Air Quality Monitoring and Emissions Reduction at the Community Level in California: A New Paradigm

John R. Balmes, MD
University of California, San Francisco and Berkeley

UCSF University of California San Francisco

Berkeley University of California

Disclosure

- I am the Physician Member of the California Air Resources Board

Air Quality Regulation in the U.S.

- California Air Resources Board (1967)
- U.S. EPA (1970)
- National Ambient Air Quality Standards

Tackling Air Pollution

FEDERAL • STATE • LOCAL

US EPA

Sets & enforces national air quality standards.
Regulates interstate transportation.

TRAINS PLANES SHIPS

California Air Resources Board

Regulates mobile sources of air pollution, greenhouse gases & consumer products.

CARS TRUCKS BUSES

Local Air Districts

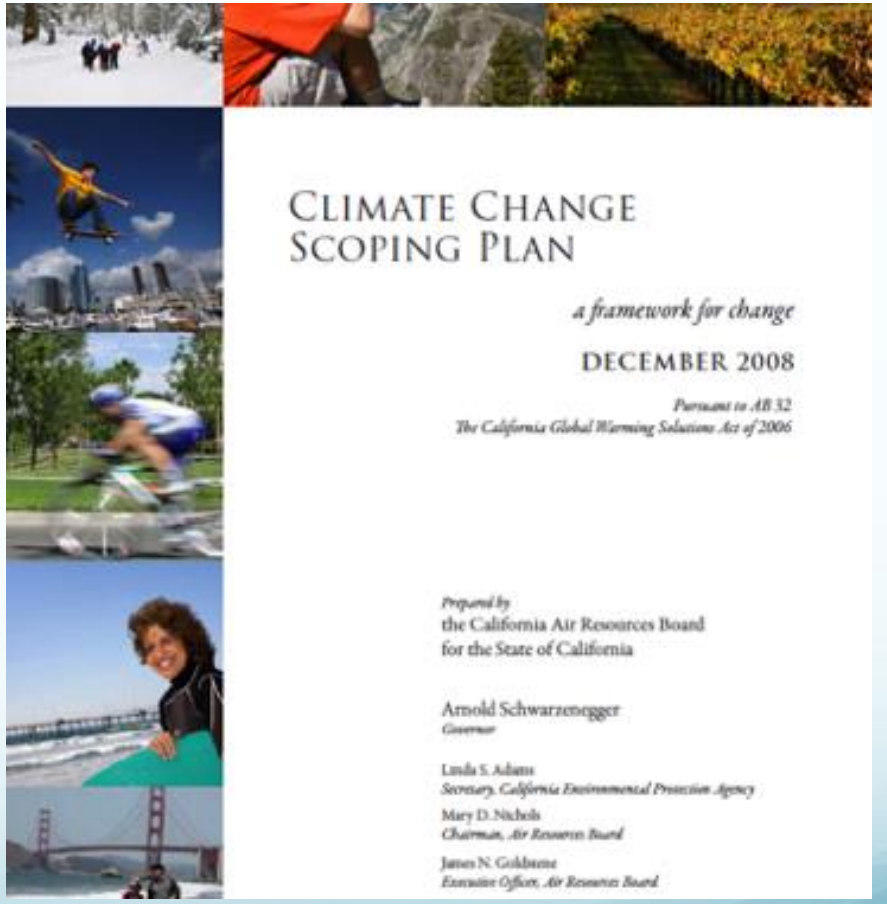
Regulates stationary & local sources of air pollution.

FIREPLACES FACTORIES REFINERIES POWER PLANTS

The Major Sources of Greenhouse Gases and Aerosols also Contribute to Air Pollution

California's AB 32 – Global Warming Solutions Act

- The primary goal of AB 32
  - reduce GHG emissions to 1990 levels by 2020 (a 30% reduction)
  - 80% reduction below 1990 levels by 2050
- Required a "scoping plan"
- Strategies considered included market-based mechanisms such as a carbon tax or cap-and-trade system



AB32 Has Led to a Paradigm Shift

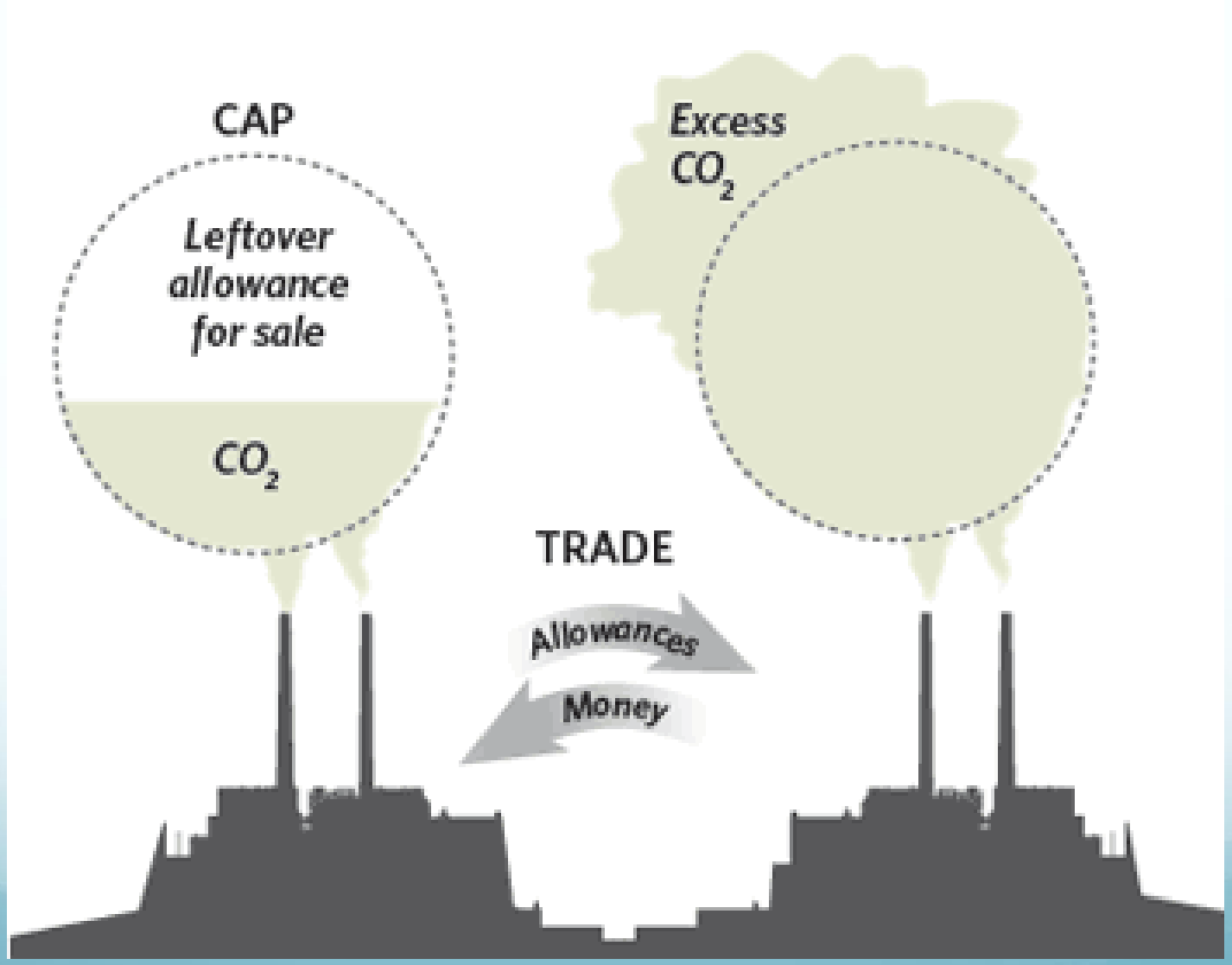
- All regulations now are evaluated re: both climate change mitigation and health co-benefits.
- Focus now on emission reduction rather than ambient air quality
  - i.e., regulate sources rather than at the regional air quality level

California Environmental Protection Agency
AIR RESOURCES BOARD

Market Mechanism to Reduce Carbon Emissions

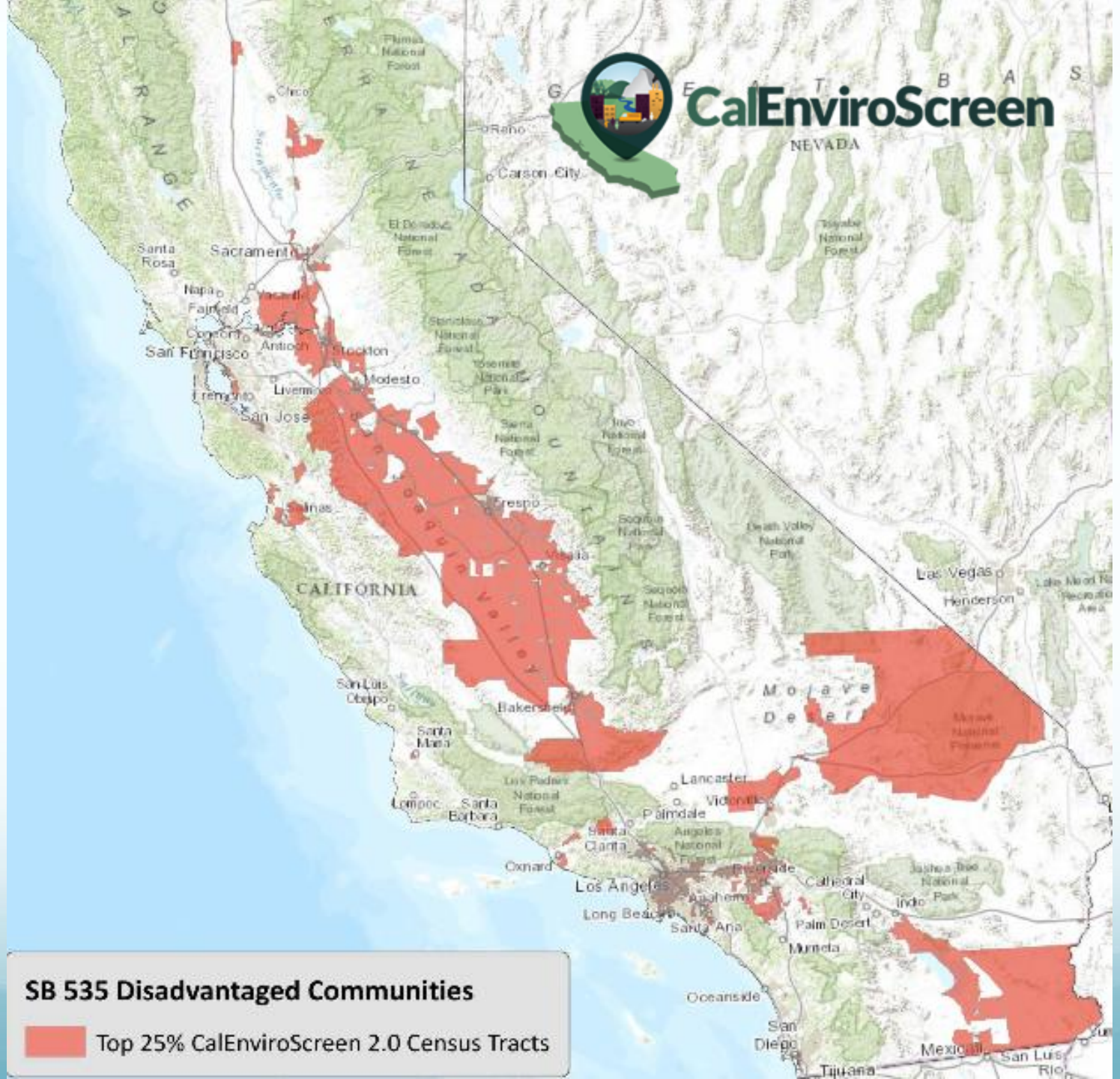
- Cap-and-Trade
  - Caps carbon emissions
  - Price of carbon fluctuates
  - Complicated to administer
- Carbon Tax
  - Variable carbon emission reductions
  - Fixed price of carbon
  - Simpler to administer
  - ***Politically difficult***

How Cap-and-Trade Works



Senate Bill 535

- Cal Enviroscreen identifies disadvantaged communities


CalEnviroScreen
NEVADA
CALIFORNIA
Sacramento
San Francisco
San Jose
Stockton
Modesto
Fresno
Bakersfield
Los Angeles
Las Vegas
Henderson
Lancaster
Palmdale
Santa Ana
Oceanside
San Diego
Tijuana
Mexicali
Carson City
Reno
Santa Rosa
Napa
Fairfield
Antioch
Livermore
Salinas
San Luis Obispo
Santa Maria
Lompoc
Santa Barbara
Oxnard
Santa Clarita
Long Beach
Anaheim
Riverside
Palm Desert
Murrieta
Indio
Cathedral City
Victorville
Mojave Desert
Death Valley National Park
Sequoia National Forest
Sierra National Forest
Inyo National Forest
Stanislaus National Forest
Yosemite National Park
El Dorado National Forest
Plumas National Forest
Los Padres National Forest
Angeles National Forest
Jashua Tree National Park
Mojave National Preserve
SB 535 Disadvantaged Communities
Top 25% CalEnviroScreen 2.0 Census Tracts

Assembly Bill 1550

- Requires that 35% of cap-and-trade revenue
  - is spent on projects that benefit disadvantaged communities
  - at least 25% is spent on projects located in disadvantaged communities
- Cal Enviroscreen identifies disadvantaged communities

A PRELIMINARY ENVIRONMENTAL EQUITY ASSESSMENT OF CALIFORNIA'S CAP-AND-TRADE PROGRAM

By Lara J. Cushing[1,5] Madeline Wander[4] Rachel Morello-Frosch[1,2]
Manuel Pastor[4] Allen Zhu[3] James Sadd[6]

Cap-and-Trade Inequity?

TABLE 3
Characteristics of Neighborhoods within 1.5 miles of GHG-emitting Facilities
(N=255 facilities)

	Block groups with at least one facility within 1.5 miles (N=2,710)	Block groups with no facilities within 1.5 miles (N=20,392)
Mean % People of Color	66%	57%
Mean % People Living Below Twice the Poverty Level	44%	35%
% of Block Groups in a "Top 10%" CalEnviroScreen tract	20%	9%
% of Block Groups in a "Top 20%" CalEnviroScreen tract	36%	18%

AB 398

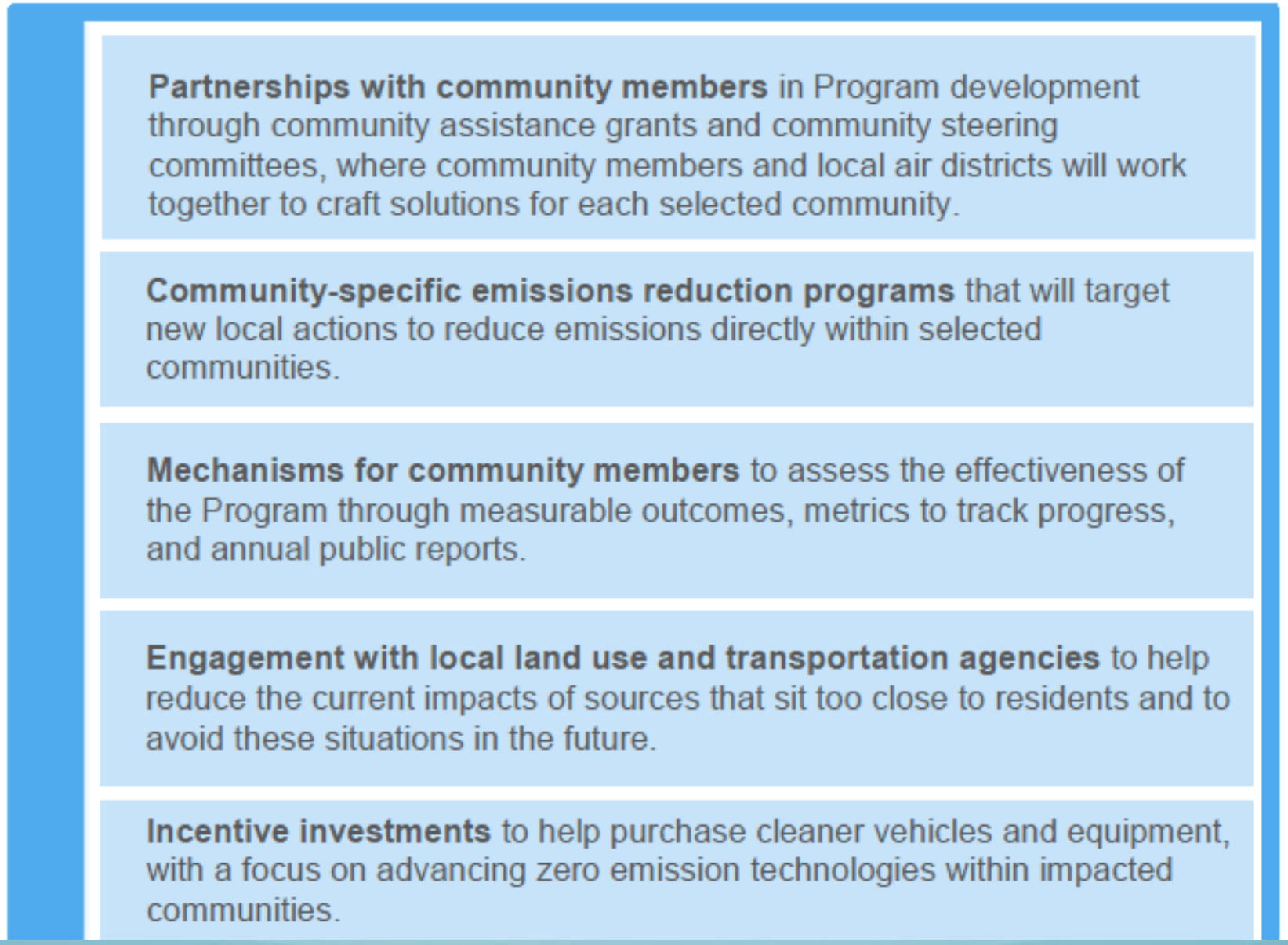
- Extend's CARB's authority to implement the cap-and-trade program through 2030
- To achieve 2/3 majority for passing AB 398, support need from legislators with concerns about environmental justice issues related to cap-and-trade
- AB 617 was a companion bill written to address EJ concerns

AB 617

- Mandates CARB to develop guidelines for community air quality monitoring
- Requires local air districts to work with communities identified by CARB as having high cumulative exposure burden
  - To develop plans for community air quality monitoring to determine local “hot spots”
  - To review the results from such monitoring to develop community emission reductions programs
- CARB must review the community emission reduction programs and provide grants to community-based organizations to assist their participation in the programs
- Best available retrofit control technology must be used if the district is in non-attainment for one or more pollutants
- Requires stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants to CARB

Figure 1 Community-Focused AB 617 Elements

Figure 2 New Actions under the Community Air Protection Program



New Actions under AB 617 cont.

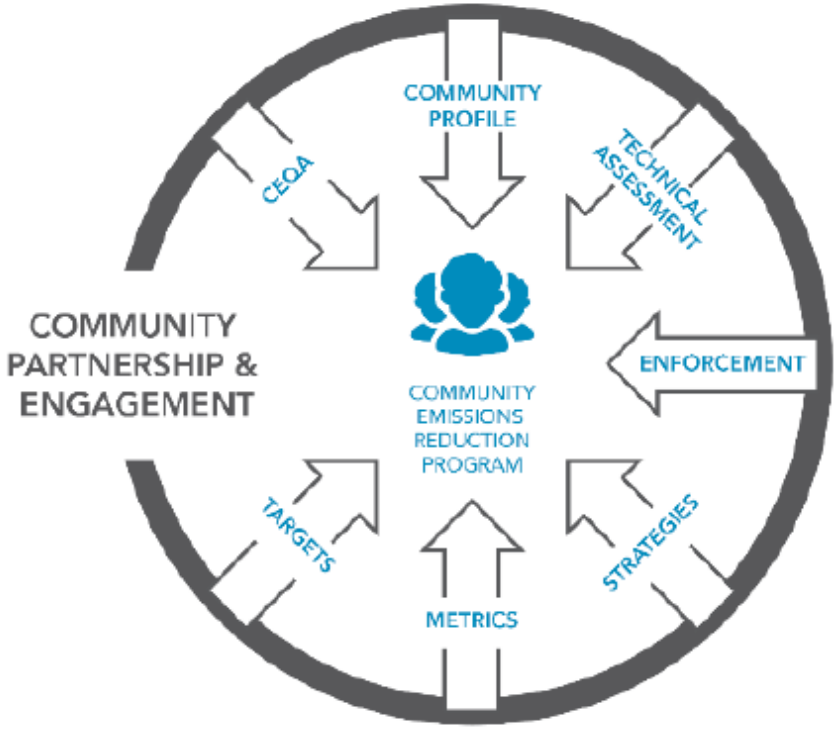
New statewide actions to reduce emissions from sources that are concentrated within heavily impacted communities throughout the State and consider ways to target these actions to reduce localized exposure.

More detailed information on air pollution within communities through new community air monitoring programs led by both air districts and community-based organizations.

Better information on pollution sources within communities through new requirements for reporting emissions data and making data more accessible and user-friendly.

Figure 4 Overview of Community Emissions Reduction Program Process

Figure 5 Community Emissions Reduction Program Required Elements



Thank you!