Impacts of Climate Change on Air Quality in the Pacific Southwest

Research Priorities & Opportunities for Collaboration

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Bay Area Air District Overview

- Jurisdiction over air quality in 9 Bay Area counties, including 101 cities
- Governed by a 22-member Board of Directors composed of elected officials from each county
- Total Bay Area population close to 7 million
- Approximately 148.6 million daily vehicles miles traveled
Why an Air District Climate Program?

• Regional leadership and action needed on a critical environmental issue.

• Higher temperatures will increase emissions, eroding air quality improvements and harming public health.

• Air District programs allow for co-benefits of GHG, criteria, and toxic air pollutants. Co-benefit programs include:
  – Energy efficiency and renewable energy
  – Low emission vehicles and alternative fuels
  – Transportation control measures
  – Smart growth/transit oriented development
Bay Area
Extreme Heat Days

Number of Extreme Heat days per Year

Currently  Low Warming Scenario  Mid Warming Scenario  Higher Warming Scenario

Source: CEC 2006 Report “Our Changing Climate”
Bay Area Ozone and Maximum Temp Trends

Days at or above 99° F and Days Exceeding National 8hr Ozone Standard

- # days at or above 99F
- # days at or above the National Ozone standard (85ppb)
Climate Change
Projected Impacts in Bay Area

- Air quality is not the only reason for climate protection actions
- A one meter sea level rise in the San Francisco Bay will adversely impact:
  - Airports
  - Freeways
  - Waste water treatment and other public facilities
  - Existing residential, commercial, and industrial areas

Source: BCDC 2006
Regional GHG Emission Inventory

- Based on criteria pollutant inventory
- Does not account for indirect sources (energy consumption)

2002 Emissions by Major Categories

- Transportation, 50.60%
- Oil Refining, 10.90%
- Power Plants, 7.20%
- Industrial/Commercial, 25.70%
- Domestic, 10.90%

Total 85.4 Million Metric Tons of GHG
Integrating Climate Protection into District Functions

• Planning
  – Regional GHG Emissions Inventory
  – CEQA comments and guidance
  – Local General Plan guidance for GHG reductions
  – Regional smart growth initiatives and transportation plans

• Stationary Sources
  – GHG Mitigation Technology Study: Phase I, opportunities for further GHG reductions at stationary sources
  – Phase II, feasibility assessment for further GHG reductions at landfills and boilers/process heaters/steam generators

• Regulatory
Integrating Climate Protection into District Functions

- **Incentives**
  - GHG criteria in TFCA Grant Program
  - $1.5 million Climate Protection Grant Program
  - Establish Foundation
  - Conoco Phillips: $7M Offset Program

- **Internal GHG Reduction**
  - Carbon Neutral
  - Continue energy efficiency efforts

- **Outreach and Education**
  - Spare the Air
  - Public Outreach Campaign
  - K-12 Curriculum

- **Continued Assistance to Local Governments**
Collaboration Activities

• Local Government Assistance
  – GHG emission inventory assistance
  – Local plans and programs

• Regional Collaboration
  – Bay Area Climate Protection Summit
  – Participation in Joint Policy Committee

• AB 32 Implementation
  – ARB
  – CAPCOA
Local Government Assistance

- Assisting local governments in developing GHG emission inventories
- GHG emission data standardization by sector
  - Transportation
  - Utility
  - Web portal
- Workshops for local government staff
  - Assistance in preparing community wide GHG inventory
  - Assistance in preparing GHG emission reduction plans
  - Partnering with ICLEI, SSV, & others
  - First workshop held September 7, 2007 for San Mateo & Santa Clara Cities
Regional Collaboration

- Regional public agencies taking action
  - BAAQMD, BCDC, MTC, ABAG, JPC

- Local governments making a difference
  - Berkeley, Sonoma, Alameda, Marin, and San Francisco setting targets
  - San Mateo, Santa Clara, Contra Costa, Napa joining ICLEI and conducting inventories

- Businesses collaborating on emission reduction practices
  - BC3, partnership with Bay Area Council, City of San Francisco, and UN Global Compact
  - Sustainable Silicon Valley & Silicon Valley Leadership Group
Statewide Collaboration

- California Climate Action Team
- Air Resources Board
  - Statewide GHG Emission Inventory
  - Emission Inventory Protocols
  - Early Action Measures
  - Mandatory Reporting
  - Scoping Plan
- California Air Pollution Control Officers Association
  - ARB: AB32 Implementation
  - Cooperation among air districts
  - CEQA/climate change white paper
Future Research Priorities

• Modeling climate change impacts on air quality
• Trade-offs and co-benefits between criteria/toxic pollutants and GHGs
• GHG reduction technology assessment for federal sources: planes, trains, and ships
• Economic opportunities for green technology