

San Joaquin Valley 2008 PM2.5 Plan (State Implementation Plan)



California Environmental Protection Agency

May 22, 2008
Fresno

Overview

- Plan required to meet National Ambient Air Quality Standards
- Due to U.S. EPA April 2008
- District adoption on April 30, 2008
- ARB staff proposes Board approval

PM2.5 Air Quality

- Valley is at or near 24-hour standard
- SIP focuses on remaining problem of meeting annual standard
- Northern Valley meets annual standard
- Plan shows Valleywide attainment by 2014 deadline

Elements of Attainment Demonstration

- Assess current air quality and nature of PM_{2.5} problem
- Characterize pollutants and emission reductions needed for attainment
- Identify earliest practicable attainment date

Attainment Demonstration

- Identified 2014 as the earliest attainment date
- Modeling followed U.S. EPA Guidance
- Addressed direct PM_{2.5}, NO_x, and SO_x as required by PM_{2.5} Rule
- Based on comprehensive scientific studies

CRPAQS: Scientific Foundation for SIP

- Extensive field monitoring at the surface and aloft



- field study with hundreds of monitoring sites
- millions of data records
- numerous teams of experts



- Improved emission inventory
- State-of-the-science air quality modeling
- World class data base

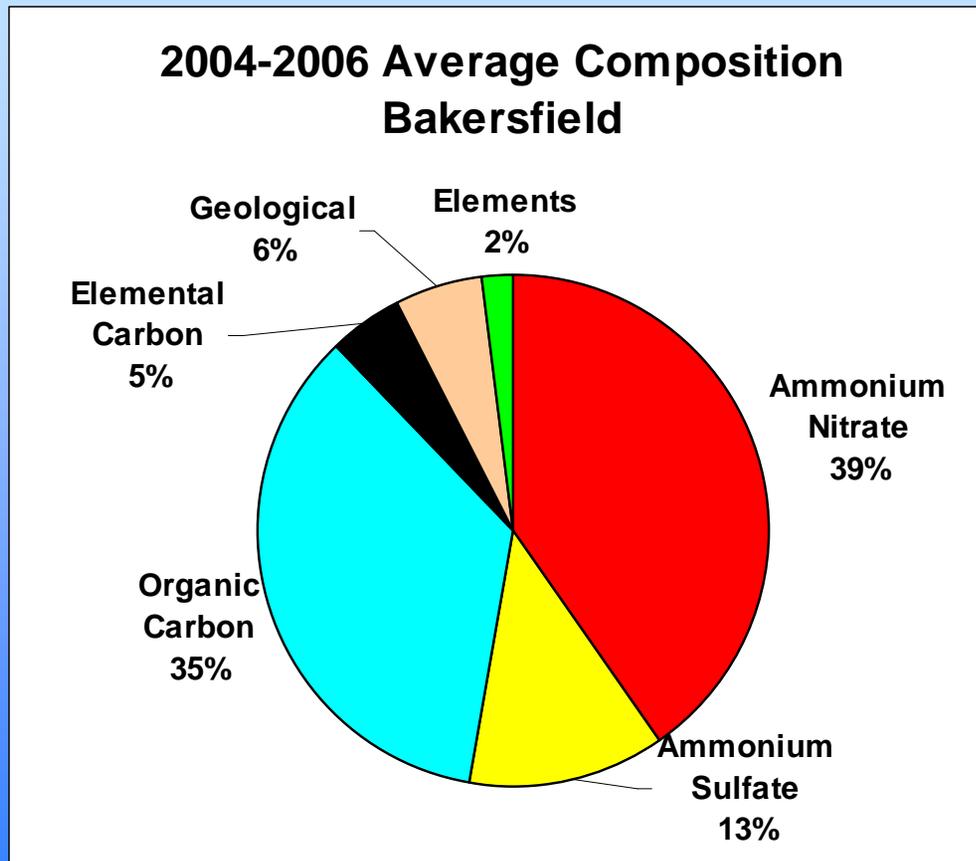
Regional Monitoring Networks

- U.S. EPA technical criteria define how to ensure representativeness of monitoring
- Attainment demonstration modeling predicts concentrations in approximately 4 square mile increments throughout the Valley
- Taken together, public exposure to PM_{2.5} is well characterized

Monitoring Data

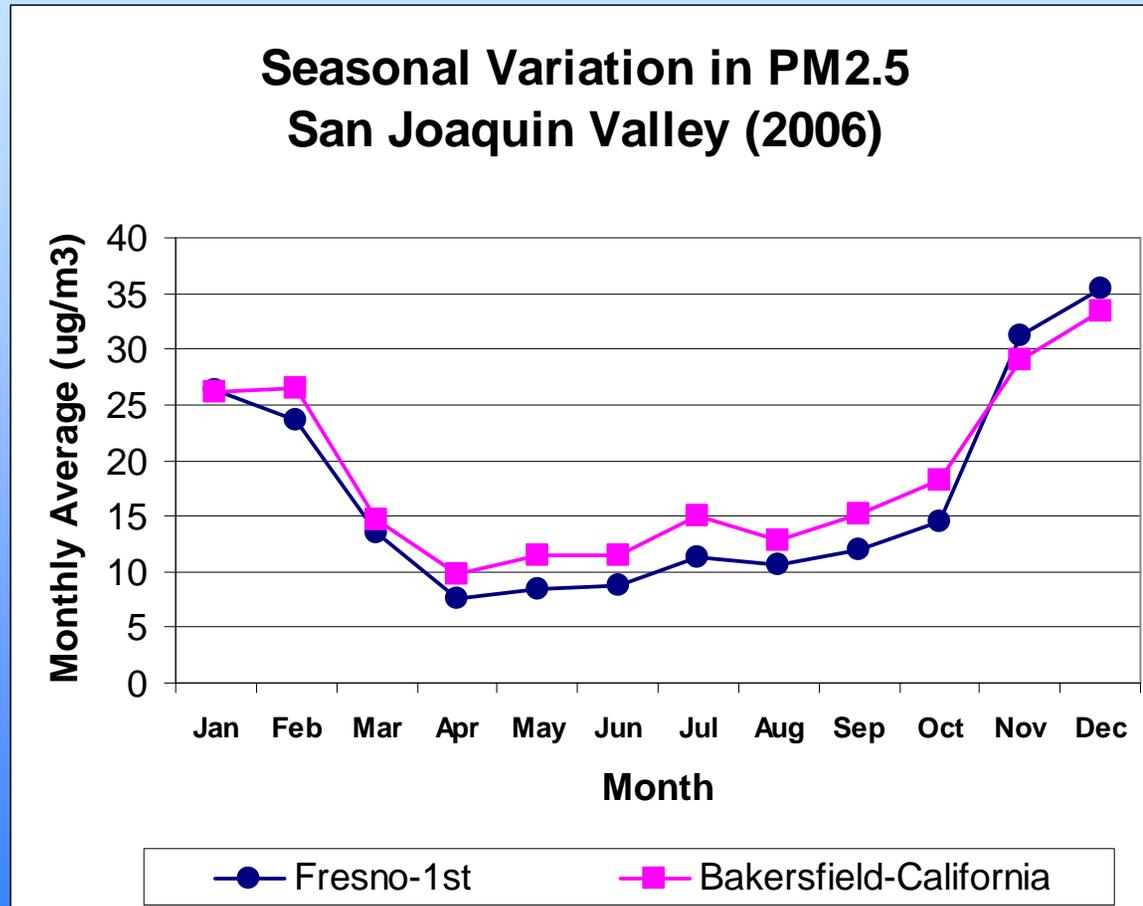
- Annual concentrations have been declining:
 - Highest 2001 design value was $24.7\mu\text{g}/\text{m}^3$ in Visalia
 - Highest 2006 design value is $18.9\mu\text{g}/\text{m}^3$ in Bakersfield
- Standard is $15\mu\text{g}/\text{m}^3$

PM2.5 Contributors in the Valley



- Organic carbon is directly emitted from smoke and stationary and mobile combustion sources
- Nitrate and sulfate form from NO_x and SO_x emissions from combustion sources

PM2.5 is Highest in Winter



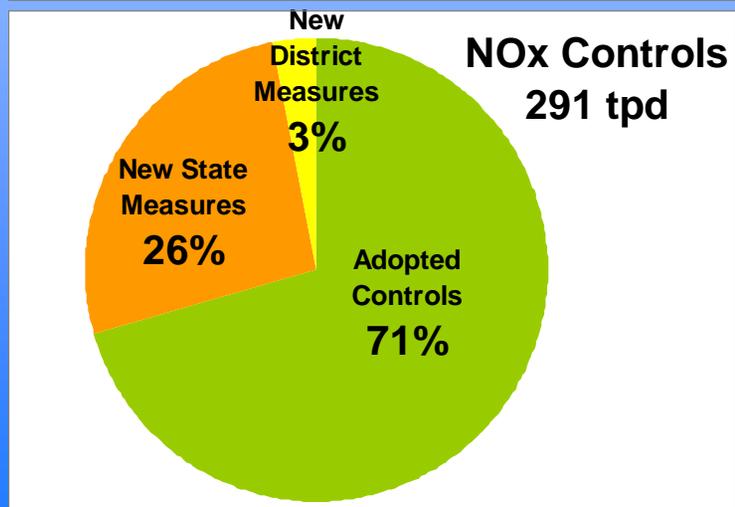
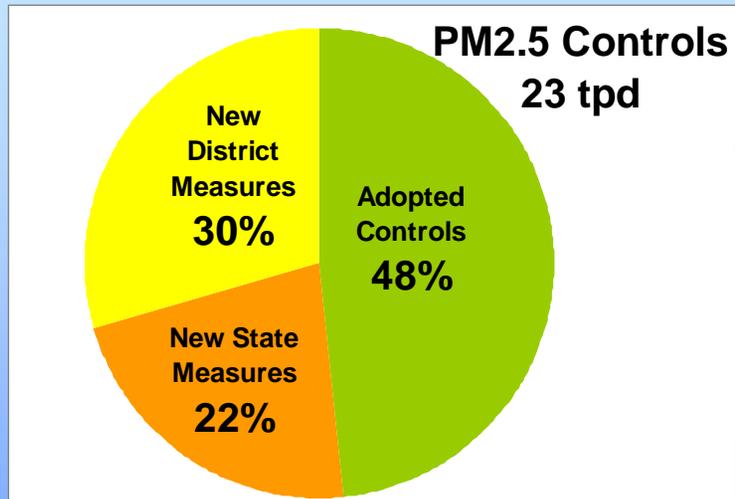
Effective Pollutants to Control

- Direct PM_{2.5}, NO_x, and SO_x key to overall attainment demonstration
 - PM_{2.5} reductions are most effective
 - Ammonium nitrate driven by NO_x
 - VOC reductions included in modeling, but not key for PM_{2.5} attainment

Weight of Evidence Analysis

- Required by U.S. EPA
- Multiple tools used:
 - Air quality and emissions trends
 - Source apportionment and other modeling
 - Grid-based photochemical modeling
- Shows attainment by 2014:
 - Northern Valley meets standard
 - Other areas expected to attain by 2014

Control Strategy



- Adopted controls provide most NOx and PM2.5 reductions
- Full attainment reached with:
 - ARB 2007 State Strategy
 - New District controls

ARB 2007 State Strategy

- Provides new reductions of 76 tpd NOx and 5 tpd of PM2.5 by 2014
- Includes:
 - Heavy duty diesel truck rule
 - Off-road equipment rule
 - Smog check improvements and expanded vehicle retirement

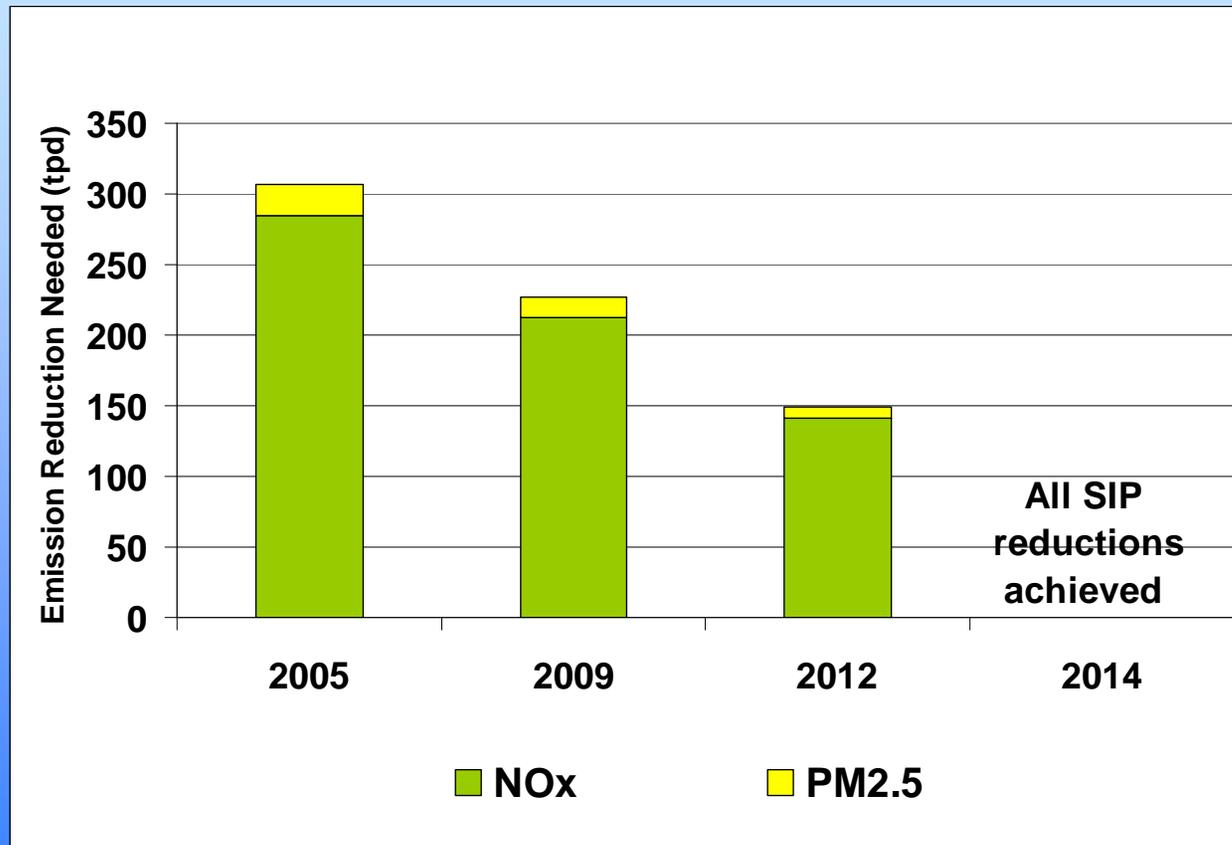
District Control Measures

- Emission reduction commitment of 9.0 tpd NO_x, 6.7 tpd PM_{2.5}, 0.9 tpd SO_x by 2014
- Measures meet RACM/RACT requirements
- All rules to be adopted by 2010
- Builds on NO_x commitment in 2007 Ozone Plan

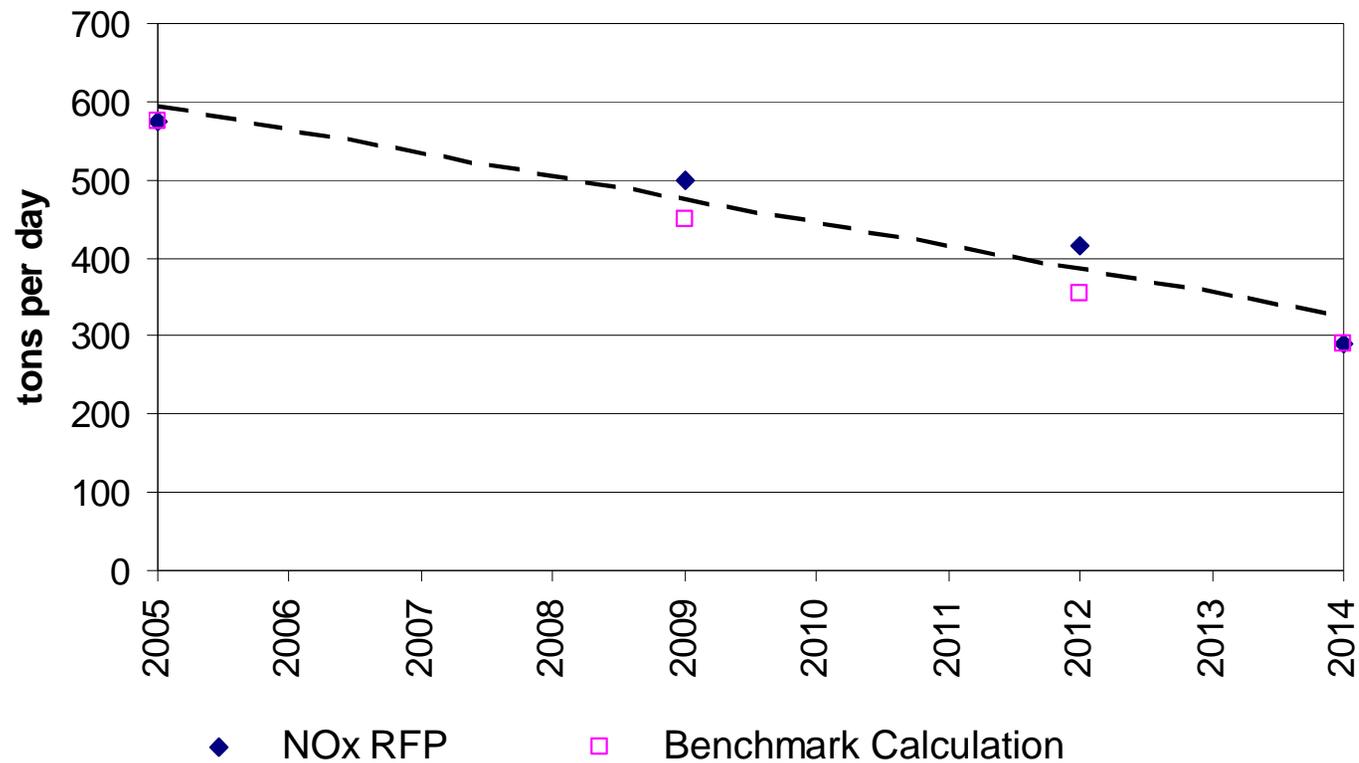
New District PM2.5 Measures

- Wood-burning fireplaces and heaters
- Commercial cooking
- Phase 4 of open burning restrictions

Emission Reduction Trend



Reasonable Further Progress



Plan Meets U.S. EPA Requirements

- Reasonable further progress
- Contingency measures
- Reasonably available control technologies/measures
- Transportation conformity budgets
- Attainment demonstration
- Public participation and notification

Future Updates

- 2011: PM2.5 SIP Update Commitment
 - Assess new air quality information
 - Evaluate attainment approach
- 2012: New PM2.5 SIP for revised standard

Conclusion

- Plan meets U.S. EPA requirements
- Emissions are decreasing each year
- Northern Valley already meets the standard
- Valleywide attainment projected by 2014

Staff Recommendation

- Adopt the San Joaquin Valley 2008 PM2.5 Plan as a revision to the California SIP

2007 Ozone SIP Status Report

District Commitments Fulfilled

Measure	Status	Estimated Emission Reductions* from Rules (2014 tpd)	
		NOx	ROG
Composting Biosolids	Rule Adopted		4.1
2007 Open Burning Commitment	Rule Adopted	2.2	2.1
Solvents	Rule Adopted		2.6
Gas Turbines	Rule Adopted	2.2	
Soil Decontamination	Rule Adopted		0.0
Polystyrene Foam	Rule Adopted		0.1
Gasoline Storage and Transfer / Aviation Fuel Transfer	Rule Adopted		2.4
Total Reductions Achieved by Rules		4.4	11.3
<i>Ozone Plan Commitment for these Measures</i>		3.0	9.2

* 2007 Ozone Plan Inventory Currency

District Commitment Rule Development

Measure	Status	Expected Action
New Source Review Thresholds	Rule Development	2008
Large Boilers	Rule Development	
Medium Boilers	Rule Development	
Glass Melting	Rule Development	
Graphic Arts	Rule Development	
Residential Water Heaters	Initial Planning	2009
Composting Green Waste	Rule Development	
Flares	Rule Development	
Brandy and Wine Aging	Initial Planning	
Employer-based Trip Reduction	Initial Planning	
Architectural Coatings	Initial Planning	2010
2010 Open Burning Commitment	Initial Planning	
Confined Animal Feeding Operations	Initial Planning	
Adhesives	Initial Planning	

ARB Staff Activities in the Valley

- ✓ ARB workshops in the Valley
 - On-road truck rule
 - Prop 1B Bond
 - Carl Moyer Guidelines
- ✓ Monthly report to District Governing Board & Advisory Committee

Upcoming:

- ☞ Advanced Technology Forum – July 9, 2008