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\textsubscript{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