

Adopt 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards

San Joaquin Valley Air Pollution Control District
Governing Board Meeting
November 15, 2018

New PM2.5 Plan for San Joaquin Valley

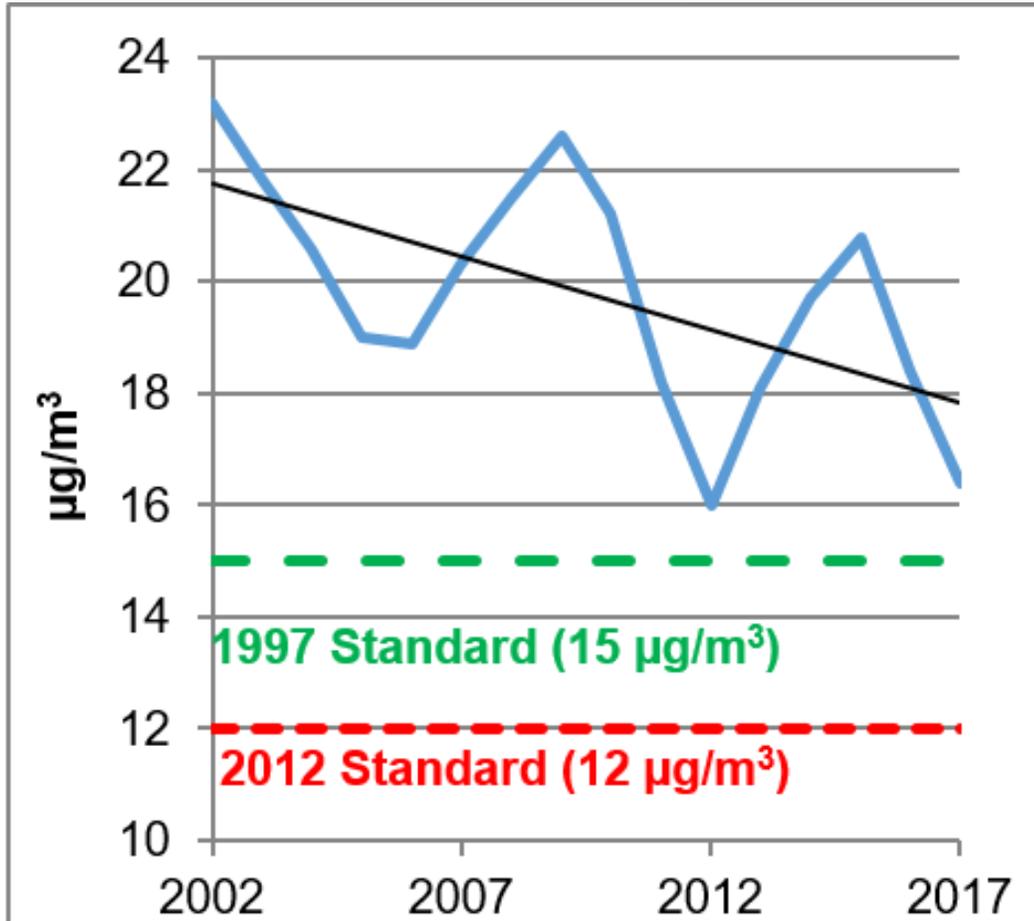
- Builds on decades of implementing effective clean air strategies
 - Despite progress, Valley still faces significant challenges in meeting latest health-based PM2.5 standards under federal Clean Air Act
- Developed through an extensive public engagement process that addresses multiple PM2.5 standards under Clean Air Act
 - Supports integrated ozone/PM2.5 strategy that focuses on additional NOx and direct PM2.5 emission reductions
- Demonstrates attainment strategy satisfies all Clean Air Act requirements
- Includes comprehensive suite of District/CARB regulatory and incentive-based measures to achieve emissions reductions necessary from stationary and mobile sources to bring Valley into attainment
- Provides for expeditious attainment by all applicable deadlines
- Requires significant increase in funding for incentive measures

Plan is Latest Effort in Ongoing Mission to Improve Air Quality and Protect Public Health

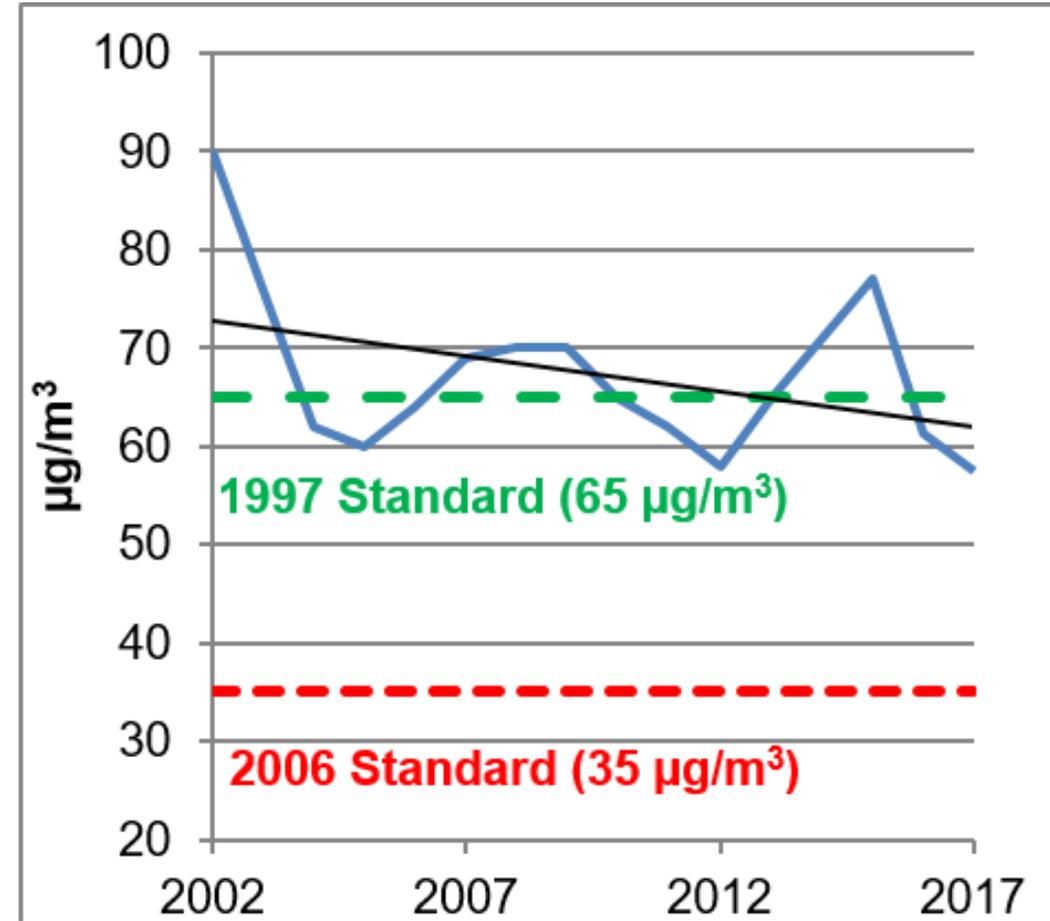
- District/CARB have adopted numerous attainment plans
 - Toughest stationary/mobile regulations in the nation
 - District adopted nearly 650 stringent rules and regulations
 - Groundbreaking rules serve as model for others
- Stationary source emissions reduced by over 85%
- Strong incentive programs (over \$2.2 billion in public/private investment reducing over 145,000 tons of emissions)
- Due to the significant investments made by Valley businesses and residents and stringent regulatory programs by the District and CARB, the Valley's air quality continuing to improve
 - Valley now in attainment with federal PM10 standard, one-hour ozone standard, and 24-hour PM2.5 standard of 65 $\mu\text{g}/\text{m}^3$

Valley PM2.5 Air Quality Improvement

Annual PM2.5 Design Value

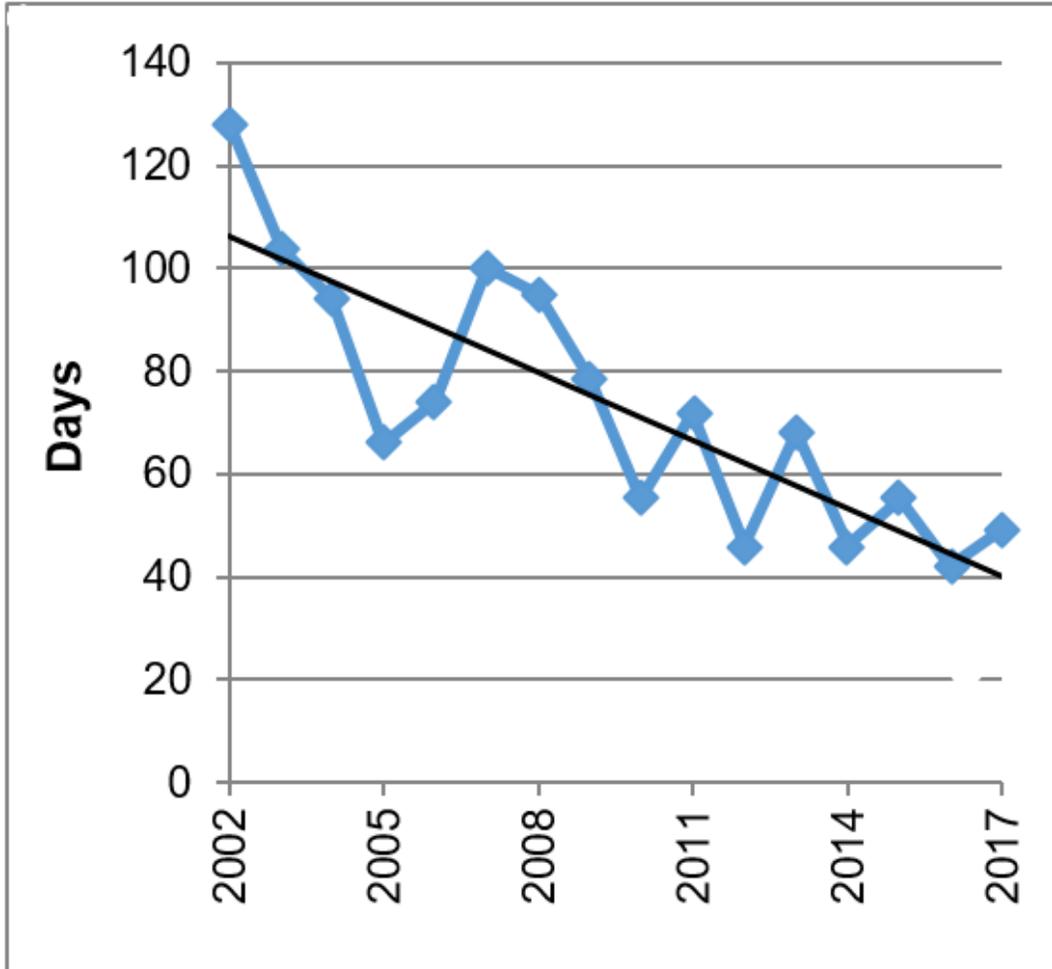


24-hour PM2.5 Design Value

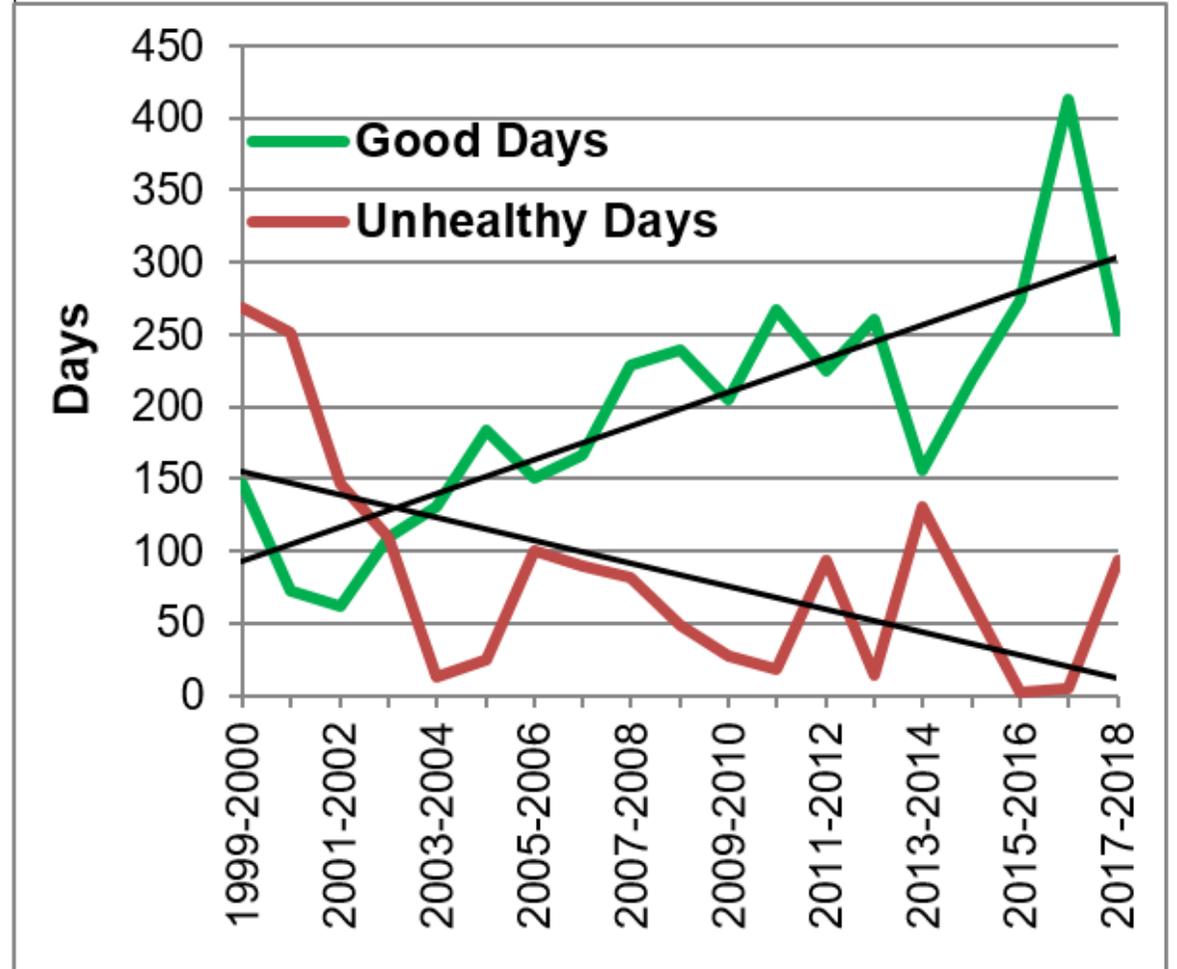


Valley PM2.5 Air Quality Improvement (cont'd)

Days Valley Exceeded 2006 Federal 24-hour PM2.5 Standard



Air Quality Index (AQI) Days During Winter Season for All Valley Counties



New Plan Addresses Multiple PM2.5 Standards

- Despite progress, Valley still faces significant challenges in meeting latest health-based PM2.5 standards under federal Clean Air Act
- 1997 PM2.5 Standard (24-hour 65 $\mu\text{g}/\text{m}^3$ and annual 15 $\mu\text{g}/\text{m}^3$)
 - Serious area 5% Plan with attainment deadline of December 31, 2020
- 2006 PM2.5 Standard (24-hour 35 $\mu\text{g}/\text{m}^3$)
 - Serious area Plan with attainment deadline of December 31, 2024
- 2012 PM2.5 Standard (annual 12 $\mu\text{g}/\text{m}^3$)
 - Serious area Plan with attainment deadline of December 31, 2025

Plan Based on Strong Scientific Foundation and Extensive Air Quality Modeling

- Plan modeling and scientific foundation derived from San Joaquin Valley Study Agency Research
 - Partnership with CARB, EPA, USDA, other air districts, research institutions, agriculture, and other stakeholders
 - \$60 million investment to further understand Valley air pollution dynamics
 - California Region Particulate Air Quality Study (CRPAQS) critical regional PM study
 - Improved understanding of PM emissions, composition, and formation
 - Developed methods to identify most efficient and cost-effective control strategies
- Extensive modeling performed by CARB and District
 - District's new Air Quality Modeling Center enabled District and CARB to work more closely and collaborate to improve inputs to the model and ensure appropriate characterization of both current programs and proposed new measures

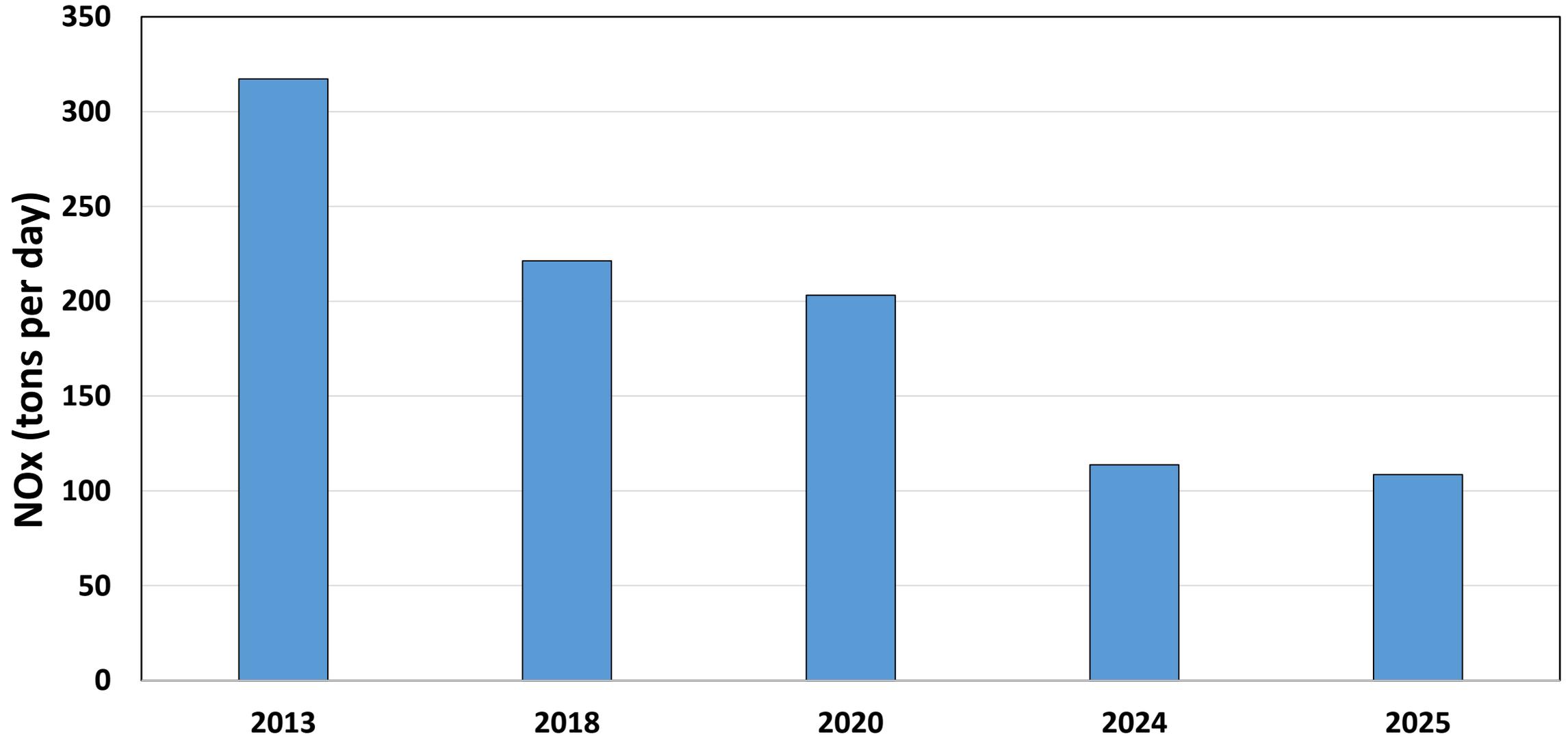
Plan Includes Comprehensive Strategy Building on Existing Strategies

- Consistent with your Board's long-standing direction, District performed exhaustive evaluation of all sources for potential emission reductions
- Plan includes comprehensive suite of measures to reduce direct PM2.5 and NOx emissions from stationary and mobile sources
 - Valleywide regulatory measures
 - Valleywide incentive-based measures
 - State mobile source strategy
 - Targeted “hot-spot” strategy (Madera, Fresno, and Kern counties)
 - Public outreach and education
 - Technology advancement and demonstration efforts
 - Call for action by state and federal governments to do their part in reducing emissions in Valley

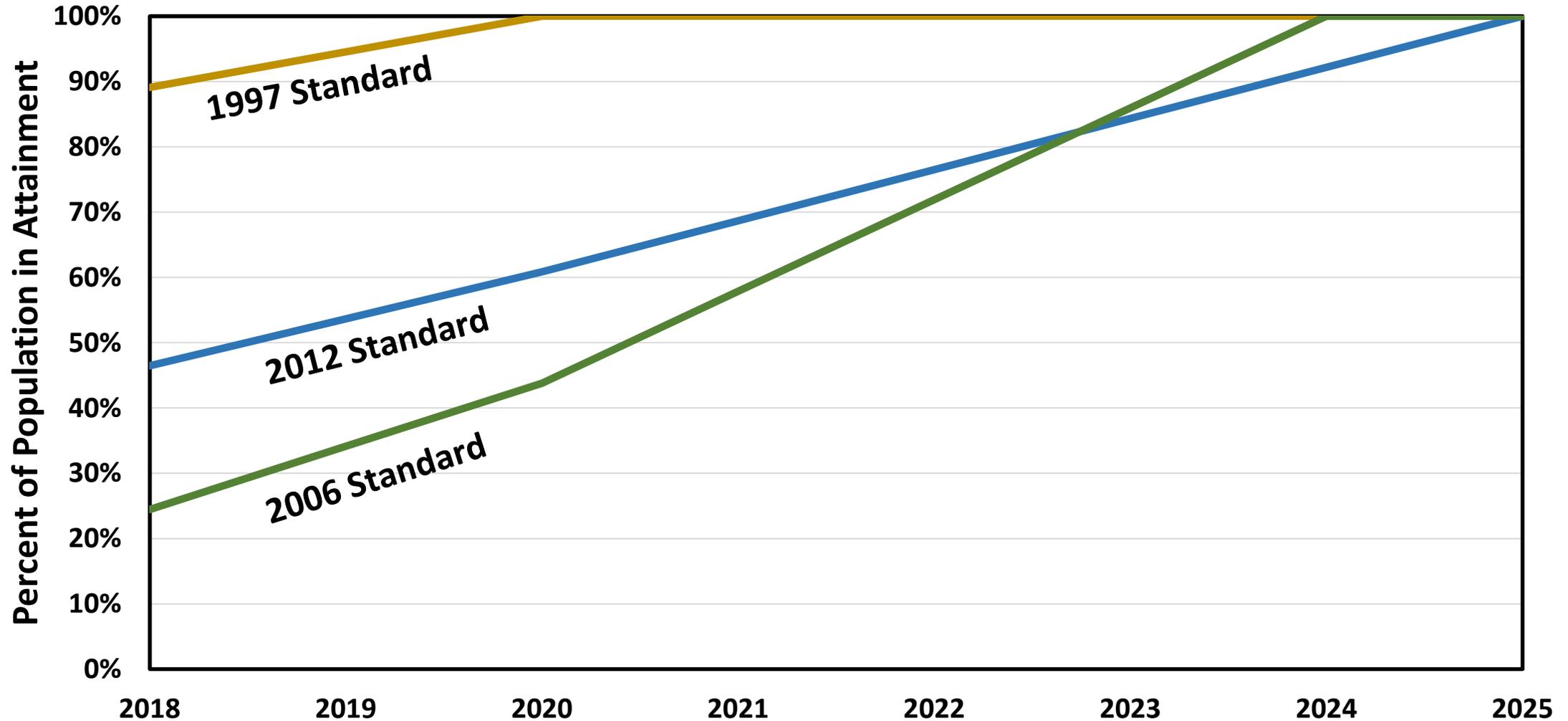
New Plan Achieves Significant Emissions Reductions

- Plan significantly reduces NOx emissions in the San Joaquin Valley in the coming years:
 - 66% reduction during Plan period of 2013 through 2025
 - 51% reduction during 2018 through 2025
- Plan measures further reduce direct PM2.5 emissions from residential wood burning, commercial charbroiling, fugitive particulate matter, and other sources
- Plan addresses all federal requirements and demonstrates expeditious attainment

New Plan Achieves Significant Emissions Reductions (cont'd)



Valley's Journey to Attainment of PM2.5 Standards



New Valleywide Measures

- Boilers, Steam Generators, & Process Heaters > 5.0 MMBtu/hr (Rules 4306/4320)
 - Further reduce NOx emissions to the extent that additional NOx controls are technologically and economically feasible (already reduced by 96% through existing rules)
 - Evaluate feasible ultra low-NOx control technologies (enhanced SCR, etc.) that may be able to achieve as low as 5 ppmv NOx
 - Establish even more stringent technology-forcing Advanced Emission Reduction Option (AERO) emission limits as low as 2 ppmv NOx
- Flares (Rule 4311)
 - Further reduce NOx emissions to the extent further controls are technologically achievable and economically feasible (already subject to stringent requirements)
 - Ultra-low NOx flare emission limitations for existing and new flaring activities
 - Additional flare minimization requirements
 - Expand applicability
- Municipal Solid Waste-fired Boilers (Rule 4352)
 - Further reduce NOx emissions by amending the rule to lower NOx limits for municipal solid waste-fired boilers to the extent that such controls are technologically achievable and economically feasible (already subject to stringent requirements)

New Valleywide Measures (cont'd)

- Non-Ag IC Engines (Rule 4702)
 - Further reduce NOx emissions by lowering NOx limits to the extent that such controls are technologically achievable and economically feasible (already reduced by 98% through existing rules)
 - Potentially more stringent limits as low as 5 ppmv
- Ag IC Engines (Rule 4702)
 - Further reduce NOx emissions through incentive-based/regulatory approach as technologically and economically feasible (already reduced by 80% through existing rules)
 - Provide flexibility to achieve additional reductions and promote electrification where feasible

New Valleywide Measures (cont'd)

- Glass Melting Furnaces (Rule 4354)
 - Further reduce NO_x emissions for container glass furnaces to the extent that additional NO_x controls are technologically and economically feasible (already reduced by 75% through existing rules)
 - Evaluate feasible ultra low-NO_x technologies (catalytic filtration, oxy-fuel combined with SCR, etc.)
 - Potential limits: 1.0-1.2 lb NO_x/ton glass pulled and evaluate even lower levels
- Conservation Management Practices (Rule 4550)
 - Evaluate measures to promote the selection of conservation tillage as a CMP for croplands (already reduced through stringent requirements)
 - Evaluate the feasibility and effectiveness of CMPs on fallow lands that are tilled or otherwise worked with implements of husbandry, to reduce windblown PM_{2.5} emissions from disturbed fallowed acreage

New Valleywide Measures (cont'd)

- Plan includes number of additional strategies that will further reduce emissions from variety of sectors
 - Alternatives to agricultural burning
 - Nut harvesting activities
 - Commercial lawn and garden
 - Fuel reduction efforts in forests
- Clean air technology advancement efforts
- Strong public outreach efforts to educate Valley residents and businesses:
 - Air quality efforts and progress made
 - Air quality challenges that remain
 - Opportunities for getting involved
 - Support for new air quality strategies and needed resources for the Valley

New Valleywide Control Measures for Wood Burning Fireplaces and Wood Burning Heaters

- District currently implements most stringent residential wood burning strategy in the nation
 - Strong wood burning curtailment regulation (Rule 4901)
 - Strong incentives for transition to cleaner devices
 - Extensive public education and outreach
- Most cost-effective emission reduction strategies adopted by District
- Reduces air pollution where and when needed most
 - During wintertime PM2.5 peak season
 - In Valley neighborhoods where residents live and work
- Despite significant reductions under current strategy, meeting federal PM2.5 standards requires additional direct PM2.5 emissions reductions
 - Extensive evaluation conducted by District staff for additional opportunities

New Valleywide Control Measure for Wood Burning Fireplaces and Wood Burning Heaters (cont'd)

- Maintain existing strict curtailment levels in non-hot-spot areas Valleywide
- Continue to offer current level of incentives in non-hot-spot areas Valleywide
- Prohibit wood-burning devices in new construction
 - At higher elevations, only allow EPA-certified devices, subject to density requirements
- Enhanced outreach and education efforts to increase awareness of wood burning health impacts and District's residential wood burning reduction strategy
- New visible emissions limitations for residential wood burning
- Require removal of open-hearth fireplaces during significant remodels
- Only allow seasoned wood to be burned
- Enhanced enforcement to assure continued high compliance rate Valleywide
- Enhanced enforcement during transfer of real property by requiring verification forms for all house transfers in the Valley
- Enhanced curtailment forecasting through use of new meteorological and air quality models and tools as feasible

New Hot-Spot Measures Needed for Attainment

- Existing and new Valleywide measures achieve significant reductions that will bring majority of Valley into attainment
- Under federal Clean Air Act, entire Valley is designated as not meeting standard if only handful of high concentrations occur at a monitor at the worst location, at the worst time
- Hot-Spot Strategy only path available to address remaining nonattainment locations
 - Kern County, Fresno County, and Madera County
- Targeted regulations supported by increased incentive funding
- Reduced future regulatory burden for specific regions
- Reduced overall cost to all regions by achieving attainment of federal standards more expeditiously

New Hot-Spot Measure for Residential Wood Burning

- In addition to Valleywide requirements, more stringent wood burning curtailments in hot-spot areas:
 - Lower burn prohibitions for non-registered units from 20 to 12 $\mu\text{g}/\text{m}^3$
 - Lower burn prohibitions for all devices from 65 to 35 $\mu\text{g}/\text{m}^3$
- Burn Cleaner Program enhancements in hot-spot areas:
 - Provide enhanced levels of incentives to replace wood burning devices in hot-spot areas with only natural gas or propane units
 - \$75 million needed funds, \$57 million dedicated to hot-spot areas
- To address contingency, require enhanced residential wood burning curtailments in remaining counties in event they do not attain by deadlines

New Hot-Spot Measure for Commercial Underfired Charbroilers

- Current regulatory measure in place to reduce emissions from commercial chain-driven charbroilers (84% reduction in emissions)
- New innovative measure would reduce emissions from commercial underfired charbroilers in urban boundaries of hot spots
 - Strong incentives for installation/maintenance of controls for existing large underfired charbroilers
 - Incentives for installation of controls on large new charbroilers
 - To ensure early and robust use of incentives, supplemented with regulatory backstop to encourage participation
- Cost-effective expenditure of resources (\$45 million investment in charbroiler emissions reductions equivalent to billions of dollars in cost for NO_x reductions)

New CARB Measures for Valley

- CARB adopted *San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan* in October 2018
- CARB committed to reducing an additional 32 tpd of NOx and additional 1 tpd of PM2.5
 - Heavy duty truck inspection and maintenance
 - Accelerated turnover of trucks/buses through incentives
 - Accelerated turnover of off-road equipment through incentives
 - Accelerated turnover of agricultural equipment through incentives
- CARB measures rely heavily on incentive-based strategies that require billions of dollars in funding

Funding Imperative for Valley's Efforts to Achieve Expedited Reductions in Emissions

- Robust incentive-based emission reduction strategy necessary to achieve enormous reductions needed within 2024/2025 timeframe
 - Need significant reductions from mobile sources under state/federal jurisdiction
- Mobile source strategy relies heavily on incentive measures for trucks, ag equipment, and off-road equipment (requires \$5 billion in new funding)
 - Requires significant new and sustained state funding for new mobile source commitments
 - Requires federal funding to supplement local funds
 - Build upon recent success by San Joaquin Valley in bringing significant new state incentive funding to the Valley for clean air projects (e.g., AB 134, FARMER)

Significant New Incentive Funding Needed

- Total of approximately \$5 billion needed to fund incentive-based control measures
- Plan includes State's recently adopted commitment to secure and provide necessary emissions reductions and associated incentive funding

Incentive Measures	Incentive Funding Need (\$)
Accelerated Turnover of Trucks and Buses	\$3,300,000,000
Accelerated Turnover of Agricultural Equipment	\$1,400,000,000
Accelerated Turnover of Off-Road Equipment	\$170,000,000
Commercial Under-fired Charbroiling Controls	\$45,000,000
Replacement of Residential Wood Burning Devices	\$75,000,000
Replacement of Internal Combustion Engines used at Agricultural Operations	\$14,000,000
Total	\$5,004,000,000

Extensive Public Engagement

- Extensive public engagement process to develop Plan over three year period
- Multiple opportunities for public and stakeholders to provide comments, ask questions, and request information
 - 10 public workshops, 5 Public Advisory Workgroup meetings
 - Monthly updates at public meetings of District Governing Board, Citizens Advisory Committee, and Environmental Justice Advisory Group
- Multiple resources for public to participate in Plan development process
 - Dedicated PM2.5 Plan webpage: <http://www.valleyair.org/pmplans>
 - Email list for up-to-date info: http://lists.valleyair.org/mailman/listinfo/pm_plans
 - Email address for questions/comments: airqualityplans@valleyair.org
- Proposed Plan was unanimously supported by District's Citizens Advisory Committee made up of members representing environmental, industry/ag, and city interests
- Moving forward, input from Valley businesses and residents will be essential to developing and implementing proposed District measures through public participation process

COMMENT: Residential Wood Burning

Comment

- Make Rule 4901 more stringent through additional open hearth requirements during real estate transfers, additional requirements for new development, visible emissions requirements, and additional bans on residential wood burning

Response

- District Rule 4901 is most stringent wood burning curtailment rule in the nation
- District's robust incentive program encourages transition to cleaner devices, replacing over 14,000 older high polluting wood burning devices
- Through robust evaluation and input received during public engagement process, Plan includes number of new measures that would apply Valleywide, even tougher curtailment levels in hot-spot areas, and increased incentives (in addition to Valleywide) in hot-spot areas to transition to cleaner, natural gas alternatives

COMMENT: Underfired Charbroiling

Comment

- District should require large underfired charbroilers to install pollution control devices by 2024, and increase outreach and incentives for pollution control devices

Response

- Plan includes most innovative and comprehensive strategy for developing, demonstrating, and deploying emissions control technologies for commercial underfired charbroilers
- Under proposed measure, District will work closely with Valley restaurants to evaluate and pursue reductions through incentive-based approach to fund installation and maintenance of controls for commercial underfired charbroilers within urban boundaries in hot-spot areas, with a future year regulatory requirement to encourage participation by businesses

COMMENT: Hot-Spot Strategy

Comment

- District should not pursue a hot-spot strategy and should require same stringent requirements proposed for hot-spot areas to entire Valley

Response

- Majority of regions throughout valley will attain with suite of Valleywide regulatory and incentive-based measures
- Some areas will not attain without additional controls and incentives
- A targeted approach that focuses additional measures and limited resources in remaining hot-spot areas is necessary to meet federal standards
- In addition to comprehensive new measures Valleywide from variety of sectors, Plan includes hot-spot measures to achieve even further emissions reductions from residential wood burning and underfired charbroiling in Madera, Fresno, and Kern counties

COMMENT: Agricultural Burning

Comment

- Further restrict agricultural burning in Valley and provide incentives to promote alternatives

Response

- District has toughest restrictions on agricultural burning in the state
- Banned burning of all field crops (with the exception of rice), and almost all prunings and orchard removals
- District operates comprehensive Smoke Management System to manage open burning (no burning on days with poor dispersion)
- District intends to continue to undertake efforts aimed at development and deployment of feasible alternative technologies and practices to reduce open burning in Valley, including new incentive programs to promote development and deployment of emerging cleaner alternatives to open burning of agricultural waste

Recommendations

1. Adopt proposed *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*
2. Authorize Chair to sign attached Resolution adopting the proposed *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*
3. Adopt the Negative Declaration
4. Direct staff to forward adopted *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* and attached Resolution to CARB for approval and submittal to EPA
5. Direct Executive Director/APCO to commence development of the enhanced residential wood burning strategy included in the proposed PM2.5 Plan, including rulemaking for Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), enhanced incentives for Valley residents, and enhanced public education and outreach, as an early action towards implementation of the PM2.5 Plan