OZONE PROGRESS & FEDERAL AIR QUALITY



Board Presentation May 26, 2011

OUTLINE

- Health Impacts and Standards
- Measures of Progress
- Profile of San Joaquin Valley and South Coast
- Current Standard Review
- Summary

OZONE HEALTH IMPACTS

- Reduces lung function
- Aggravates asthma and other chronic diseases
- Can cause permanent lung damage
- Children, people with lung disease, and older adults are most susceptible

FEDERAL AIR QUALITY STANDARDS

- Clean Air Act requires EPA to set and review standards
- Standards based solely on health science
- State Implementation Plans (SIPs) must be designed to meet standard

EVOLVING FEDERAL STANDARDS

- Health studies lead to more stringent standards over time
- Peer reviewed by Clean Air Scientific Advisory Committee (CASAC)
- 2007 SIPs transitioned from 1-hour to 8-hour ozone standard

CLEAN AIR ACT PLANNING REQUIREMENTS

- Design Value for region sets benchmark for SIP
- Reflects last location to meet standard
- Other indicators used to characterize progress within a region

AIR QUALITY PROGRESS: CURRENT FEDERAL 8-HOUR STANDARD



AIR QUALITY IMPROVEMENTS

- Fewer people exposed to levels over the standard
- Smaller geographic area above the standard
- Lower frequency of days over the standard

San Joaquin Valley

SAN JOAQUIN VALLEY CHARACTERISTICS



- Basin traps pollution
- High temperatures throughout Valley
- Modest coastal
 benefit in Northern
 Valley

CONTINUING CHALLENGES

- Still need 20% reduction in peak concentrations
- Greatest number of exceedance days occur downwind of Valley's urbanized areas
- These sites still exceed 20 to 30 days each year





MORE PEOPLE BREATHING CLEANER AIR

- 1 million of Valley's 3 million residents now live in areas that meet current Federal ozone standard
- 2 million breathing cleaner air, but still above standard

OZONE LEVELS ARE LOWER, VALLEYWIDE



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NATURE OF EXPOSURE Northern San Joaquin Valley

- Stockton and Modesto areas have transitioned to attainment over last decade
- Turlock is close



NATURE OF EXPOSURE Central & Southern San Joaquin Valley



- Fresno & Bakersfield seeing different rates of air quality improvement
- Portions of region
 nearing standard
- All urban sites have fewer than 20 exceedance days

NATURE OF EXPOSURE Fresno Urban Area



- Valley's most challenging urban area
- Little progress in 1990s
- Greater progress in last decade
- Fewer than 20 exceedance days

NATURE OF EXPOSURE Bakersfield Urban Area

- Concentrations at Bakersfield sites lower than Fresno and within 10% of standard
- More consistent rate of progress
- 10 or fewer exceedance days



NATURE OF EXPOSURE Downwind Areas



More exceedance days than urban sites
Arvin/Edison has made greater progress in reducing ozone levels
Both areas now have

fewer exceedance days

PLANNING CHALLENGE

- 30 days above standard at high site
- Peak concentration is 0.104 ppm at high site
- Current Federal standard is 0.08 ppm

COMMUNITY & ENVIRONMENTAL JUSTICE CONSIDERATIONS

- San Joaquin Valley has large number of low income households exposed to high levels of ozone
- Many communities also experience high PM2.5 in Winter
- Socioeconomic factors affect vulnerability to air pollution

South Coast

SOUTH COAST CHARACTERISTICS



HISTORICAL PERSPECTIV

• Mid- to late-1970s:



- Concentrations more than 3 times the standard
- 200 exceedance days in region
- 120 Stage I Alerts / Multiple Stage II Alerts
- Today:
 - No Smog Alerts
 - 60% drop in peak levels and exceedance days

CONTINUING CHALLENGES



- Still need 25% reduction in peak levels
- Highest concentrations in eastern basin
- Some sites still exceed 25 to 45 days each year

CLEANER COMMUNITIES

 10 million of South Coast's more than 14 million residents now live in areas that meet current Federal ozone standard

 More than 4 million breathing cleaner air but still above standard

DRAMATIC IMPROVEMENT IN OZONE LEVELS



NATURE OF EXPOSURE Coastal Area of South Coast



 Coastal area has met standard for nearly a decade

• More than 8 million people live here

NATURE OF EXPOSURE Valley Areas of South Coast

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- Once had highest ozone levels in South Coast
- Much of area meets or is within 10% of standard
- 10 or fewer exceedance days
- More than 3 million people live in this region

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NATURE OF EXPOSURE Inland Area of South Coast



- Concentrations decreased 40% over last 20 years
- Most communities have 15 to 25
 exceedance days
 Most sites within 20% of standard

PLANNING CHALLENGE

- 45 days above standard at high site
- Peak concentration is 0.112 ppm at high site
- Current Federal standard is 0.08 ppm

COMMUNITY & ENVIRONMENTAL JUSTICE CONSIDERATIONS

- Environmental Justice communities experience multi-pollutant exposures
- Key pollutants of concern are ozone, PM, and diesel particulate
- Focus on ports and railyards, as well as regional air pollution

Current Standard Review

OZONE STANDARD REVIEW

- 1979: 1-hour standard of 0.12 ppm
- 1997: 8-hour standard of 0.08 ppm
- 2008: 8-hour standard of 0.075 ppm (currently under reconsideration)
- New proposed range between 0.060 ppm and 0.070 ppm

CURRENT CALIFORNIA STATUS



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POTENTIAL NEW STANDARD California



POTENTIAL NEW STANDARD National



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SUMMARY

- 75% of Californians live in areas that meet current Federal ozone standard
- Air quality continues to improve even as standards are revised
- ARB continues to work to further reduce ozone levels