# Joint Meeting of ARB and Research Screening Committee

## February 24, 2011

# Outline of Today's Presentation

- Overview of 2001-2010 Strategic Plan for Research
- Some topics for today's discussion
- Process for 2011 Annual Research Plan and Update to Strategic Plan for Research

# Overview of 2001-2010 Strategic Plan for Research (2003 update)

# 2003 Strategic Plan Priorities

- Support regulatory priorities
  - Better understand particulate matter exposures, health risk, and emission reduction strategies
  - Characterize and reduce community exposure to air pollutants
  - Investigate how global transport of air pollution and climate change affect California's air quality
  - Promote clean technologies

# Particulate Matter Research Results

- Policy Goal
  - Developing and attaining air quality standards
- ARB Research Contributions
  - Support state air quality standards
  - Technical basis for PM2.5 attainment strategies
  - Emission estimates support goods movement & diesel control plans
- Ongoing Research Priorities
  - Identifying the most toxic sources of PM2.5
  - Verifying that diesel controls are working

# Community Health Research Results

- Policy Goal
  - Reduce health risk near sources of air pollution
- ARB Research Contributions
  - Community-based monitoring studies to guide policy
  - Helped substantiate effects of PM, ozone on vulnerable populations
  - Identified unhealthful exposures that prompted indoor air regulations
- Ongoing Research Priorities
  - Assess toxicity and risk in neighborhoods
  - Study indoor chemistry & Californians' air pollution exposures

# Global Air Pollution Research Results

- Policy Goal
  - Attaining air quality standards & mitigating greenhouse gas emissions
- ARB Research Contributions
  - Evaluation of air pollution transport across Pacific
  - Support for ARB regulations (AB 1493, AB 32 measures)
  - Assessment of climate change on future air quality and public health
- Ongoing Research Priorities
  - Verify greenhouse gas emissions reductions
  - CalNex 2010: Integrate climate strategies with criteria pollutant control

# Clean Technology Advancement

- Policy Goal
  - Low- and zero-emissions technologies for energy & transport
- ARB Contributions
  - Ten past projects have been commercialized, including:
    - Airport ground support equipment
    - Control of boiler $NO_X$ emissions
    - Electrically regenerated diesel PM filter
- Ongoing State programs promote clean technologies
  - Carl Moyer Program
  - PIER
  - AB 118 Air Quality Improvement Program

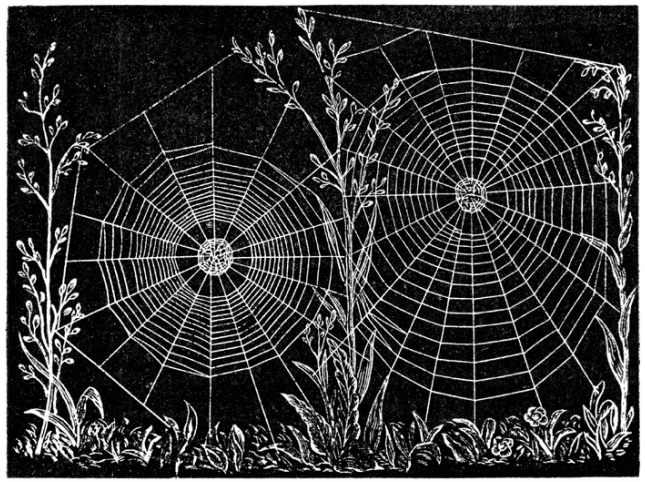
# Some Topics for Today’s Discussion

# Moving Forward

- Integrate air quality & climate control programs
- Meet long-term climate change goals
- Protect health by reducing exposures
- Evaluate rule benefits
- Enhance economic analysis

# Integrating Air Quality & Climate Programs

- Historical single pollutant approach
- Integrate energy policy, land use, and transportation planning
- Partner with federal, state, and local governments
- Potential ARB research roles:
  - Assess multi-pollutant exposures
  - Identify co-benefits
  - Develop comprehensive strategies



# Meeting Long-Term Climate Change Goals

- Statewide 2050 goal of 80% reduction from 1990 levels
- Federal climate change research focuses on national level impacts and policies
- Potential ARB research roles:
  - Verify emissions reductions
  - Research low-carbon technology & advanced fuels
  - Identify behavioral change strategies
  - Develop tools to incorporate adaptation into sustainable community planning

# Protecting Health by Reducing Exposures

- Strong linkages have been established between health and air pollution
- Strong federal program of research
- Potential ARB research roles:
  - Determine regional, local, & indoor exposures and linkages
  - Clarify the role of ultrafine PM
  - Identify the most health-damaging pollutants and sources

# Evaluating Rule Benefits

- Field studies confirm benefits of ARB rules
  - Exposures reduced near ports
  - Effectiveness of emission control efforts confirmed
- Continue tracking & develop new tools
- Quantify co-benefits of emissions reductions
  - Black carbon benefit from diesel control program

# Enhancing Economic Analysis

- Evaluating methods
  - Economics Fellow
- Potential ARB research roles
  - Business-specific impact analysis
  - Sensitivity analyses to reflect economic uncertainties
  - Potential new tools for rule assessment,  including co-benefits

# Strengthening ARB's Research Process

# Financial Stewardship

- Over past decade every $1 in State funds was matched by $3 in external funding
- Strong research partnerships
- ARB seed money initiates larger efforts
- Low overhead rates stretch limited funds

# ARB Research Has Co-Benefits

- Fostering next generation of air quality researchers and professionals
- Developing new scientific instrumentation and methodologies
- Contributing to creation of new green technology companies

# Increasing Research Program's Influence

- Foster maximum results from limited dollars:
  - Improve accessibility of research results
  - Partner with Air Pollution Control Districts
  - Communicate priorities to research funding institutions
  - Build upon strong record of collaboration
  - Target niche gaps critical to the State

# Next Steps

- FY 2011-2012 Annual Research Plan
  - Will incorporate today's discussion
  - Will include strategic planning update