IEPR Lead Commissioner Workshop
Electricity Infrastructure Issues in California

South Coast AQMD
Air Quality-Related Energy Policy Affecting Electricity Infrastructure

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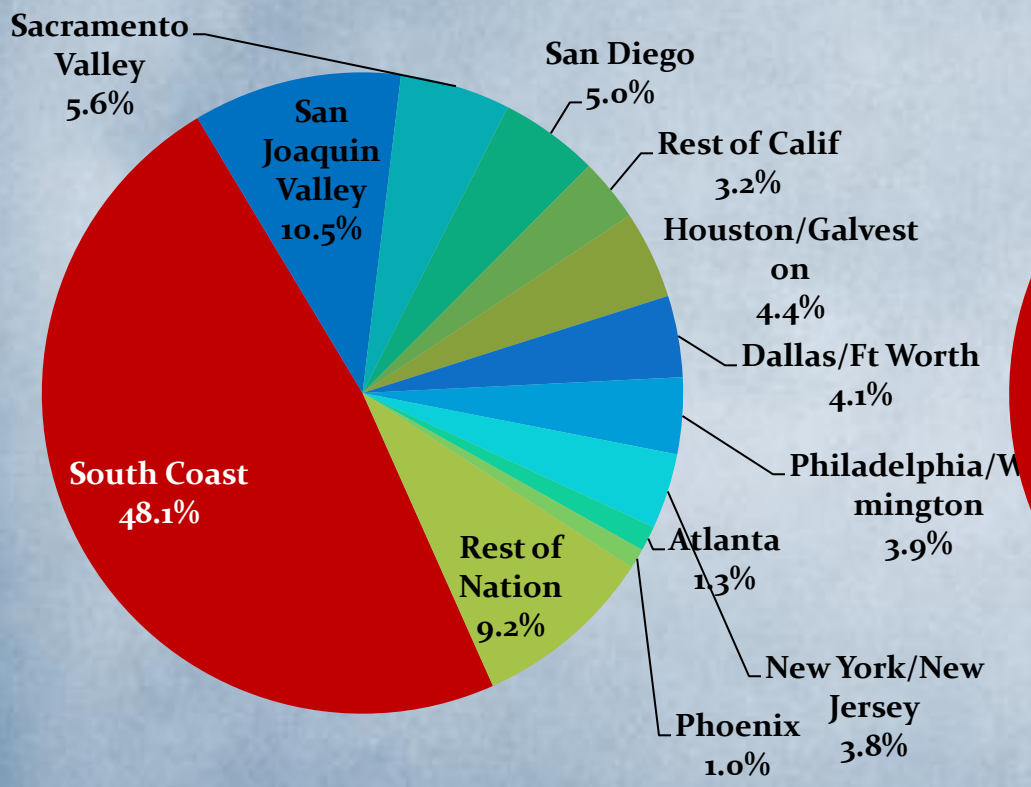
South Coast Air Quality Management District

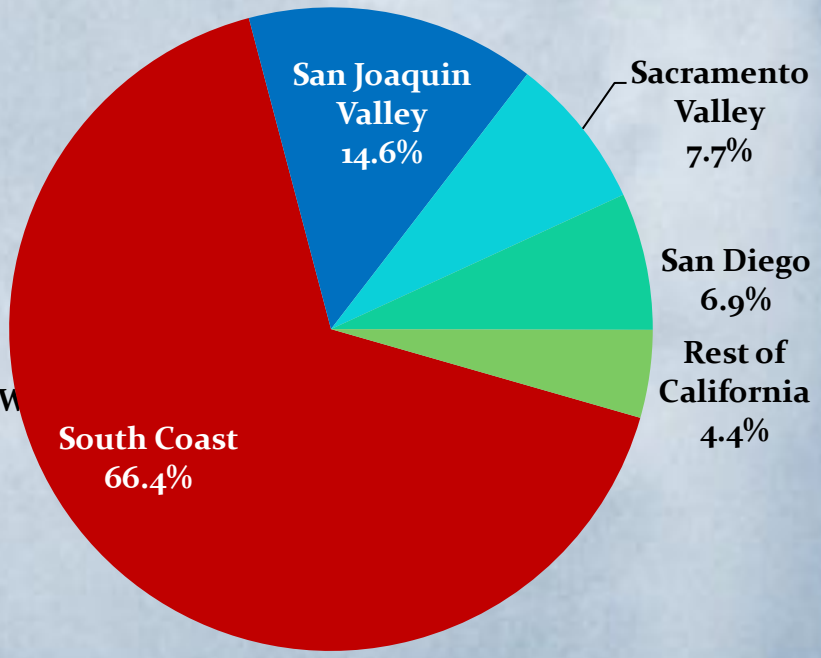
- Local air pollution control agency in Southern California (non-desert portions of LA, Riverside & San Bernardino counties and all of Orange county)
- Population of 17 million (about half of State's population)
- Worst air quality in the nation (Ozone & PM 2.5)
- Receives and processes about 10,000 permit applications annually
- Regulates over 27,000 stationary sources

Ozone Exposures*
8-Hour NAAQS = 75 ppb

Nationwide



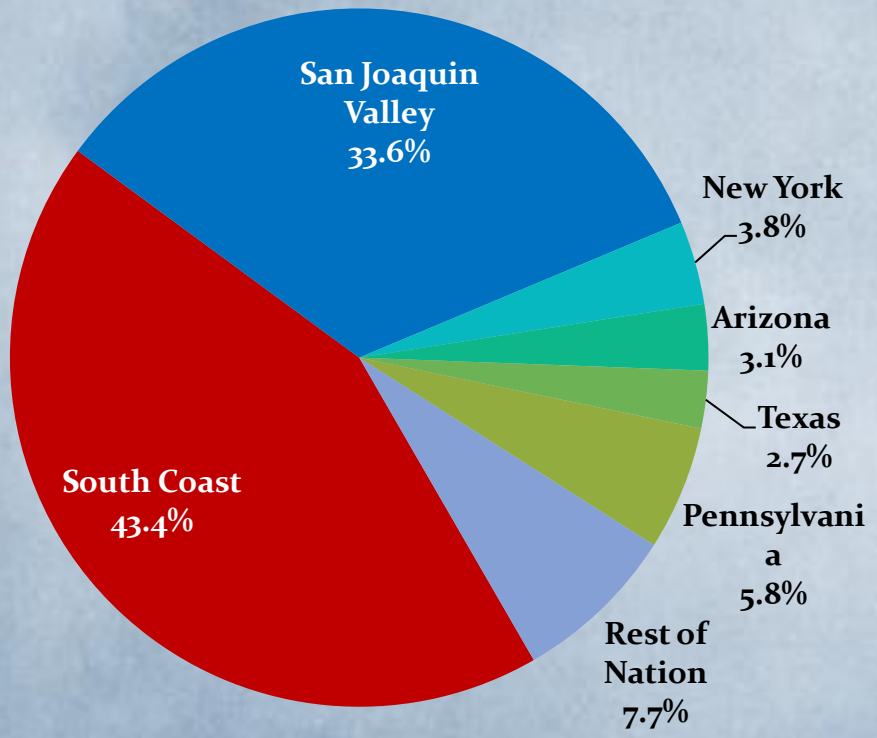
California



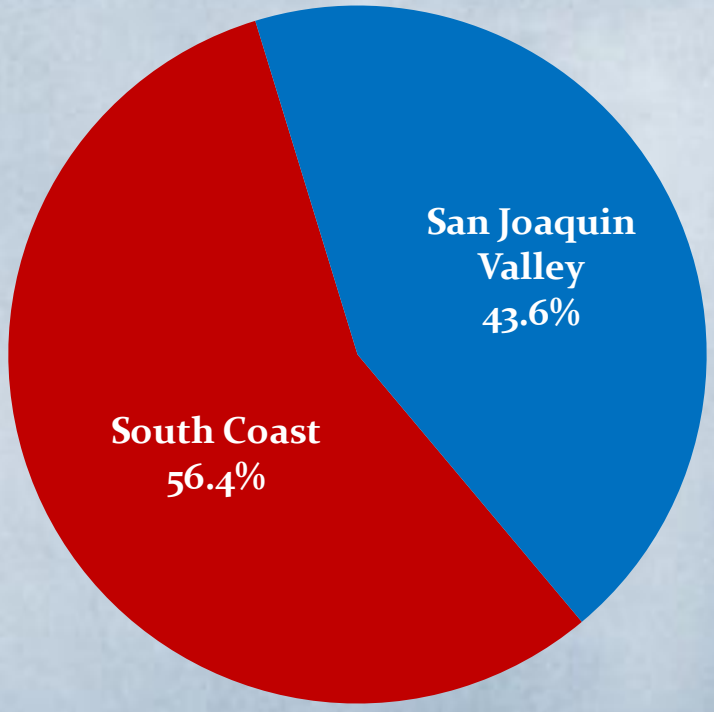
* Population-weighted incremental exposure to ozone above the 8-Hour NAAQS (> 75 ppb), based on 2008-2010 design values

PM2.5 Exposure*
Annual Average NAAQS = 15 µg/m3

Nationwide

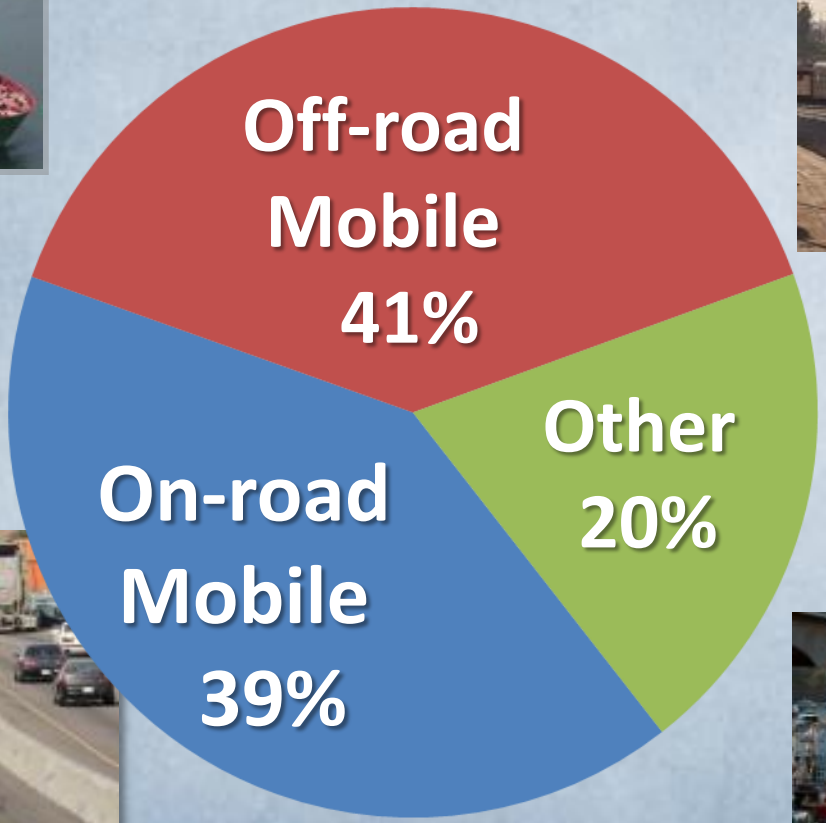


California

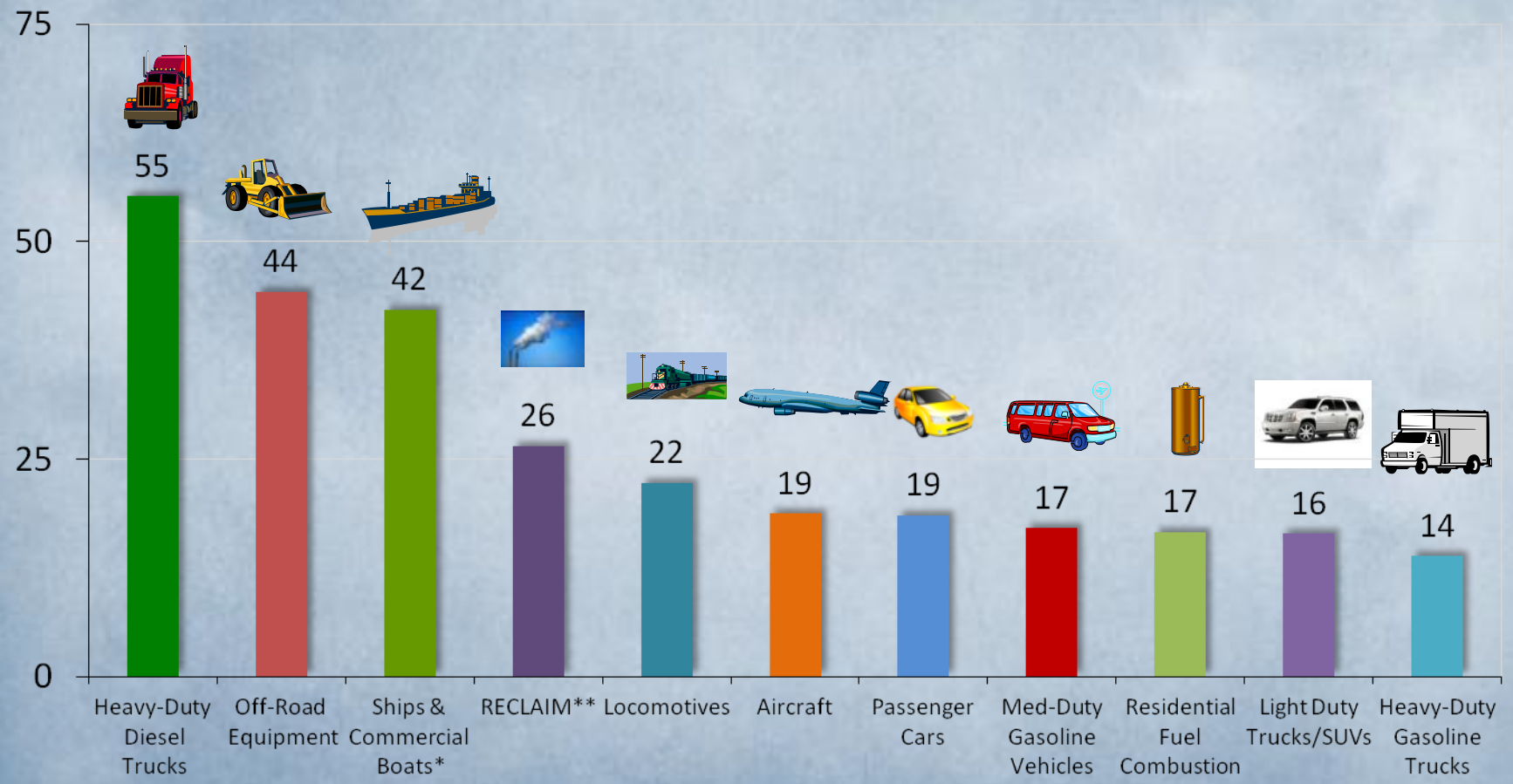


* Population-weighted incremental exposure to PM2.5 above the NAAQS annual standard, based on 2007-2009 data

Mobile Sources Cause 80% of Remaining Air Pollution in South Coast



Top NOx Source Categories (2023)
(2012 AQMP Draft Inventory)

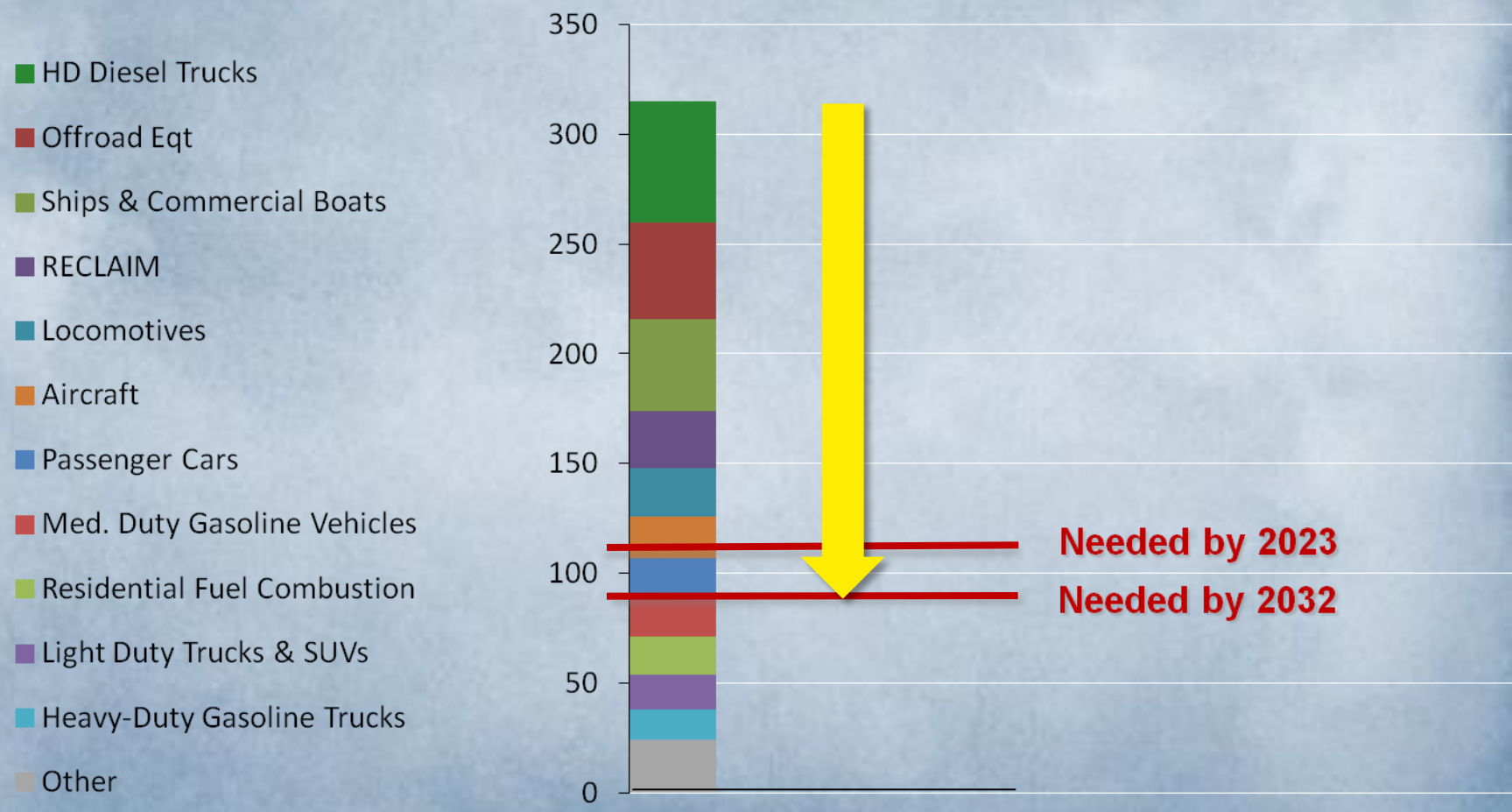


+ Draft 2012 AQMP as of May 4, 2012 (preliminary estimates)
* Oceangoing vessels = 33.8 tons/day
**RECLAIM: 320 largest stationary sources, including all refineries and power plants

Nitrogen Oxides Emissions in 2023

with Adopted Standards

and Additional Needed Emission Reductions (tons per day)



* Source: Ambient ozone modeling conducted by SCAQMD, 2012; data preliminary

SCAB Ozone Attainment
Preliminary Basin NOX Reductions Needed

Year	Federal Standard (PPB)	Percent Reduction of NOX Emissions from 2023 Base Year	Carrying Capacity (tpd)
2023	80	65	115
2032	75	75	80

The Relationship

Energy Use | **Air Quality** | **Health**

Multiple Issues, Separate Solutions

Integrated Solution

AQMD Energy-Related Policy:
Key elements

- Zero- and near-zero emission technologies
- Demand-side management programs (energy efficiency, conservation, load shifting)
- Distributed renewable generation and energy storage
- Continued need for fossil fuel plants
- Community mitigation
- Public education

AQMD Energy-Related Policy:
Key actions

- Feasibility studies of zero- and near-zero emission technologies, costs, impacts
- Working groups – standardized charging installation, rate structure
- Develop and demonstration of biogas and other clean energy sources from biomass
- Participate w/ CEC, PUC & partner to promote energy efficiency through local actions
- Tracking and reporting

Regulatory Structure
Prior to Electricity Deregulation

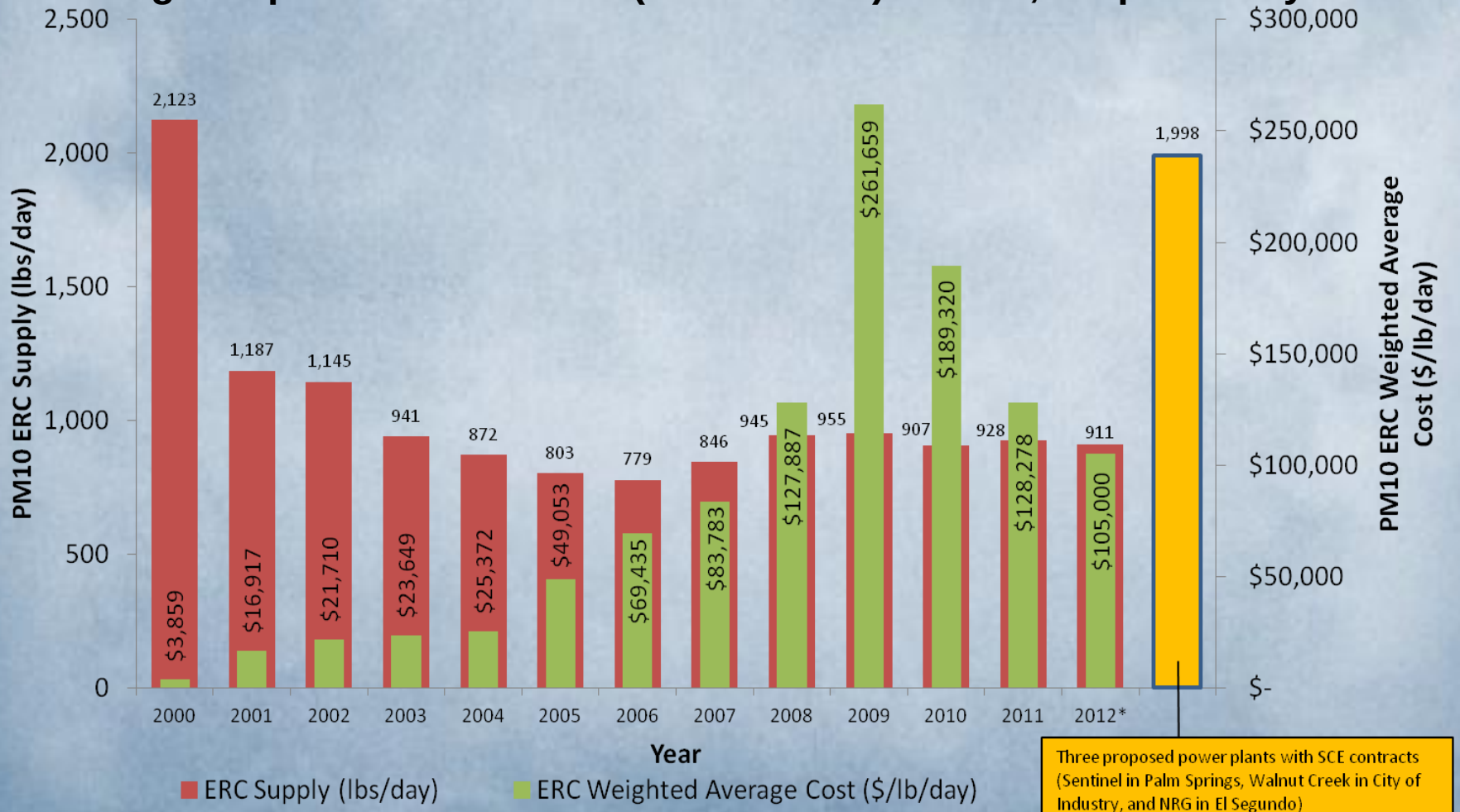
- Public Utilities Commission (PUC)
  - Regulated entire system of Generation, Transmission, Distribution and set energy prices
  - Prices for energy for IOUs (SCE, PG&E and SDG&E) based on cost of running power plants
- California Energy Commission (CEC)
  - License power plants (> 50 MWs) and perform "Needs Analysis"
  - Forecast energy needs
- IOUs provided 77% and Municipalities 23% of power

Regulatory Structure
After Electricity Deregulation

- Public Utilities Commission (PUC)
  - Three IOUs divested their generating plants and sold them to five private energy companies (AES/Williams, Dynegy/NRG, Reliant, Duke and Mirant)
  - Continues to regulate retail rates for IOUs, but prices mostly determined by wholesale prices
- California Energy Commission (CEC)
  - License power plants (> 50 MWs) w/o "Needs Analysis"
  - Prepares IEPR
- Utilities sign PPAs with private energy companies
- Private energy companies provide 42%, IOUs 31% and Municipalities/governments 27% of power

Emission Offset Shortage / PM10 ERC Supply & Cost 2000 – 2012*

Supply decreased by 57% since 2000;
Cost increased by 2,621% since 2000
Highest price of PM10 ERC (sold in 2009) is $350,000 per lb/day



Three proposed power plants with SCE contracts (Sentinel in Palm Springs, Walnut Creek in City of Industry, and NRG in El Segundo)

*Through April 2012

Status of Power Plants in SCAQMD Since Early 2000

Power Plants	MW
Permitted & in Operation (NG-Fired)	7,745
Permitted Not Operational (NG-Fired)	2,815
Permitted Not Operational (Cogen)	87
Pending Final Permits (Cogen & Solar)	620
Total Addition	11,267
Shutdowns	4,539
Generating Units Subject to Termination of OTC	7,646
Denied or Cancelled Projects due to lack of Offsets	2,399

SCAQMD Staff Observations / Concerns

- Electricity Deregulation has transferred power generation from a small group of utilities to a small group of energy companies
- State of California may have inadequate energy planning, (e.g. Huntington Beach Units 3 & 4)
- Availability and cost of emission offsets are of significant concern that impacts economic growth in SCAQMD

Take-away: Clean Energy Future

- Public investments in energy infrastructure must focus on projects that achieve **maximum co-benefits,** including:
  - reductions in criteria pollutants, air toxics, and greenhouse gases
  - energy security and energy diversity
  - energy cost certainty, especially for sectors key to SoCal economy