of the District's efforts, the District has been awarded $6 million in state funding to be utilized by the District to continue deployment of clean landscaping equipment.

Existing CARB and EPA emission standards for small off-road engines (SORE), which primarily includes lawn and garden equipment, have led to substantial emission reductions in California. Since 2000, emissions of pollutants that contribute to ozone and PM2.5 formation from SORE have decreased by 50 percent. Even so, in California, SORE emit more NOx and reactive organic gases (ROG) than light-duty passenger cars, both in summer and annually.[14] However, recently amended SORE regulations approved by CARB in December 2021 require most newly manufactured SORE engines be zero-emission starting in 2024, which will help achieve further emission reductions from lawn and garden equipment.[15]

In light of new opportunities, the District will work with landscaping services and local jurisdictions to pursue options for accelerating the deployment of newly available commercial zero-emissions equipment, promoting landscaper training and green certification programs, and promoting best practices to reduce exposure through episodic and zoning recommendations (e.g. limiting leaf blower use around children during school hours, "green zones").

3.3.4.2.6 Other Innovative Measures

The District will continue to evaluate innovative, out of the box measures to pursue additional emission reduction opportunities as technologies, practices, and policies evolve in the future. These measures could include enhancements to the District's public outreach and communication strategy and continued support of enhanced forest management strategies for wildfire prevention in the context of unprecedented funding

[14] CARB. *Staff Report: Initial Statement of Reasons for the Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions.* October 12, 2021. Retrieved from https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/sore21/isor.pdf

[15] CARB. *CARB approves updated regulations requiring most new small off-road engines be zero emission by 2024.* December 9, 2021. Retrieved from https://ww2.arb.ca.gov/news/carb-approves-updated-regulations-requiring-most-new-small-road-engines-be-zero-emission-2024

at the state and federal level and State/Federal Roadmap to a Million Acres (RMA), to name a few.

3.3.4.3 Environmental Justice

Environmental justice (EJ) communities typically have a higher exposure risk to air pollution and are consequentially more vulnerable to the associated adverse health effects caused by poor air quality. The District's Governing Board has prioritized grant funding and strategies to achieve emissions reductions that provide benefits for environmental justice communities throughout the Valley. The District has worked closely with the District's Environmental Justice Advisory Group to identify potential enhancements to incentive programs to increase benefits to, and participation by, environmental justice communities.

In addition to District actions to prioritize strategies that benefit environmental justice communities, Assembly Bill (AB) 617, signed into law in July 2017, initiated a statewide effort to provide community-focused and community-driven actions to reduce air pollution and improve public health in communities that experience disproportionate exposure to air pollutants. Through AB 617, air districts throughout the state are required to implement additional emissions reporting, community air monitoring, emissions reduction plans, and other mitigation measures beyond other regulatory requirements in state-selected priority communities. Since 2018, CARB has selected seventeen (17) communities under AB 617, including the communities of South Central Fresno, Shafter, Stockton, and Arvin/Lamont in the Valley.

Under AB 617, the District is required to work with each selected community to develop and adopt a Community Emission Reduction Plan (CERP), which includes a range of regulatory, incentive, enforcement, outreach, exposure reduction, and partnership-based strategies for reducing air pollution and improving public health in these impacted communities. To date, the District has adopted over 161 CERP measures, including dozens of incentives measures supported by over $140M in funding for clean air projects. The CERPs will aim to reduce over 4,000 tons of emissions in the four CARB-selected communities, with many more emissions and exposure reductions expected in other disadvantaged communities across the Valley. More information on the District's AB 617 program and implementation of measures in selected communities is available on the District's website at https://community.valleyair.org/.

3.3.4.4 District Public Health Initiatives

Beyond plans and regulations, the District has several strategies for reducing public health impacts associated with ozone and keeping the public informed of potential air quality impacts, including the following:

- **Real-Time Air Advisory Network (RAAN).** The District launched RAAN in 2010 to provide the most accurate and timely information about local air quality. RAAN combines real-time, local air quality information with specific health

recommendations to help schools, parents, and others make informed decisions about when outdoor activities should be limited and for whom.

- **Air Quality Index (AQI) and Daily Air Quality Forecasting.** An AQI is a color-coded designation for the day that projects the forecasted air quality and recommends corresponding activity modifications based on pollution levels.

- **Health-Risk Reduction Strategy (HRRS).** The District Governing Board adopted the HRRS to maximize public health improvements resulting from the District's attainment strategies and related initiatives. The HRRS works in parallel with the District's other strategies to minimize cumulative population exposure to air pollution and the corresponding regional health risk.

- **Air Alerts.** An Air Alert notifies Valley residents of ongoing conditions that may lead to a federal ozone standard exceedance. When the District calls an Air Alert, the District advises Valley residents and businesses to reduce vehicle use to proactively reduce emissions and protect public health.

- **Clean Air Rooms.** The Clean Air Centers Pilot Program provides funding to purchase portable room filtration devices to create temporary clean air shelters that can provide respite from wildfire and other smoke events for the vulnerable communities of the Valley when smoke events occur.

3.3.4.5 Public Outreach and Communication

The District's mission to protect public health by improving air quality in the Valley relies on the public's awareness and understanding of the District's air-quality improvement programs. The Valley cannot meet these public health goals on the back of businesses alone. Valley businesses are subject to some of the most stringent air quality regulations in the nation. As Valley businesses continue to be subject to additional rounds of prohibitory regulations, the role of the public becomes increasingly important in reaching federal standards.

Emissions from public behavior such as driving, residential wood burning, and lawn-care maintenance continue to be a key factor in reducing emissions in the Valley. Consequently, public acceptance of clean-air commuting alternatives and other strategies like Healthy Air Living, Drive Clean in the San Joaquin, and Burn Cleaner (changing out wood stoves for natural gas devices) requires widespread lifestyle changes. To that end, the District Governing Board has placed a high priority on conducting an active and effective multi-lingual public education and outreach program.

The District's comprehensive public education and outreach program is composed of numerous elements that allow the District to leverage opportunities to advance the District's multiple strategic objectives, such as:

- Encourage and enlist the general public to do their part to reduce air pollution;

- Empower and inform the public to protect themselves during episodes of poor air quality by providing them timely air quality information as well as scientific and comprehendible information on the health effects of air pollution; and
- Provide accurate and objective information about Valley efforts to reduce air pollution, measurable results and achievements, and challenges that remain.

3.3.4.5.1 Public Education and Outreach Activities and Programs

Engaging the public in efforts to reduce emissions is a key element of the District's attainment strategy. Education increases public support for new and controversial regulations. The District's outreach and communications program has expanded and evolved over the years. Some examples of the District's public education and outreach activities and programs include the following:

1. Executing successful outreach campaigns for District grant programs.
2. Coordination of the Healthy Air Living Schools program, including developing all program materials.
3. Conducting robust community engagement and awareness campaign for the State of California's Community Air Protection Program as legislated under AB 617.
4. Maintaining partnerships with Valley "green teams," environmental justice groups, and health organizations to attend events, and provide education and support.
5. Developing seasonal, Healthy Air Living bilingual messages in English and Spanish across the three distinct media markets of the Valley (Sacramento, Fresno, Bakersfield).
6. Production of the District's yearly "Annual Report to the Community".
7. Sharing information and details with the public about the Real-time Air Advisory Network (RAAN) and the accompanying mobile app.
8. Ongoing re-evaluation of the District's Residential Wood Smoke Reduction Program and public education of the health impacts of wood smoke.
9. Outreach to Valley residents to provide notification of high wind, wildfire smoke, or other air quality episodes, through *Air Quality Alerts*.

The District has a history of successful public outreach and education programs that increase the public's awareness and understanding of complex air quality issues, encourage voluntary actions on the part of Valley residents and businesses to improve air quality, and provide tools to empower the public to protect themselves during episodes of poor air quality. As we move forward, the District shall continue its ongoing efforts to educate the public about air quality, and the significant clean air investments and air quality progress that have been made in the Valley.

3.3.4.6 Legislative Platform

Each year the District Governing Board adopts a legislative platform to guide District advocacy and policy efforts. Through state and federal lobbying efforts and delegation visits to Washington D.C., the District informs elected officials about the Valley's needs and concerns based on the priorities established in the legislative platform. With persistence, the District has secured support and additional incentive funding for programs critical to emissions reductions in the Valley. For complete details of the District's 2022 legislative priorities and general legislative priorities, please refer to the District webpage at https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2022/January/final/10.pdf.

3.4 METROPOLITAN PLANNING ORGANIZATIONS (MPOS)

The Metropolitan Planning Organizations (MPOs) have adopted comprehensive regulations and programs that have helped the District meet Valley air quality challenges. As part of this *2022 Ozone Plan*, the Valley MPOs are committing to a number of transportation control measures (TCMs) to reduce vehicle miles travelled throughout the Valley. See Appendix D for more information.

3.5 CARB MOBILE SOURCE CONTROL STRATEGY

3.5.1 Current Control Strategy for Area Sources

CARB shares jurisdictional authority of reducing emissions from area sources in California, and as such, has adopted many stringent regulations to reduce emissions from these sources. The District and CARB's rules currently in place ensure continued emissions reductions in the coming years. Table 3-5 includes a list of regulations adopted or amended by CARB since 2000 that are applicable to area sources.

Table 3-5 Adopted CARB Regulations – Area Sources

CARB Regulation	Adoption Date	Category
Small Off-Road Engine Regulations: Transition to Zero Emissions	12/9/2021	Other
Consumer Products Regulation	11/18/2010	Consumer Products
Aftermarket Catalyst Requirements	10/25/2007	Stationary
Vapor Recovery from Above-Ground Storage Tanks	6/21/2007	Stationary
Phase 3 Reformulated Gasoline Amendments	6/14/2007	Stationary
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Agricultural Eng. Exemption removal)	11/16/2006	Other
Distributed Generation Guidelines and Regulations	10/19/2006	Other
Airborne Toxic Control Measure for Stationary Compression Ignition Engines amendments	05/26/2005	Other

CARB Regulation	Adoption Date	Category
Airborne Toxic Control Measure for Stationary Compression Ignition Engines	12/11/2003	Other
Airborne Toxic Control Measure for Outdoor Residential Waste Burning	02/21/2002	Other
Distributed Generation Guidelines and Regulations	11/15/2001	Other
Architectural Coatings	6/22/2000	Stationary
Air Toxic Control Measure for Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Facilities	04/27/2000	Other
Enhanced Vapor Recovery	6/22/2000	Stationary

[This section provided by California Air Resources Board]

3.5.2 CARB Commitments for the San Joaquin Valley

3.5.2.1 Overview of Commitment

SIPs may contain enforceable commitments to achieve the level of emissions necessary to meet federal air quality standards, as defined by the attainment demonstration. The 2022 State SIP Strategy lists new SIP measures and quantifies potential emissions reduction SIP commitments for the San Joaquin Valley based on the measures identified and quantified to date. Adoption of the 2022 State SIP Strategy and the measure schedule by the CARB Board formed the basis of the commitments for emission reductions by the attainment deadlines for each region, that will be proposed for CARB Board consideration alongside the respective nonattainment area's SIP. The commitments will consist of two components:

1. A commitment to bring an item to the CARB Board for defined new measures or take other specified actions within CARB's authority; and
2. A commitment to achieve aggregate emission reductions by specific dates.

As part of each SIP needing emission reductions from the State, the total aggregate emission reductions and the obligation to make certain proposals to the CARB Board or take other actions within CARB's authority specified in the 2022 State SIP Strategy would become enforceable upon approval by U.S. EPA. While the 2022 State SIP Strategy discusses a range of measures and actions, those measures and actions would still be subject to CARB's formal approval process and would not be final until the CARB Board takes action.

3.5.2.1.1 Commitment to Act on Measures

For each of the SIP measures shown in Table 3-6 and Table 3-7, CARB commits to address each measure as described in this document. For each measure committed to, CARB staff would undertake the actions detailed for each measure. In the instance of measures that involve the development of a rule under CARB's regulatory authority, CARB commits to bring a publicly noticed item before the CARB Board that is either a

proposed rule, or is a recommendation that the CARB Board direct staff to not pursue a rule covering that subject matter at that time. This recommendation would be based on an explanation of why such a rule is unlikely to achieve the relevant emission reductions in the relevant timeframe, and would include a demonstration that the overall aggregate commitment will be achieved despite that rule not being pursued. This public process and CARB hearing would provide additional opportunity for public and stakeholder input, as well as ongoing technology review, and assessments of costs and environmental impacts.

The measures, as proposed by staff to the CARB Board or adopted by the CARB Board, may provide more or less than the initial emission reduction estimates. In addition, action by the CARB Board may include any action within its discretion.

3.5.2.1.2 Commitment to Achieve Emission Reductions

The following section describes the estimated emission reduction and potential commitment from the SIP measures identified and quantified to date for the San Joaquin Valley. The aggregate commitment of emissions reductions from State sources to be proposed for CARB Board consideration will be found in CARB's staff report for the San Joaquin Valley 70 ppb 8-hour ozone SIP when it is brought to the CARB Board.

While the 2022 State SIP Strategy includes estimates of the emission reductions from each of the individual new measures, CARB's overall commitment is to achieve the total emission reductions necessary from State-regulated sources to attain the federal air quality standards, reflecting the combined reductions from the existing control strategy and new measures. Therefore, if a particular measure does not get its expected emission reductions, the State's overall commitment to achieving the total aggregate emission reductions still exists. If actual emission decreases occur that exceed the projections reflected in the current emission inventory and the 2022 State SIP Strategy, CARB will submit an updated emissions inventory to U.S. EPA as part of a SIP revision. The SIP revision would outline the changes that have occurred and provide appropriate tracking to demonstrate that aggregate emission reductions sufficient for attainment are being achieved through enforceable emission reduction measures. CARB's emission reduction commitments may be achieved through a combination of actions including but not limited to the implementation of control measures; the expenditure of local, State or federal incentive funds; or through other enforceable measures.

Table 3-6 Measures and Schedule

Measure	Agency	Action	Implementation Begins
On-Road Heavy-Duty			
Advanced Clean Fleets Regulation	CARB	2023	2024
Zero-Emissions Trucks Measure	CARB	2028	2030
On-Road Light-Duty			
On-Road Motorcycle New Emissions Standards	CARB	2022	2025
Clean Miles Standard	CARB	2021	2023
Off-Road Equipment			
Tier 5 Off-Road Vehicles and Equipment	CARB	2025	2029
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	CARB	2022	2024
Transport Refrigeration Unit Regulation Part 2	CARB	2026	2028
Commercial Harbor Craft Amendments	CARB	2022	2023
Cargo Handling Equipment Amendments	CARB	2025	2026
Off-Road Zero-Emission Targeted Manufacturer Rule	CARB	2027	2031
Clean Off-Road Fleet Recognition Program	CARB	2025	2027
Spark-Ignition Marine Engine Standards	CARB	2029	2031
Other			
Consumer Products Standards	CARB	2027	2028
Zero-Emission Standard for Space and Water Heaters	CARB	2025	2030
Enhanced Regional Emission Analysis in State Implementation Plans[16]	CARB	2025	2023
Pesticides: 1,3-Dichloropropene Health Risk Mitigation	DPR[17]	2022	2024
Primarily-Federally and Internationally Regulated Sources – CARB Measures			
In-Use Locomotive Regulation	CARB	2023	2024
Future Measures for Aviation Emission Reductions	CARB	2027	2029

[16] Proposed CARB finalization
[17] California Department of Pesticide Regulation (DPR)

Table 3-7 Measures and Schedule

Measures	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Advanced Clean Fleets			★														
Zero-Emissions Trucks Measure								★									
On-Road Motorcycle New Emissions Standards		★															
Clean Miles Standard	★																
Tier 5 Off-Road Vehicles and Equipment					★												
Amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation		★															
Transport Refrigeration Unit Regulation Part 2						★											
Commercial Harbor Craft Amendments		★															
Cargo Handling Equipment Amendments					★												
Off-Road Zero-Emission Targeted Manufacturer Rule							★										
Clean Off-Road Fleet Recognition Program					★												
Spark-Ignition Marine Engine Standards									★								
Consumer Products Standards							★										
Zero-Emission Standard for Space and Water Heaters					★												
Enhanced Regional Emission Analysis in SIPs																	
Pesticides: 1,3-Dichloropropene Health Risk Mitigation Measure		★															
In-Use Locomotive Regulation			★														
Future Measures for Aviation Emission Reductions							★										

* Yellow star represents the year for which action is proposed; dark blue represents the year implementation begins.

3.5.2.1.3 Statewide Emissions Reductions

The measures in the 2022 State SIP Strategy will provide emission reduction benefits throughout the State. Some of these benefits will come from current programs while the remainder of the benefits will come from new measures. Although the existing control program will provide mobile source emission reductions necessary to meet the attainment needs of many areas of the State, the new measures in the 2022 State SIP Strategy will provide further reductions to enhance air quality progress and achieve the 70 ppb ozone standard.

3.5.2.1.4 Emission Reductions from Current Programs

Table 3-8 provides the remaining mobile source emissions under CARB and district current programs for the State, and the San Joaquin Valley. Ongoing implementation of current control programs is projected to reduce mobile source NOx emissions from today's levels by 521 tpd Statewide, and 122 tpd in the San Joaquin Valley, in 2037. Achieving the benefits projected from the current control program will continue to require significant efforts for implementation and enforcement and thus represents an important element of the overall strategy.

Table 3-8 Mobile Source Emissions under CARB and District Current Control Programs

Mobile Sources	NOx (tpd)			ROG (tpd)		
	2018	2037	Change	2018	2037	Change
Statewide[18]	1156.7	635.3	-45%	638.3	319.5	-50%
San Joaquin Valley[19]	190.0	67.5	-65%	82.7	38.8	-53%

Although most of the 2016 State SIP Strategy measure commitments have been adopted, there is one (Zero-Emission Forklift) that the CARB Board will be acting upon over the next year, and two that were recently adopted but are not yet accounted for in the baseline emissions inventory (Advanced Clean Cars II, Transport Refrigeration Unit Part 1). Table 3-9 below shows the timeline and anticipated emission reductions for these three measures.

[18] Source: 2022 CEPAM v1.01; represents the current baseline emissions out to 100 nautical miles with adopted CARB and district measures

[19] Source: 2019 CEPAM v1.04; represents the current baseline emissions with adopted CARB and district measures

Table 3-9 2016 State SIP Strategy Measures Still to be Adopted[20]

Measure	Action	Implementation Begins	Statewide 2037 NOx (tpd)	Statewide 2037 ROG (tpd)	San Joaquin Valley 2037 NOx (tpd)	San Joaquin Valley 2037 ROG (tpd)
Advanced Clean Cars II	2022	2026	13.5	10.8	1.6	1.3
Transport Refrigeration Unit Part I	2022	2023-2024	1.3	1.0	0.3	0.3
Zero-Emission Forklift	2023	2026	1.7	0.3	<0.1	<0.1
Total			**16.5**	**12.0**	**1.9**	**1.7**

3.5.2.1.5 Emission Reductions from New Measures

The new measures contained in the 2022 State SIP Strategy commitment reflect a combination of State actions, and petitions and advocacy for federal and/or international action.

Statewide emissions reductions from the new measures identified and quantified to date in the 2022 State SIP Strategy are estimated to be 205.6 tpd of NOx and 40.9 tpd of ROG in 2037.

3.5.2.2 San Joaquin Valley

Air quality modeling indicates that total NOx emissions from all sources in the San Joaquin Valley will need to decrease to approximately 60 tpd in 2037, representing an approximate 70 percent reduction from current levels. A significant fraction of the needed reductions will come from the existing control program. In addition, as described above, a few measure commitments included in the 2016 State SIP Strategy have not yet been acted upon or were very recently adopted and are thus not yet in the baseline emissions inventory, as outlined in Table 3-9 above. Action will be taken on the remaining measures in the coming year.

Table 3-10 shows that collectively, emissions reductions from CARB's current control program, reductions from the 2016 State SIP Strategy measures still to be adopted, and reductions estimated from the measures in the 2022 State SIP Strategy provide the emissions reductions needed from State sources to support attainment of the 70 ppb ozone standard in the San Joaquin Valley. The measures in Table 3-11 reflect CARB commitments for State actions and the estimated emissions reductions for the San Joaquin Valley. Additional emissions reductions and controls remain critical in the Valley to accelerate attainment of federal ozone and PM2.5 standards, and to support reductions of DPM and other toxic air contaminants in communities across the Valley.

[20] Numbers may not add up due to rounding.

That said, the SIP is still under development and the emissions reductions may change as the attainment demonstration is finalized. The aggregate commitment of emissions reductions from State sources in the San Joaquin Valley to be proposed for Board consideration will be found in CARB's staff report for the San Joaquin Valley 70 ppb 8-hour ozone SIP.

Table 3-10 San Joaquin Valley NOx Emission Reductions from CARB Programs

CARB Programs in San Joaquin Valley	2037 NOx Emission Reductions (tpd)[21]
Current Control Program[22]	134.5
Potential CARB Emissions Reductions Commitments	25.3
2016 State SIP Strategy Measures (Not yet in baseline inventory)	1.9
New Measures	23.4
Total Reductions	**159.8**

[21] Numbers may not add up due to rounding.
[22] Source: 2019 CEPAM v1.04; represents the current baseline emissions with adopted CARB and district measures

Table 3-11 San Joaquin Valley Expected NOx Emissions Reductions from the 2022 State SIP Strategy[23]

Measure	2037 NOx (tpd)	2037 ROG (tpd)
On-Road Heavy-Duty		
Advanced Clean Fleets Regulation	5.9	0.4
Zero-Emissions Trucks Measure	NYQ	NYQ
Total On-Road Heavy-Duty Reductions	5.9	0.4
On-Road Light-Duty		
On-Road Motorcycle New Emissions Standards	0.3	0.6
Clean Miles Standard	<0.1	<0.1
Total On-Road Light-Duty Reductions	0.3	0.6
Off-Road Equipment		
Tier 5 Off-Road Vehicles and Equipment	1.4	NYQ
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	0.6	<0.1
Transport Refrigeration Unit Regulation Part 2	3.8	0.5
Commercial Harbor Craft Amendments	<0.1	<0.1
Cargo Handling Equipment Amendments	<0.1	<0.1
Off-Road Zero-Emission Targeted Manufacturer Rule	NYQ	NYQ
Clean Off-Road Fleet Recognition Program	NYQ	NYQ
Spark-Ignition Marine Engine Standards	0.3	0.6
Total Off-Road Equipment Reductions	6.1	1.2
Other		
Consumer Products Standards	--	NYQ
Zero-Emission Standard for Space and Water Heaters	NYQ	NYQ
Enhanced Regional Emission Analysis in State Implementation Plans	NYQ	NYQ
Pesticides: 1,3-Dichloropropene Health Risk Mitigation	--	NYQ
Total Other	NYQ	NYQ
Primarily-Federally and Internationally Regulated Sources – CARB Measures		
In-Use Locomotive Regulation	11.2	0.4
Future Measures for Aviation Emission Reductions	NYQ	NYQ
Total Primarily-Federally and Internationally Regulated Sources – CARB Measures Reductions	11.2	0.4
Aggregate Emissions Reductions	**23.4**	**2.5**

[23] Numbers may not add up due to rounding.

3.5.2.3 CARB Measures

3.5.2.3.1 On-Road Heavy-Duty

Advanced Clean Fleets Regulation

This measure accelerates zero-emission vehicle adoption in the medium- and heavy-duty sectors by setting zero-emission requirements for fleets and 100 percent ZEV sales requirement in California for manufacturers of Class 2b through 8 vehicles. The Advanced Clean Fleets Regulation will focus on strategies to ensure that the cleanest vehicles are deployed by government, business, and other entities in California to meet their transportation needs. The requirements would be phased in on varying schedules for different fleets including public, drayage trucks, and high priority private and federal fleets. Public fleets would be required to phase-in purchase requirement starting at 50 percent of new purchases in 2024 and 100 percent starting in 2027. All drayage trucks operating at seaports and intermodal railyards would be required to be zero-emission by 2035. Drayage trucks will also have new registration and reporting requirements, starting in 2023. High priority private and federal fleets would be required to phase in zero-emission vehicles as a percentage of the total fleet. The fleet requirements are based on zero-emission suitability and are phased in by vehicle body type. The Advanced Clean Fleets Regulation would also include a requirement that 100 percent of Class 2b and above vehicle manufacturer sales in California are zero-emissions starting in 2040.

Zero-Emission Trucks Measure

This measure would increase the number of ZEVs and require cleaner engines to achieve emissions reductions from fleets that are not affected by the proposed Advanced Clean Fleets measure. This would include potential zero-emissions zone concepts around warehouses and sensitive communities if CARB is given new authority to enact indirect source rules in combination with strategies to upgrade older trucks to newer and cleaner engines. This would be a transitional strategy to achieve zero-emissions medium- and heavy-duty vehicles everywhere feasible by 2045.

3.5.2.3.2 On-Road Light-Duty

On-Road Motorcycles New Emissions Standards

This measure would reduce emissions from new, on-road motorcycles by adopting more stringent exhaust and evaporative emissions standards along with limited on-board diagnostics requirements and zero-emissions sales thresholds with an associated credit program to help accelerate the development of zero-emissions motorcycles. The new exhaust emissions standards include substantial harmonization with the more stringent European motorcycle emissions standards already in place. The new evaporative emissions standards are based on more aggressive CARB off-highway recreational vehicle emissions standards that exist today. This measure also

proposes significant zero-emission motorcycle sales thresholds beginning in 2028 and increasing gradually through 2035.

Clean Miles Standard

The Clean Miles Standard was adopted by CARB on May 20, 2021. The primary goals of this measure are to reduce GHG emissions from ride-hailing services offered by transportation network companies (TNCs) and promote electrification of the fleet by setting an electric vehicle mile target, while achieving criteria pollutant co-benefits. TNCs would be required to achieve zero grams CO_2 emissions per passenger mile traveled and 90 percent electric VMT by 2030.

3.5.2.3.3 Off-Road Equipment

Tier 5 Off-Road Vehicles and Equipment

This measure would reduce NOx and particulate matter (PM) emissions from new off-road compression-ignition (CI) engines by adopting more stringent exhaust standards for all power categories, including those that do not currently utilize exhaust aftertreatment such as diesel particulate filters and selective catalytic reduction. This measure would be more stringent than required by current U.S. EPA and European Stage V nonroad regulations and would require the use of best available control technologies.

For this measure, CARB staff would develop and propose standards for new off-road CI engines including the following: aftertreatment-based PM standards for engines less than 19 kilowatt (kW) (25 horsepower [hp]), aftertreatment-based-NOx standards for engines greater than or equal to 19 kW (25 hp) and less than 56 kW (75 hp), and more stringent PM and NOx standards for engines greater than or equal to 56 kW (75 hp). Other possible elements include enhancing in-use compliance, proposing more representative useful life periods, and developing a low load test cycle. It is expected that this comprehensive off-road Tier 5 regulation would rely heavily on technologies manufacturers are developing to meet the recently approved low NOx standards and enhanced in-use requirements for on-road heavy-duty engines.

Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation

This measure would further reduce emissions from the in-use off-road diesel equipment sector by adopting more stringent requirements to the In-Use Off-Road Diesel-Fueled Fleets Regulation. These amendments would create additional requirements to the currently regulated fleets by targeting the oldest and dirtiest equipment that is allowed to operate indefinitely under the current regulation's structure.

The amendments would include an operational backstop to the current In-Use Off-Road Diesel-Fueled Fleets Regulation for most Tier 0, 1, and 2 engines between 2024 and 2032. This will allow a 12-year phase out of these oldest engines. Along with the

operational backstop, adding vehicle provisions in the current regulation will be extended to phase in a limitation on the adding of Tier 3 and Tier 4i vehicles to fleets. The amendments also include proposed new requirements for most fleets to use renewable diesel, proposed requirements for prime contractors and public works awarding bodies to increase the enforceability of the regulation, and optional flexibility provisions for fleet adoption of zero-emission vehicles. Additional modifications could include clarification to implementation and sunset provisions that would have allowed small fleets to continue to operate vehicles that could not be retrofitted with a verified diesel emission control strategy indefinitely.

Transport Refrigeration Unit Regulation Part 2 (Non-Truck TRUs)

This measure is the second part of a two-part rulemaking to transition diesel-powered transport refrigeration units (TRUs) to zero-emission technologies. This measure would require zero-emission equipment for non-truck TRUs (trailer TRUs, domestic shipping container TRUs, railcar TRUs, TRU generator sets, and direct-drive refrigeration units).

Commercial Harbor Craft Amendments

This measure proposes that starting in 2023 and phasing in through 2031, most commercial harbor crafts (CHCs) (except for commercial fishing vessels and categories listed below) would be required to meet the cleanest possible standard (Tier 3 or 4) and retrofit with diesel particulate filters (DPFs) based on a compliance schedule. The current regulated CHC categories are ferries, excursion, crew and supply, tug/tow boats, barges, and dredges. The amendments would impose in-use requirements on the rest of vessel categories except for commercial fishing vessels, including workboats, pilot vessels, commercial passenger fishing, and all barges over 400 feet in length or otherwise meeting the definition of an ocean-going vessel. The amendments would also remove the current exemption for engines less than 50 hp.

The measure also proposes that, starting in 2025, all new excursion vessels be required to be plug-in hybrid vessels that are capable of deriving 30 percent or more of combined propulsion and auxiliary power from a zero-emission tailpipe emission source. Starting in 2026, all new and in-use short run ferries would be required to be zero-emission; and starting in 2030 and 2032, all commercial fishing vessels would need to meet a Tier 2 standard at minimum.

Cargo Handling Equipment Amendments

This measure would start transitioning Cargo Handling Equipment (CHE) to full zero-emission in 2026, with over 90 percent penetration of ZE equipment by 2036. Based on the current state of zero-emission CHE technological developments, the transition to zero-emission would most likely be achieved largely through the electrification of CHE. This assumption about aggressive electrification is supported by the fact that currently some electric RTG cranes, electric forklifts, and electric yard tractors are already commercially available. Other technologies are in early production or demonstration phases.

Off-Road Zero-Emission Targeted Manufacturer Rule

The Off-Road Zero-Emission Targeted Manufacturer Rule would accelerate the development and production of zero-emission off-road equipment and powertrains. Existing zero-emission regulations and regulations currently under development target a variety of sectors (e.g., forklifts, cargo handling equipment, off road fleets, Small Off-Road Engines (SORE), etc.). However, as technology advancements occur, more sectors including wheel loaders, excavators, and bulldozers could be accelerated. Fully addressing control of emissions from new farm and construction equipment under 175 horsepower that are preempted will require partnership on needed Federal zero-emission standards for off-road equipment.

This measure would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume. Sales/production mandate levels would be developed based on the projected feasibility of zero-emission technology to enter and grow in the various off-road equipment types currently operating in California. This measure is expected to increase the availability of zero-emission options in the off-road sector and support other potential measures that promote and/or require the purchase and use of such options. A targeted manufacturer regulation will need to take into account parameters such as the number of equipment and engine manufacturers producing off-road equipment for sale in California, along with sales volumes, to ensure that such an effort is cost effective and technologically feasible.

Clean Off-Road Fleet Recognition Program

This measure would create a non-monetary incentive to encourage off-road fleets to go above and beyond existing regulatory fleet rule compliance and adopt advanced technology equipment with a strong emphasis on zero-emission technology. The Clean Off-Road Fleet Recognition Program would provide a standardized methodology for contracting entities, policymakers, state and local government, and other interested parties to establish contracting criteria or require participation in the program to achieve their individual policy goals.

The Clean Off-Road Fleet Recognition Program framework would encourage entities with fleets to incorporate advanced technology and zero-emission vehicles into their fleets, prior to or above and beyond regulatory mandates based on fleet size. The program would provide standardized criteria or a rating system for participation at various levels to reflect the penetration of advanced technology and zero-emission vehicles into a fleet. Levels could be scaled over time as zero-emission equipment becomes more readily available. CARB anticipates the next several years of technology advancements and demonstrations to drive the stringency of the rating system. Participation in the program would be voluntary for entities with fleets, however, designed in a manner that provides them motivation to go beyond business as usual. The program would offer value for entities with fleets to participate by potentially providing them increased access to jobs/contracts, public awareness, and marketing opportunities.

Spark-Ignition Marine Engine Standards

For this measure, CARB will develop and propose catalyst-based standards for outboard and personal watercraft engines less than or equal to 40 kW in power that will gradually reduce emission standards to approximately 70 percent below current levels. For outboard and personal watercraft engines under 40 kW, more stringent exhaust standards will be developed and proposed based on the incorporation of electronic fuel injection that will gradually reduce emission standards 40 percent below current levels. This measure would require a 5.0 g/kW-hr HC+NOx standard for outboard engines and personal watercraft engines at or above 40 kW in power and a 10.0 g/kW-hr HC+NOx standard for engines less than 40 kW.

In addition to requiring more stringent exhaust standards, CARB is considering actions consistent with Executive Order N-79-20 that would require a percentage of outboard and personal watercraft vessels to be propelled by zero-emission technologies for certain applications . Outboard engines less than 19 kW, which are typically not operated aggressively or for extended periods, could potentially be phased out and gradually replaced with zero-emission technologies. Some personal watercraft applications could also potentially be replaced with zero-emission technologies.

3.5.2.3.4 Other

Consumer Products Standards

This measure will further reduce VOC and equivalent VOC emissions from consumer products to expedite attainment of national ambient air quality standards for ozone. As with previous rulemakings, emission reductions will be achieved by setting regulatory standards applicable to the content of consumer products. To meet emission reduction targets for the measure, CARB staff will evaluate categories with relatively high contributions to ozone formation, whether currently regulated or unregulated. Staff will consider the merits of proposing VOC content standards as well as reactivity limits. Staff developing proposed amendments to the Consumer Products Regulation will also

consider investigating concepts for expanding manufacturer compliance options, market-based approaches, and reviewing existing exemptions. Staff will work with stakeholders to explore mechanisms that would encourage the development, distribution, and sale of cleaner, very low, or zero-emitting products. In undertaking these efforts, staff will prioritize strategies that achieve the maximum feasible reductions in ozone forming, toxic air contaminant, and GHG emissions. This measure complements a parallel measure in CARB's Climate Change Scoping Plan Update, to be considered by the CARB Board in 2022, to phase down use of HFC-152a and other GHGs in consumer products.

Zero-Emission Standard for Space and Water Heaters

For this measure, CARB would develop and propose zero GHG emission standards for space and water heaters sold in California; CARB could also work with air districts to further tighten district rules to drive zero-emission technologies. This measure would not mandate retrofits in existing buildings, but some buildings would require retrofits to be able to use the new technology that this measure would require. Beginning in 2030, 100 percent of sales of new space and water heaters (for either new construction or replacement of burned-out equipment in existing buildings) would need to meet zero-emission standards. It is expected that this regulation would rely heavily on heat pump technologies currently being sold to electrify new and existing homes.

Enhanced Regional Emissions Analysis in SIPs

The primary goal of this measure is to reduce criteria pollutant and GHG emissions that come from on-road mobile sources through reductions in VMT. In addition, lowering VMT will help alleviate traffic congestion, improve public health, reduce consumption of fossil fuels, and reduce infrastructure costs. CARB is exploring three options to reduce ROG and NOx emissions through reductions in VMT. First, CARB will consider whether and how to change the process for developing Motor Vehicle Emissions Budgets (MVEB) by evaluating the existing MVEB development process to meet NAAQS. In addition, CARB will assess and improve the Reasonably Available Control Measures (RACM) analysis in the SIP by providing a comprehensive list of Transportation Control Measures (TCMs) and emission quantification methodology. Finally, CARB will consider updating the guidelines for the California Motor Vehicle Registration Fee (MV Fees) Program and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program to fund a broader range of transportation and air quality projects that advance new approaches and technologies in reducing air pollution.

1,3-Dichloropropene Health Risk Mitigation

Pesticides are regulated under both federal and state law. DPR is the agency responsible for regulating the sale and use of pesticides in California. DPR can generally reduce exposures to pesticides through the development and implementation of necessary restrictions on pesticide sales and use and by encouraging integrated pest

management. Considered a volatile organic compound (VOC), 1,3-Dichloropropene (1,3-D) is a fumigant used to control nematodes, insects, and disease organisms in soil.

DPR is developing a regulation to address both cancer and acute risk to non-occupational bystanders from the use of 1,3-D. The regulation will be developed in consultation with the County Agricultural Commissioners (CACs), the local air districts, CARB, the Office of Environmental Health Hazard Assessment (OEHHA), and the California Department of Food and Agriculture (CDFA). Once implemented, DPR's regulation would require applicators to use totally impermeable film (TIF) tarpaulins or other mitigation measures that provide a comparable degree of protection from exposure.

3.5.2.3.5 Primarily-Federally and Internationally Regulated Sources – CARB Measures

In addition to reducing emissions from the above sources, it is critical to achieve emissions reductions from sources that are primarily regulated at the federal and international level. It is imperative that the federal government and other relevant regulatory entities act decisively to reduce emissions from these primarily-federally and internationally regulated sources of air pollution. CARB and the air districts in California have taken actions to not only petition federal agencies for action, but also to directly reduce emissions using programmatic mechanisms within our respective authorities. CARB continues to explore additional actions, many of which may require a waiver or authorization under the Clean Air Act, as described below.

In-Use Locomotive Regulation

This measure would use mechanisms available under CARB's regulatory authority to accelerate the adoption of advanced, cleaner technologies, and include zero emission technologies, for locomotive operations. The In-Use Locomotive Regulation would apply to all locomotives operating in the State of California with engines that have a total rated power of greater than 1,006 horsepower, excluding locomotive engines used in training of mechanics, equipment designed to operate both on roads and rails, and military locomotives. The measure reduces emissions by increasing use of cleaner diesel locomotives and zero-emission locomotives through a spending account, in-use operational requirements, and by an idling limit. By July 1, 2024, a spending account would be established for each locomotive operator. Funds in the account would only be used toward Tier 4 or cleaner locomotives until 2030, and at any time toward zero-emission locomotives, zero-emission pilot or demonstration projects, or zero-emission infrastructure.

For the in-use operational requirements, beginning January 1, 2030, only locomotives built after January 1, 2007 may operate in California. Each year after January 1, 2030, only locomotives less than 23 years old may operate in California. Additionally, under the in-use operational requirements, starting January 1, 2030, all switch, industrial, and passenger locomotives operating in California with an original engine build date 2030 or

newer will be required to be zero emission. Starting January 1, 2035, all freight line haul locomotives operating in California with an original engine build date 2035 or newer must be zero emission. Locomotives equipped with automatic engine stop/start systems are to idle no more than 30 minutes unless an exemption applies. Also, locomotive operators would report locomotive engine emissions levels and activity on an annual basis.

Future Measures for Aviation Emissions Reductions

Future measures for aviation would reduce emissions from airport and aircraft related activities. The identified emission sources for the aviation sector are main aircraft engines, auxiliary power units (APU), and airport ground transportation. Emission reductions can be achieved by pursuing incentive and regulatory measures.

CARB would evaluate federal, state, and local authority in setting operational efficiency practices to achieve emission reductions. Operational practices include landing, takeoff, taxi, and running the APU, and contribute to on-ground and near-ground emissions. Near ground emissions are emissions between ground level up to 3,000 feet. Operational practices such as de-rated takeoff and reduced power taxiing have the potential to achieve emission reductions.

CARB would similarly work with U.S. EPA, Air Districts, airports, and industry stakeholders in a collaborative effort to develop regulations, voluntary measures, and incentive programs. CARB would evaluate the incentive amounts that would be required to encourage aircrafts to voluntarily use cleaner engines and fuels. Incentives to encourage the use of cleaner engines and fuels for aircraft in California would involve identification of funding sources and implementation mechanisms such as development of new programs.

3.6 OTHER STATE AGENCIES

Other state agencies, including DPR and the California Geologic Energy Management Division (CalGEM), among other agencies, work alongside the District to establish comprehensive air quality control programs to meet stringent air quality standards in the San Joaquin Valley. The District and CARB continue to work alongside these agencies to develop and implement strategies to reduce emissions in the Valley.

3.7 FEDERAL CONTROL OPPORTUNITIES

The Clean Air Act is a system of “cooperative federalism,” where regions, states, and federal agencies work together to improve air quality and public health. As described above, for decades, the District has promulgated and implemented measures to reduce emissions from sources of air pollution under its regulatory authority. The District has also deployed innovative measures to reduce emissions from mobile and indirect

sources of air pollution that fall outside its traditional regulatory authority with stationary sources. The District continues to seek additional local emissions reductions, but the Valley has reached a point where attainment of the health-based standards established under the Federal Clean Air Act is not viable without significant quantifiable and enforceable reductions in emissions from mobile sources that fall exclusively under federal jurisdiction such as interstate heavy-duty trucks, locomotives, aircraft and other mobile sources. The South Coast air basin and other nonattainment areas find themselves in similar situations, and with newly established federal air quality standards, many other regions throughout the nation will also face similar difficulties.

The District has jurisdiction over stationary and area sources, which make up less than 15% of the total NOx emissions inventory. With over 80% of the Valley's remaining ozone and PM2.5 precursor emissions now coming from mobile sources, of which 39% are under the federal government's jurisdiction, additional reductions from heavy-duty trucks and other mobile sources are needed for the Valley to reach federal air quality standards. The District has previously submitted petitions to the federal government requesting that they reduce their fair share of emissions in an equitable manner through more stringent national standards for heavy-duty trucks and locomotives. Similarly, in April 2017, CARB petitioned EPA to adopt more stringent emission standards for locomotives, in order to provide critical NOx and PM2.5 reductions specifically for disadvantaged communities surrounding railyards.[24] CARB asked EPA to update standards, to take effect for remanufactured locomotives in 2023 and for newly built locomotives in 2025. In response to the District and similar petitions submitted by CARB and SCAQMD, on March 3, 2022, EPA proposed a rule to reduce emissions from new heavy-duty trucks nationwide. Additionally on November 9, 2022, EPA committed to evaluating and identifying potential regulatory actions to address emissions from locomotives.

CARB's primary regulatory authority is the regulation of mobile sources of emissions. Mobile sources are the largest contributor to criteria pollutant and air toxic emissions in the San Joaquin Valley and throughout the State. In recent Valley attainment plans for PM2.5 and ozone, a large piece of the overall emissions reduction commitment has come from mobile source measures under the jurisdiction of CARB. CARB's progress in developing and implementing these measures has contributed to the substantial improvements in Valley air quality, and will continue to do so in the future. Although CARB has promulgated stringent mobile source measures for vehicles and fleets in California, emissions from interstate heavy-duty trucks, locomotives, and other federal mobile sources have not been reduced as significantly. Considering the continuing emissions reductions from sources regulated by the District and CARB, and the remaining challenges under federal ozone standards, it is increasingly critical that federal government take action to reduce emissions from sources under federal regulatory control.

[24] CARB. *Petition for Rulemaking: Seeking the Amendment of the Locomotive Emission Standards.* April 13, 2017. Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2020-07/final_locomotive_petition_and_cover_letter_4_3_17.pdf

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