



California's Clean Air Approach and Update on the Cap-and-Trade Adaptive Management Process

November 17, 2016

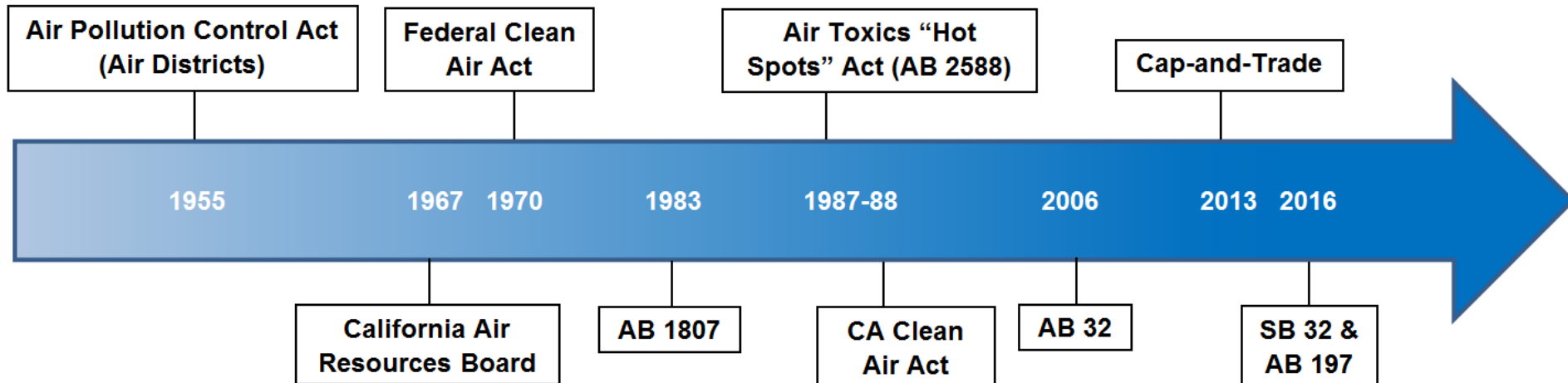


Overview

- **Air Pollution Control in California**
- ▣ Beyond Adaptive Management
- ▣ Adaptive Management Emissions Analysis
- ▣ Public Process
- ▣ Next Steps

Air Pollution Control in California

- Broad suite of programs at federal, State, and local levels since late 1960's
- GHGs, toxic, and criteria emission reductions improve health of all California residents



Air Pollution Control–Regulatory Roles

- US EPA
 - Set national ambient air quality standards
 - Set national standards for cars/trucks/equipment
 - Establish national emission standards for hazardous air pollutions

- ARB
 - Set motor vehicle/fuel/consumer product emission standards
 - Develop and implement criteria, toxic pollutants, and climate measures
 - Coordinate with/provide oversight of air districts actions
 - Monitor and report on air quality

- Local Air Districts
 - Develop, implement ,and enforce stationary source rules
 - Permit local stationary sources
 - Monitor and report on air quality

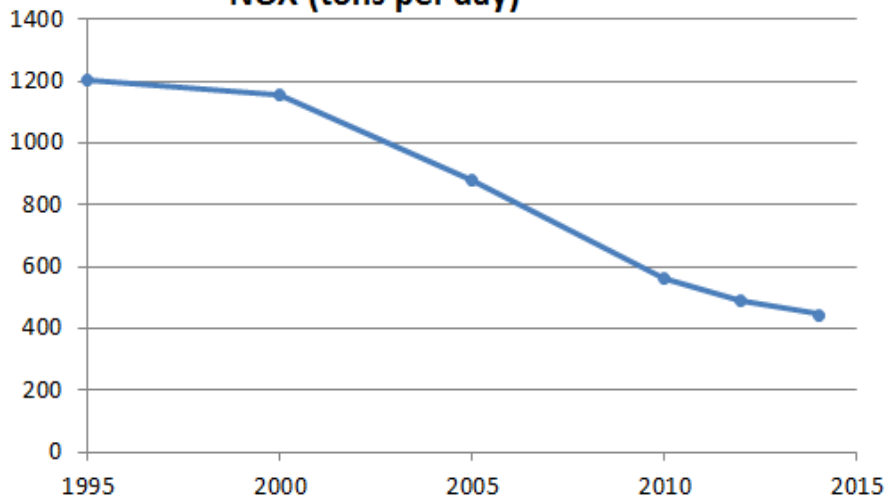
How Jurisdictions Apply Their Authorities

- ▣ Mobile Sources Control Program
 - ▣ Regional criteria reductions
 - ▣ Diesel PM measures
- ▣ Toxic Air Contaminant Identification and Control
- ▣ Climate Strategies
 - ▣ Transportation (Pavley, HD vehicles)
 - ▣ GHG-generating facilities (Cap-and-Trade)
 - ▣ Fuels (Low Carbon Fuels Standard)
- ▣ Stationary Source Permitting
 - ▣ Districts and EPA directly administer permitting
 - ▣ ARB oversight role for permitting and implementation
 - ▣ ARB development of model rules

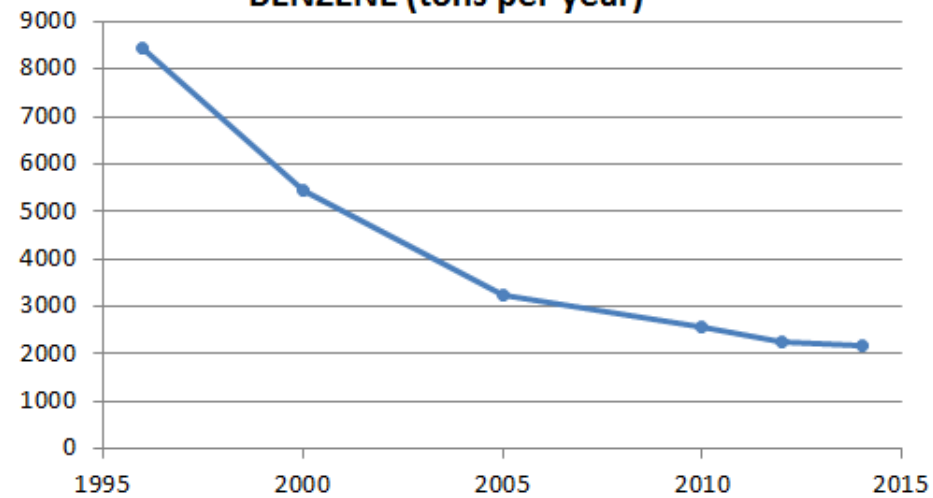
Important Regional Progress

- South Coast Air Basin has steadily reduced NOx and Benzene since 1995 as a result of mobile and stationary source programs

**South Coast Air Basin
NOx (tons per day)**



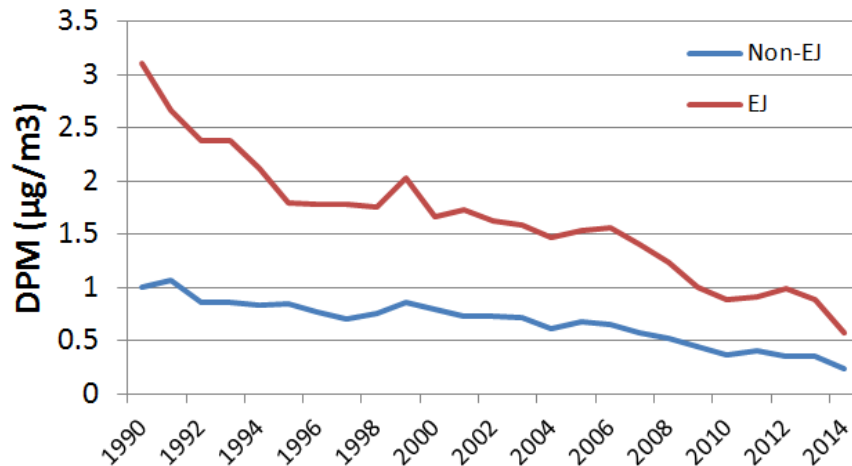
**South Coast Air Basin
BENZENE (tons per year)**



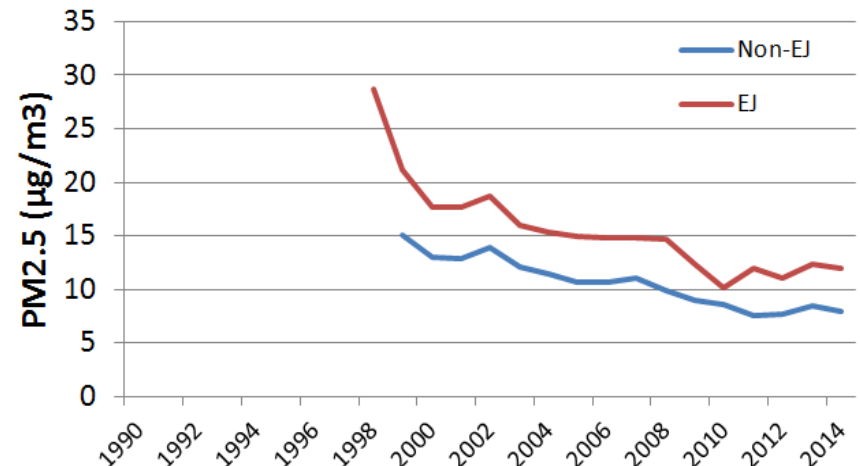
Additional Actions Needed to Address Community Exposure

- ▣ Making progress on reductions of criteria and toxic pollutants in communities
- ▣ Additional reductions are needed to reduce community exposure of air pollution (esp. near rail yards, distribution centers, etc.)

DPM Trend EJ and Non-EJ



PM2.5 Trend EJ and Non-EJ



EJ Concerns and Related Data Highlight Need for Further Reductions

- Air quality concerns raised at EJAC and community meetings
- Community visits and tours
- Recent findings of elevated exposures (e.g., hexavalent chromium levels in south coast communities)
- Studies focused on community exposures and benefits (OEHHA, Luskin Center, Cushing, others)

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Beyond Adaptive Management

- ▣ Adaptive Management
 - ▣ Focused program to detect and address unlikely but potential localized air quality impacts due to Cap-and-Trade
 - ▣ Only one part of broader effort needed to reduce regional and community air pollution
- ▣ Broader effort must focus on actions to achieve additional emissions reductions
- ▣ Effort must address mobile and industrial sources; will require multi-agency coordination

Multipronged Approach Needed to Address Community Exposure

- Reduce industrial source emissions with a focus on near-source toxic exposure thru joint ARB/District actions
- Integrate emissions and program data for toxics, criteria pollutants, and greenhouse gases
- Use latest science to assess health impacts and prioritize actions
- Develop direct State measures to reduce criteria, toxics, and GHG emissions: Sustainable Freight Strategy/Mobile Source Strategy
- Implement Adaptive Management to avoid increases due to Cap-and-Trade

Actions to Achieve Further Reductions

- Work with air districts to assess emission reduction opportunities
- Implement Sustainable Freight Strategy and Mobile Source Strategy
- Continue toxics review process underway in response to OEHHA's risk methodology update
- Continue implementation and enforcement of diesel risk reduction measures
- Improve emissions inventory and data transparency

Actions to Achieve Further Reductions (cont.)

- ▣ Assess climate strategies to better yield co-benefits and prioritize measures resulting in direct reductions
- ▣ Collaborate with researchers on assessment of community impacts and development of responses
- ▣ Present detailed plan for further actions to Board in 2017

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Adaptive Management Objectives

- ▣ Address commitments made in ARB's approval of the Cap-and-Trade Program and the 2011 Adaptive Management Plan
- ▣ Detect and address unlikely but potential localized air quality impacts due to Cap-and-Trade
- ▣ Establishes focused process for tracking and responding to potential emission increases at Cap-and-Trade facilities
- ▣ Identify emission increases, investigate their causes, develop recommendations for addressing increases
- ▣ Transparent process enables public to reproduce staff's emissions analysis, or perform own independent analyses
- ▣ Only one part of needed multi-prong strategy

Key Questions for Adaptive Management

- Have we observed an increase in air pollution from Cap-and-Trade covered facilities in disadvantaged communities?
- Does the observed increase warrant a deeper investigation?
- Is the increase caused by Cap-and-Trade?
- What are the potential responses?

Multi-Step Evaluation Process

Annual Monitoring

- Monitor air pollution
- Match facilities

Data Screening

- Screen for increases in DACs with C&T covered facilities
- Prioritize by DACs with largest increases

Data Analysis

- Analyze facility emissions
- Investigate causes of increases
- Work with Districts

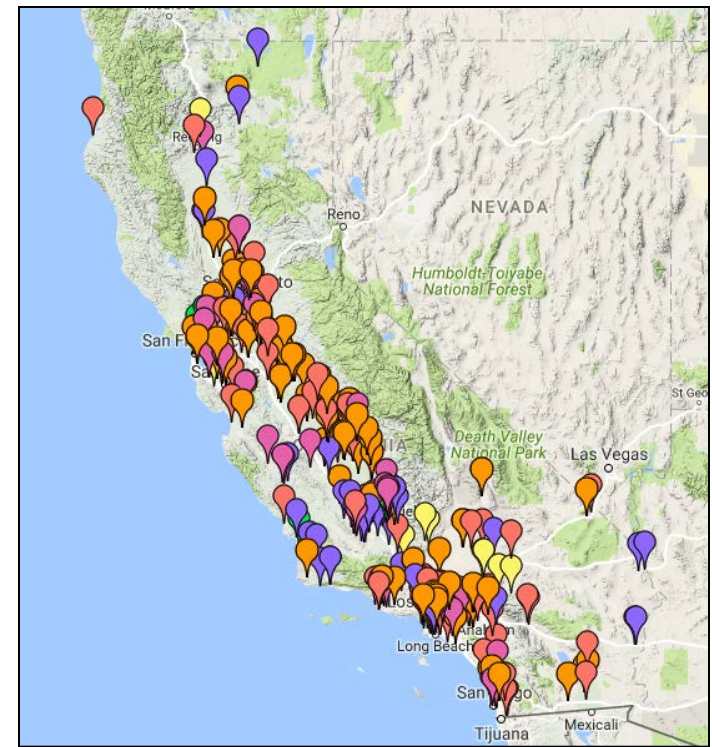
Public Process

- Release Results
- Develop Recommendations
- Update Board & CAPCOA

Monitoring: Emissions Visualization Tool

- ▣ Tool used to track facility air pollution emission changes
 - ▣ Identify air pollution emission increases at disadvantaged communities by facility, group of facilities, and across economic sectors
 - ▣ Tool will identify facilities for more analysis
 - ▣ Criteria pollutant data added later this year, toxics in 2017
- ▣ Publicly available tool

<http://www.arb.ca.gov/ei/tools/ghgfacilities/>



Emission Visualization Tool - Video Demonstration

Facility Emissions Visualization and Analysis Tool

Switch Theme
Revert

Facility Search Criteria Hide

Facility Name
Facility:

Emission Year
Year: x 2014

Geographic Region
Basin:
District:
County:
City:
Zipcode:

Primary Sector
Sector:

Cap-and-Trade
2013 Covered Facilities?

Air Pollutant
Pollutant:
x CO2E_COVERED


Emission Level (MT)
CO2E_TOTAL:

Maps Charts Data Help Disclaimer C&T Cap

Group by Facilities Map Layers Reset Maps

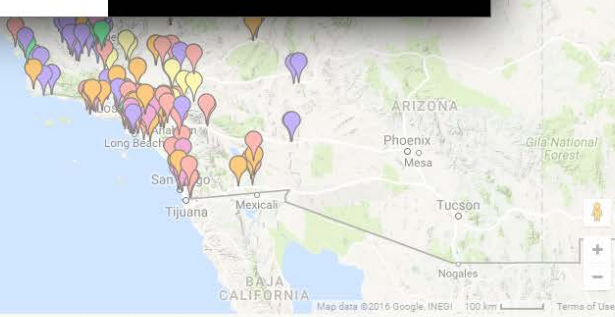
Map Satellite

**Welcome to ARB's
Emissions Analytical and Visualization Tool**



Important Notes

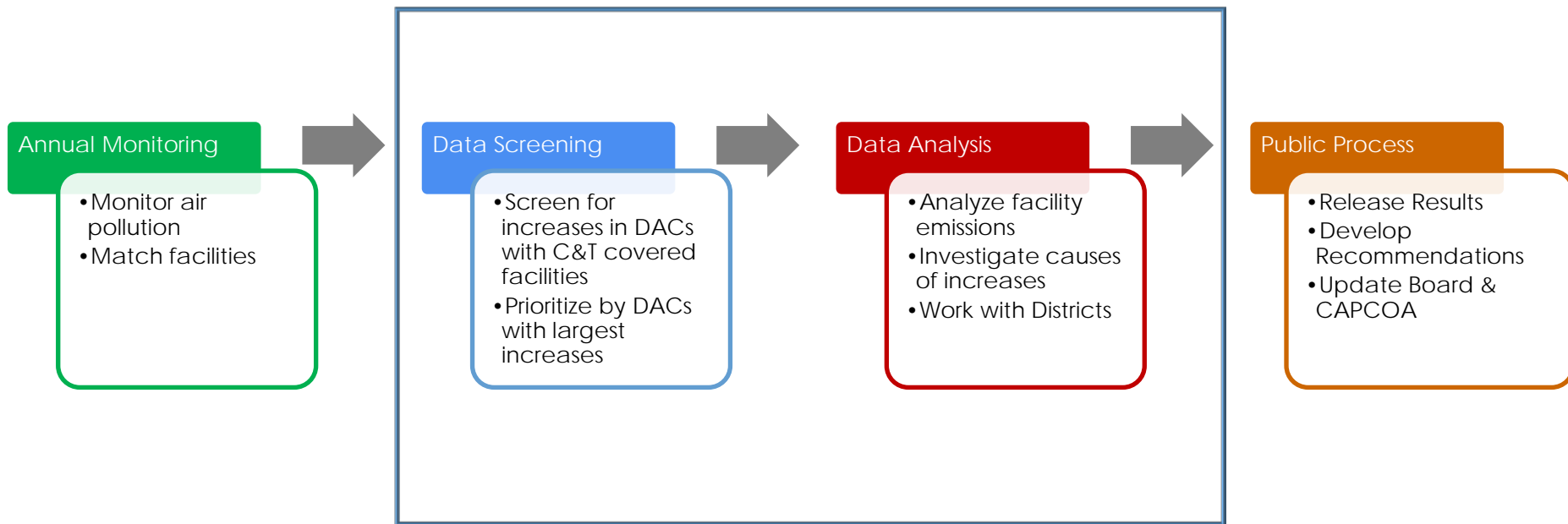
- This online tool enables users to locate, view, and analyze emissions of greenhouse gases (GHG) from large facilities in California.
- GHG emissions data were collected through the ARB's Mandatory Greenhouse Gas Reporting Program.
- The data used in this tool do not reflect the total GHG emissions in California. For complete GHG emissions information, please visit ARB's [Greenhouse Gas Emission Inventory](#).
- Only emissions directly emitted from California facilities are represented. Emissions from imported electricity and fuel suppliers are not included.
- Not all of the entities covered by the Cap-and-Trade Regulation are presented in this tool. Please read the [Legal Disclaimer](#) for more information.
- The primary sectors of facilities were reconciled for consistency between the old and the current reporting regulations.
- ARB will update the tool periodically when new data become available.



Emissions by Facility

FACILITY	CO2E_COVERED (MT)
1 ACE Cogeneration	368,448
2 AES Alamitos, LLC	840,968
3 AES Huntington Beach, LLC	530,005
4 AES Redondo Beach LLC	177,457
5 Aemetis Advanced Fuels Keyes, Inc.	75,371
6 Aera Energy Belidge Gas Plant 32	66,483
7 Aera Energy Coastal Basins	225,721
8 Aera Energy San Joaquin Basin	3,246,254
9 Agrium US Inc	17,062
10 Air Liquide El Segundo Hydrogen Plant	615,058
11 Air Liquide Large Industries US L.P. - Rodeo Hydrogen Plant	815,746
12 Air Products & Chemicals, Inc., Martinez	255,203
13 Air Products Carson Hydrogen Plant	682,332
14 Air Products Manufacturing Corporation, Sacramento	44,858
15 Air Products Wilmington Hydrogen Plant	839,224
16 Algonquin Power Sanger, LLC	59,863
17 All American Asphalt	16,973
18 All American Oil and Gas Company	176,132
19 Alon Bakersfield Refinery - Areas 1&2	20,542
20 Amgen Inc.	20,739
21 Anheuser-Busch LLC - Fairfield (opt-in 2013)	14,236
22 Anheuser-Busch LLC - Los Angeles Brewery	37,069
23 Applied Energy LLC - NAS North Island	159,231
24 Applied Energy LLC - NTC/MCRD	103,147
25 Applied Energy LLC - U.S. Naval Station	184,986
26 Ardagh Glass Inc.	74,710
27 BWP/MPP Electricity Generating Facilities at 164 W. Magnolia	595,249
28 Badger Creek Limited	116,832
29 Bear Mountain Limited	161,234
30 Berry Petroleum Company - San Joaquin Basin	1,949,812

Multi-Step Evaluation Process



Multi-Step Screening and Analysis

- Identify EJ communities potentially impacted by large facilities (CalEnviroScreen, ARB Visualization Tool)
- Screen Cap-and-Trade facilities within 2.5 miles of those communities for emission increases in criteria pollutants (2013-2014)

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ADAPTIVE MANAGEMENT - EMISSIONS ANALYSIS CHECKLIST

In 2012, ARB approved the Adaptive Management Plan to monitor the effects of the Cap-and-Trade Program on localized air quality impacts. This checklist contains a list of criteria that can be used to evaluate the factors that may contribute to an observed increase in criteria pollutant (CP) emissions at facilities subject to the Cap-and-Trade Regulation. ARB recognizes that changes in CP emissions may be the result of multiple interacting factors, and that teasing out the relative importance of each factor may not be possible. This will make it difficult to attribute any increases in CP emissions to the implementation of the Cap-and-Trade Program, or any other specific factor. A weight of evidence approach may be useful in assessing the potential causes of increases in CP emissions at the facilities.

CEIDARS Facility ID Number(s): _____
 MRR ARB ID Number(s): _____

Review Criteria Pollutants (CP): _____

Single Facility

A. Did CP emissions increase? _____ YES NO
 a. If YES, for how many years? _____
 b. List CPs that increased: _____

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Annual Emissions (tons/year)												
Mass Emissions Change?												
Percent Change?												

Group of Facilities within a [X] mile radius

A. Did CP emissions from the group of facilities increase? _____ YES NO
 c. If YES, list the facilities that increased: _____

Permit Emissions Information:

A. Was the increase in CP emissions greater than the local district New Source Review (NSR) threshold? _____ YES NO
 B. Were there any recent emissions-related notice of violations (NOVs)? _____ YES NO
 C. Were there any facility changes—requiring a new or modified permit—that increased criteria pollutant emissions during the reporting year? _____ YES NO
 a. If YES, did the permit modification increase emissions enough to necessitate the use of air district emission reduction credit (ERC) offsets or direct onsite CP emission reductions? _____ YES NO
 b. If YES, did the project trigger a top-down best available control technology (BACT) analysis or TBACT? _____ YES NO

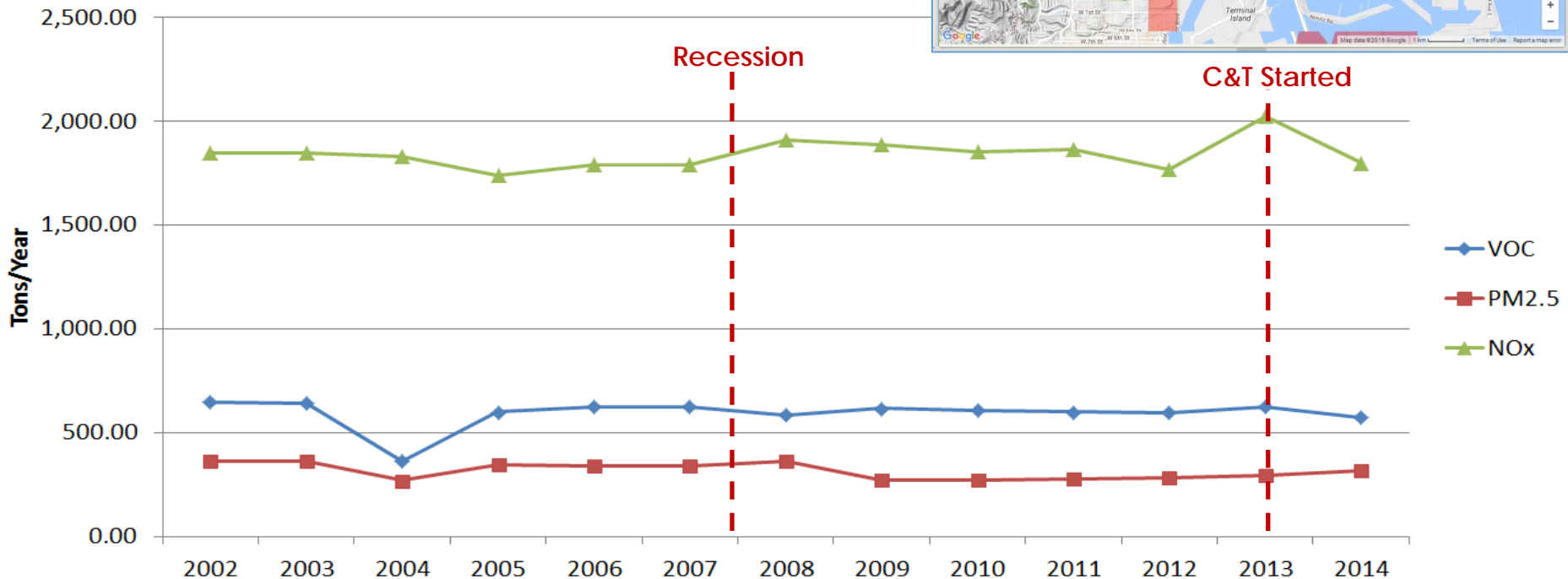
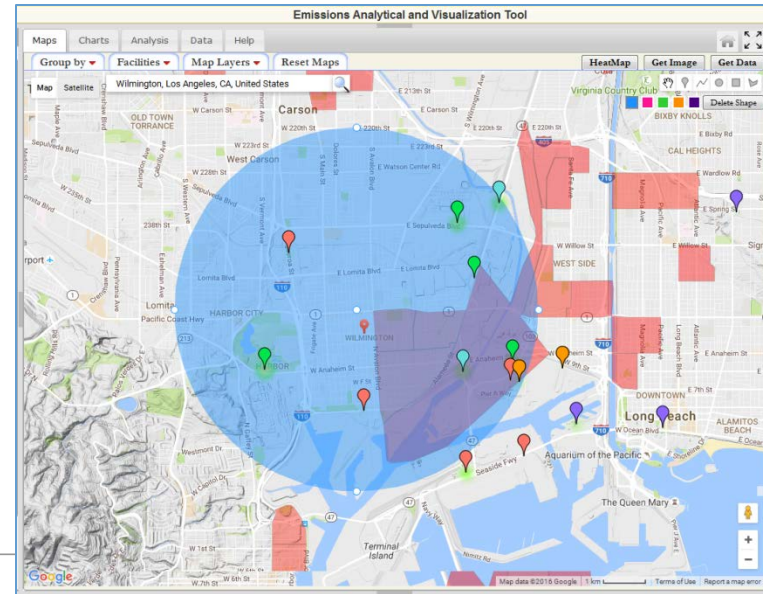
Cap-and-Trade Compliance Instrument Data:

Single Facility

A. Is the facility in compliance with the Cap-and-Trade Regulation? _____ YES NO
 B. What percentage of offsets is the facility using to meet their compliance obligation? ___%

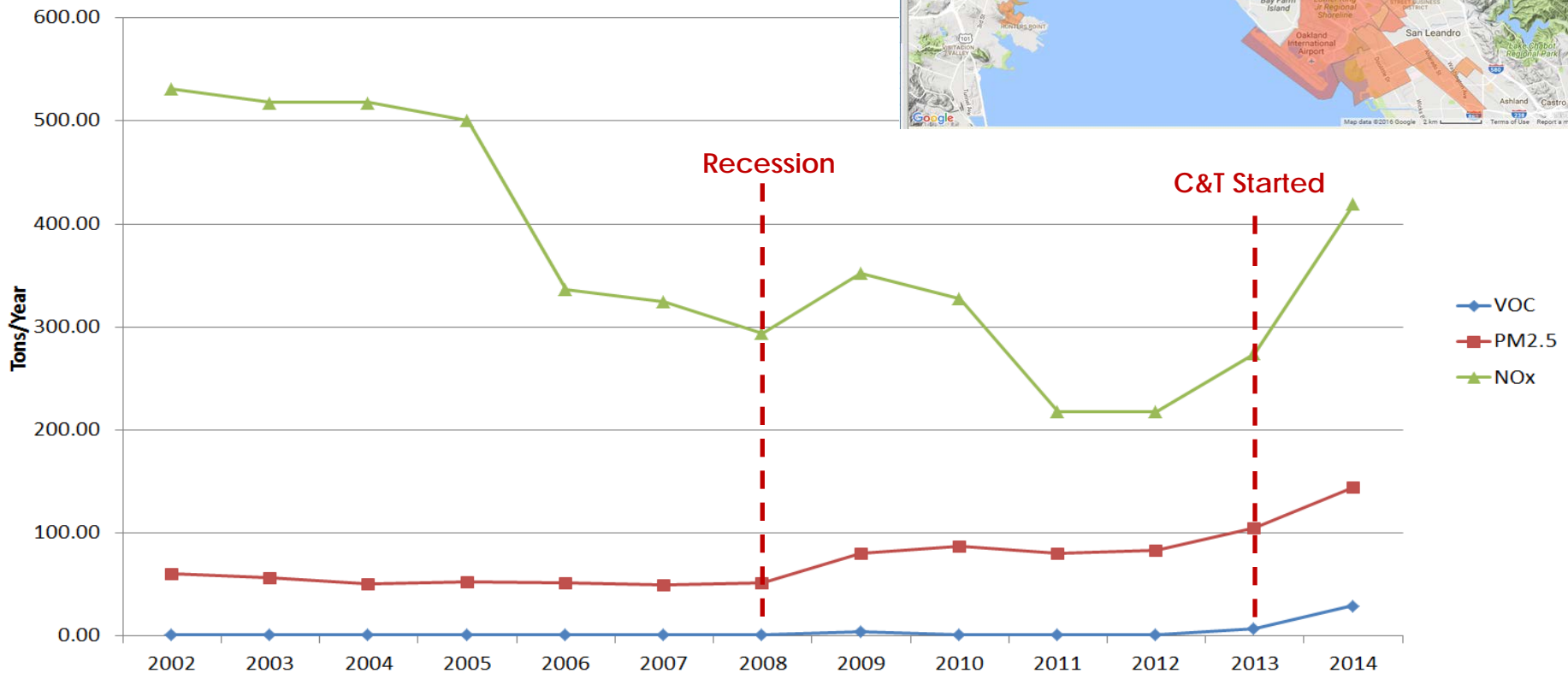
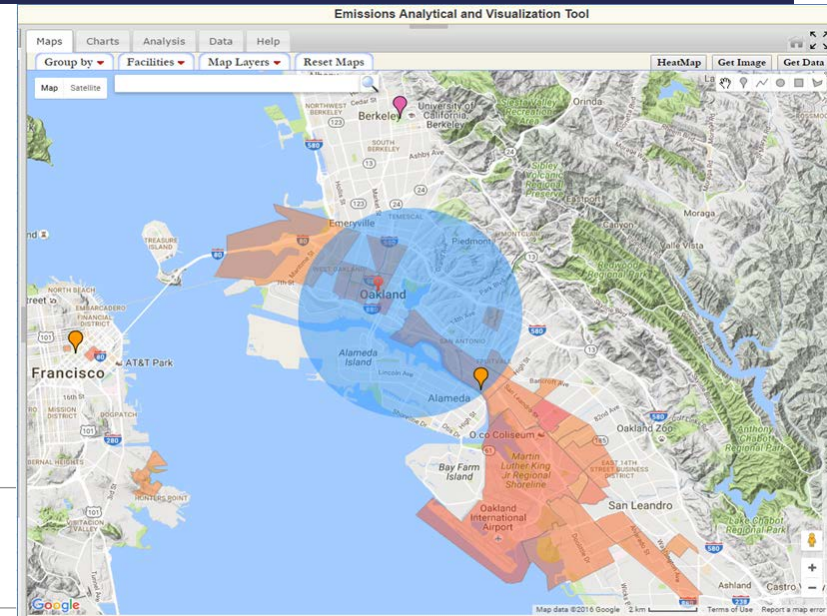
Example: Wilmington Area Emissions Screening

- Aggregate criteria emissions from large facilities in 2.5 mile radius study area
- Criteria emissions at/below pre-recession



Example: Oakland Area Emissions Screening

- Aggregate criteria emissions from large facilities in 2.5 mile radius study area
- Observed recent increases under investigation



Preliminary Findings from Screening of Aggregate Criteria Emissions

- 6 of 10 study areas with observed decreases or no change
 - Wilmington
 - Barrio Logan
 - Brawley
 - San Bernardino
 - Bakersfield
 - Sacramento

- 4 of 10 study areas with observed increases under investigation
 - Richmond
 - Oakland
 - Downtown LA
 - Fresno

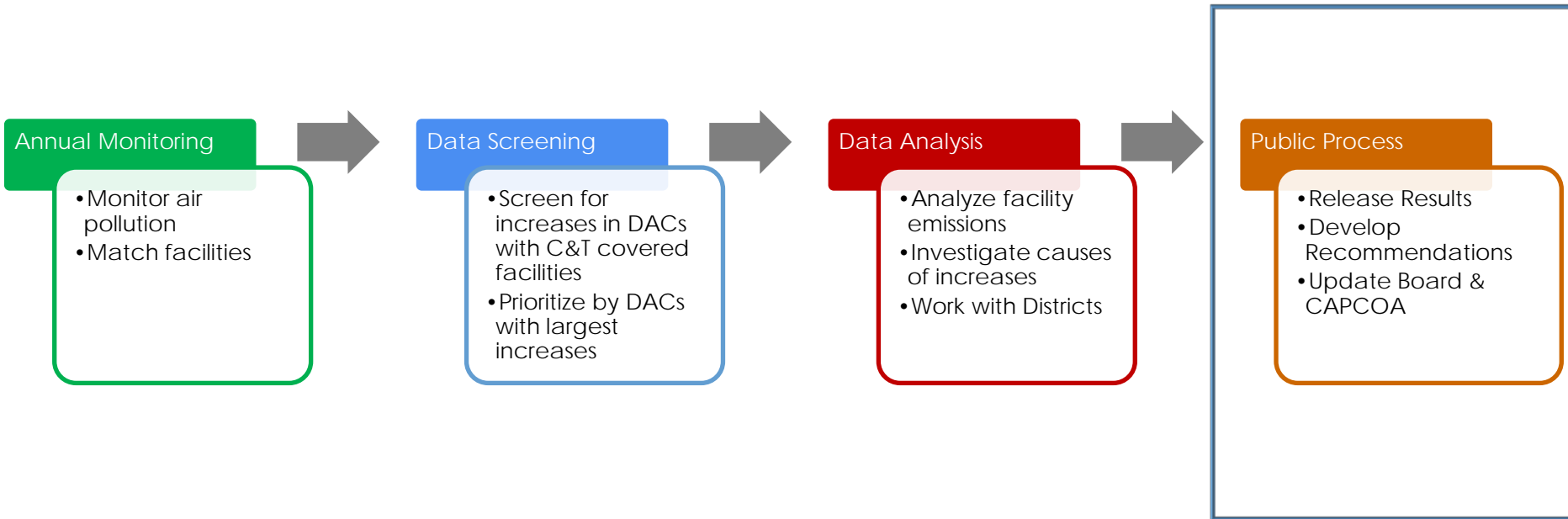
Process for Analyzing Emission Increases

- ▣ Selection of study areas: EJ communities with Cap-and-Trade covered facilities
- ▣ Analyses of emissions from individual facilities within study areas
- ▣ Observed changes from wide variety of factors – often simultaneously
 - ▣ Global/State economic growth
 - ▣ Output changes in response to business decisions
 - ▣ Updates to emission calculation methodologies
 - ▣ Misreported data
- ▣ Prioritize 80+ EJ communities with at least one Cap-and-Trade covered facility
 - ▣ 6 of initial set of 10 communities with observed decreases or no change in VOCs, NOX, or PM2.5 relative to historical variations
 - ▣ 4 of initial 10 communities with observed potential increase in one or more of VOCs, NOx or PM2.5
 - ▣ Community analyses to be completed with Draft AM Report (spring 2017)

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Multi-Step Evaluation Process



Public Process to Develop and Report on Evaluation Strategy

2015:

- ▣ Developed process collaboratively with CAPCOA
- ▣ Public workshops

2016:

- ▣ Worked with CAPCOA Adaptive Management Subcommittee and briefed EJAC
- ▣ Convened stakeholder group and revised process based on district/work group input
- ▣ Release updated visualization tool with criteria data (Dec 2016)

2017:

- ▣ Continue emissions analysis
- ▣ Adaptive Management Report (summer 2017)
- ▣ Release updated visualization tool with toxics data

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Next Steps

- ▣ Updated Visualization Tool (December 2016)
- ▣ Draft Adaptive Management Report (spring 2017)
- ▣ Proposed AM Report to Board (summer 2017)
- ▣ Propose further actions needed to reduce community exposures from covered facilities (summer 2017)