

Gearing Up to Shut Down

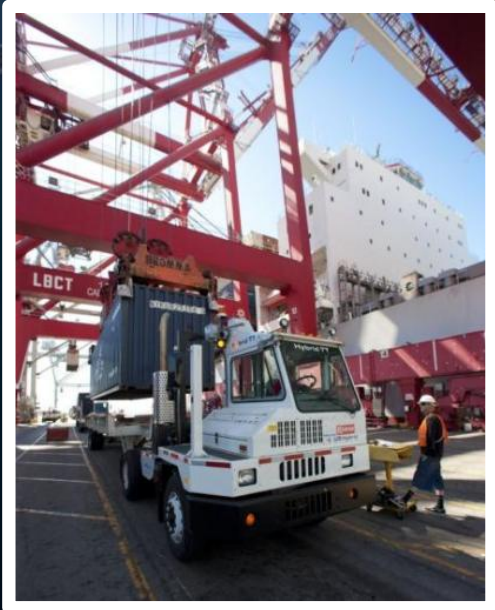
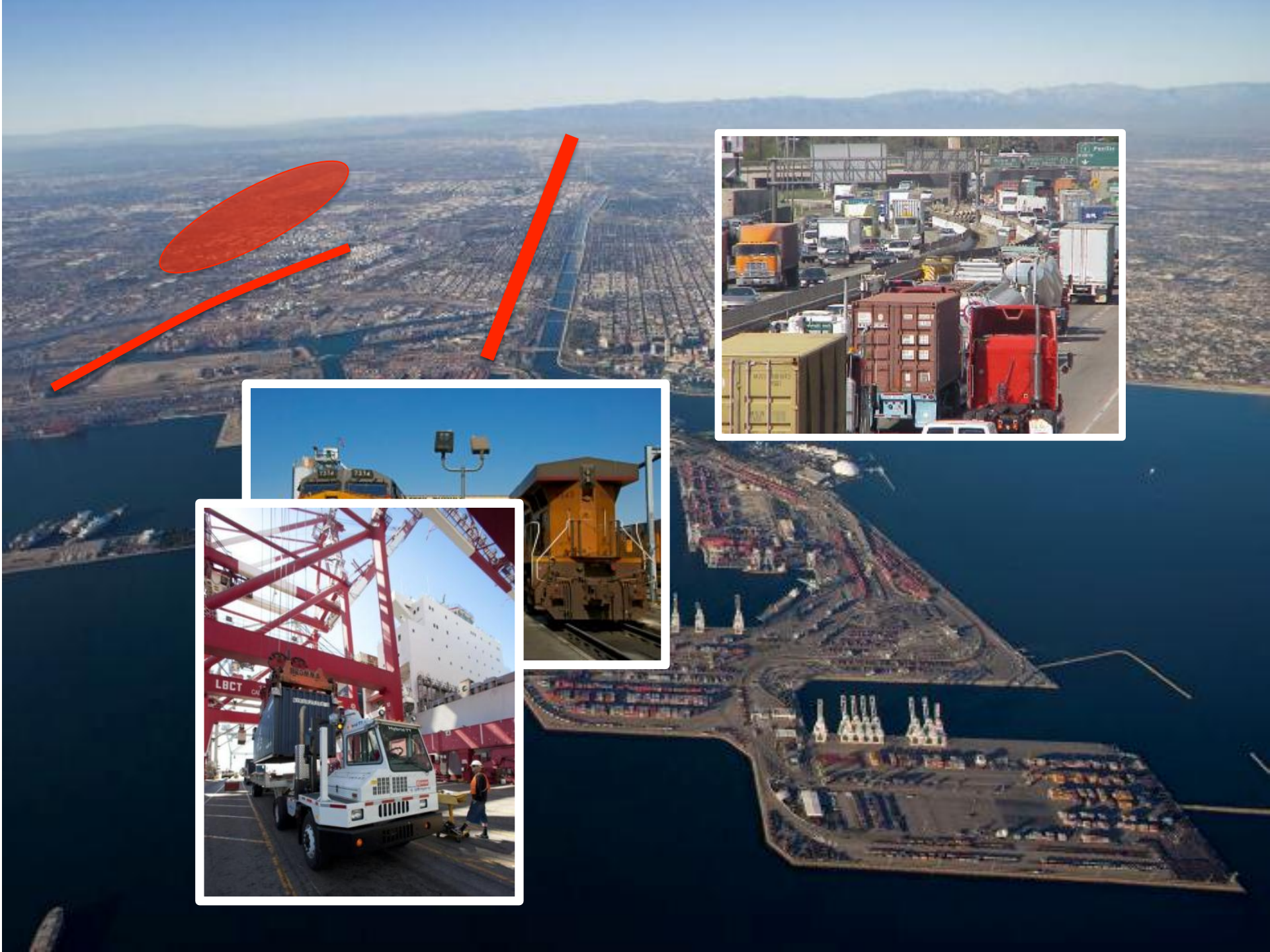
Shore Power at the Port of Long Beach



Thomas Jelenic
Asst. Director of Environmental Planning

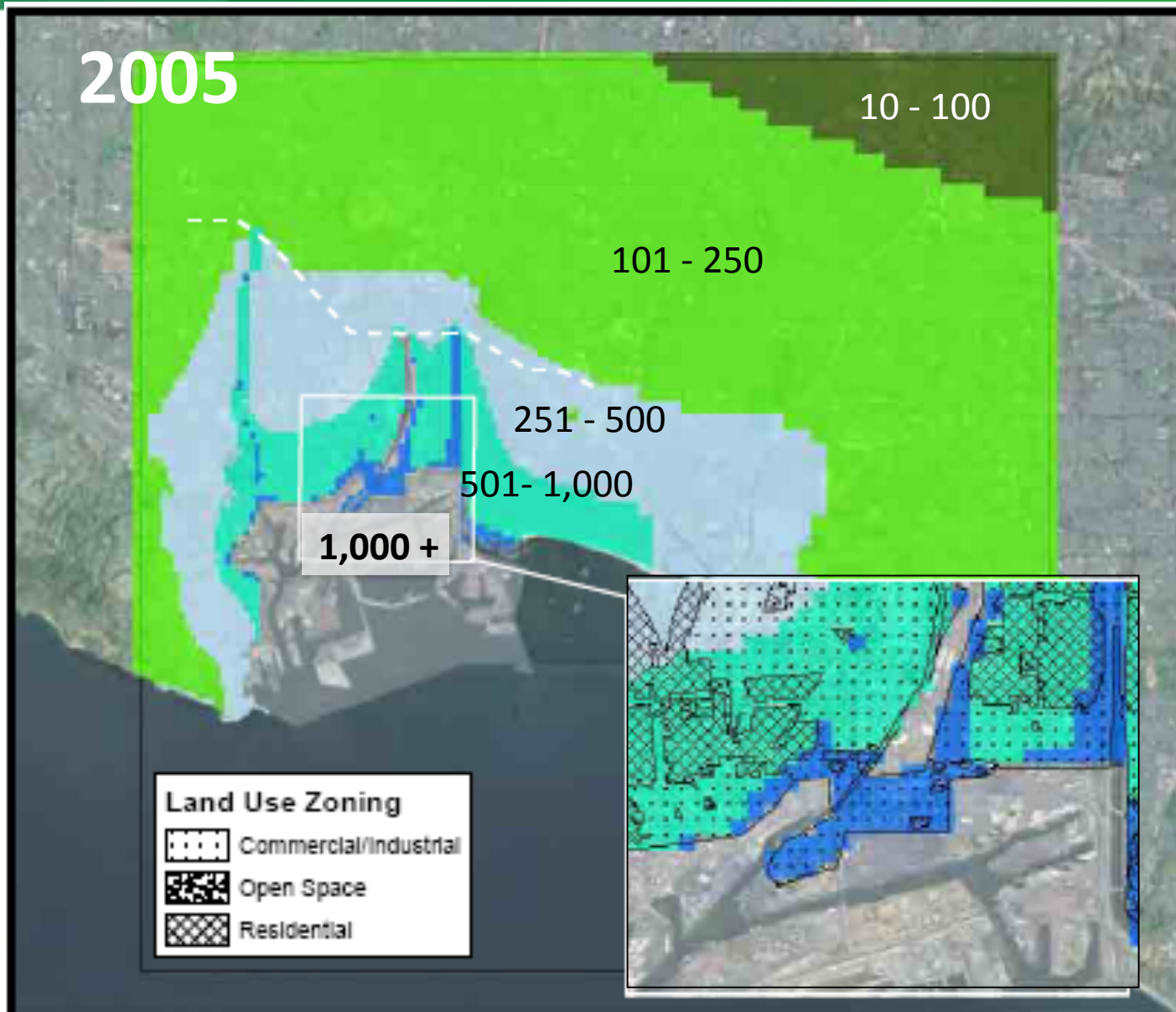
Who we are

- Second busiest container port in the country (18th in world)
- 7 million containers a year
- \$140 billion in goods each year
- 1 in 8 jobs in Long Beach





Community health impacts



We had to change.



Green Port Policy



Ship Speed Reduction



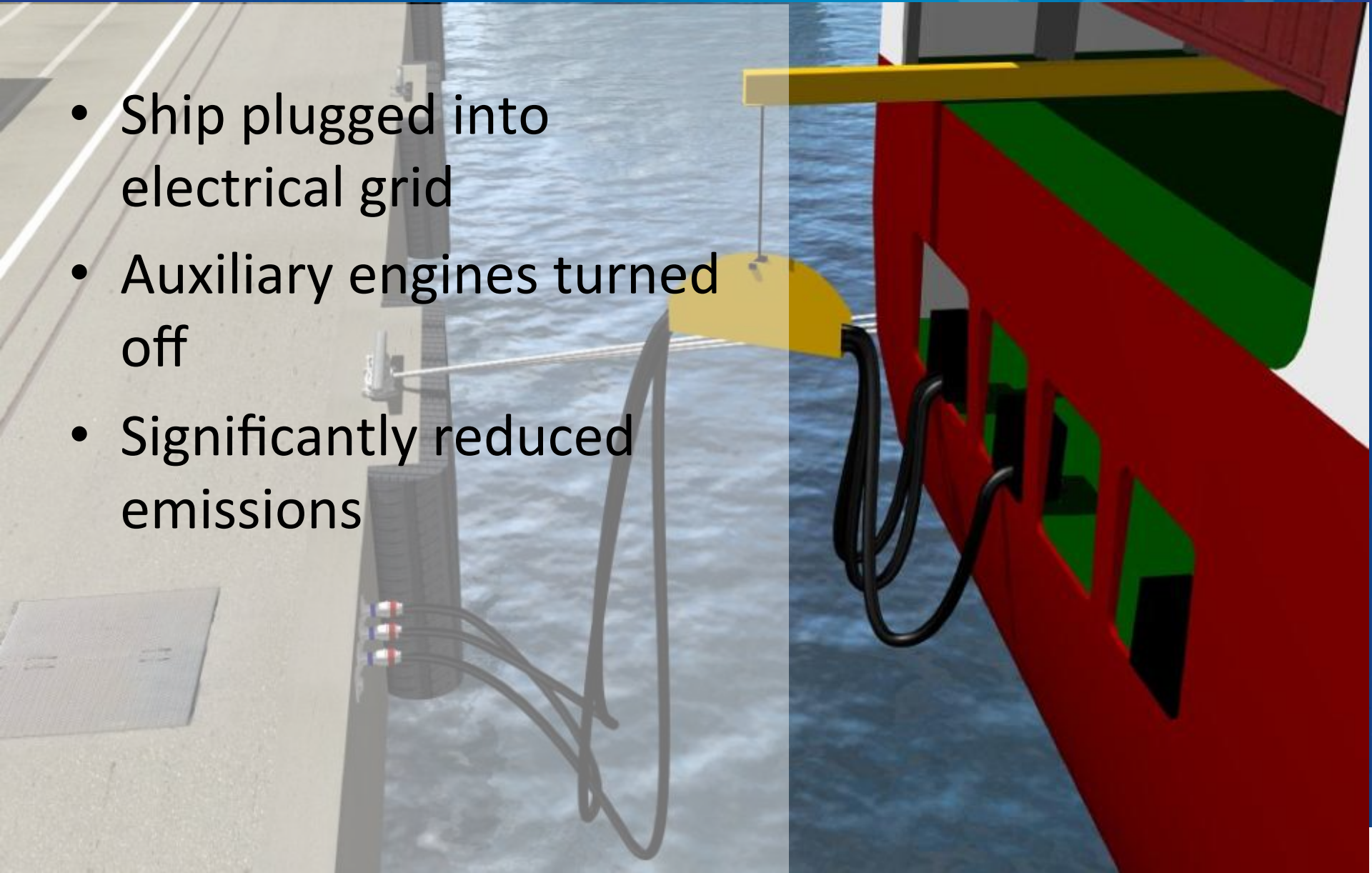
Clean Air Action Plan



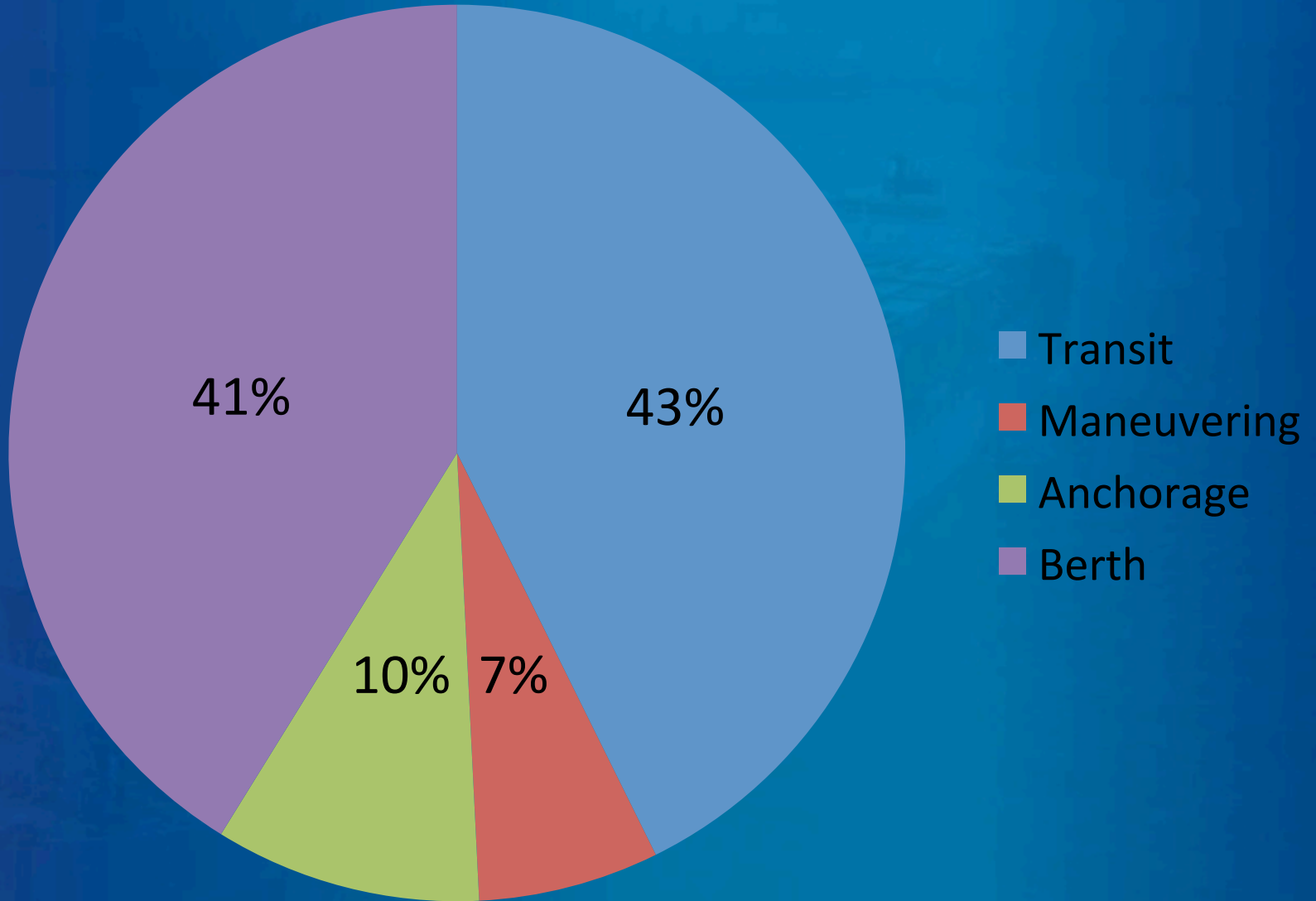
Clean Trucks

Shore power

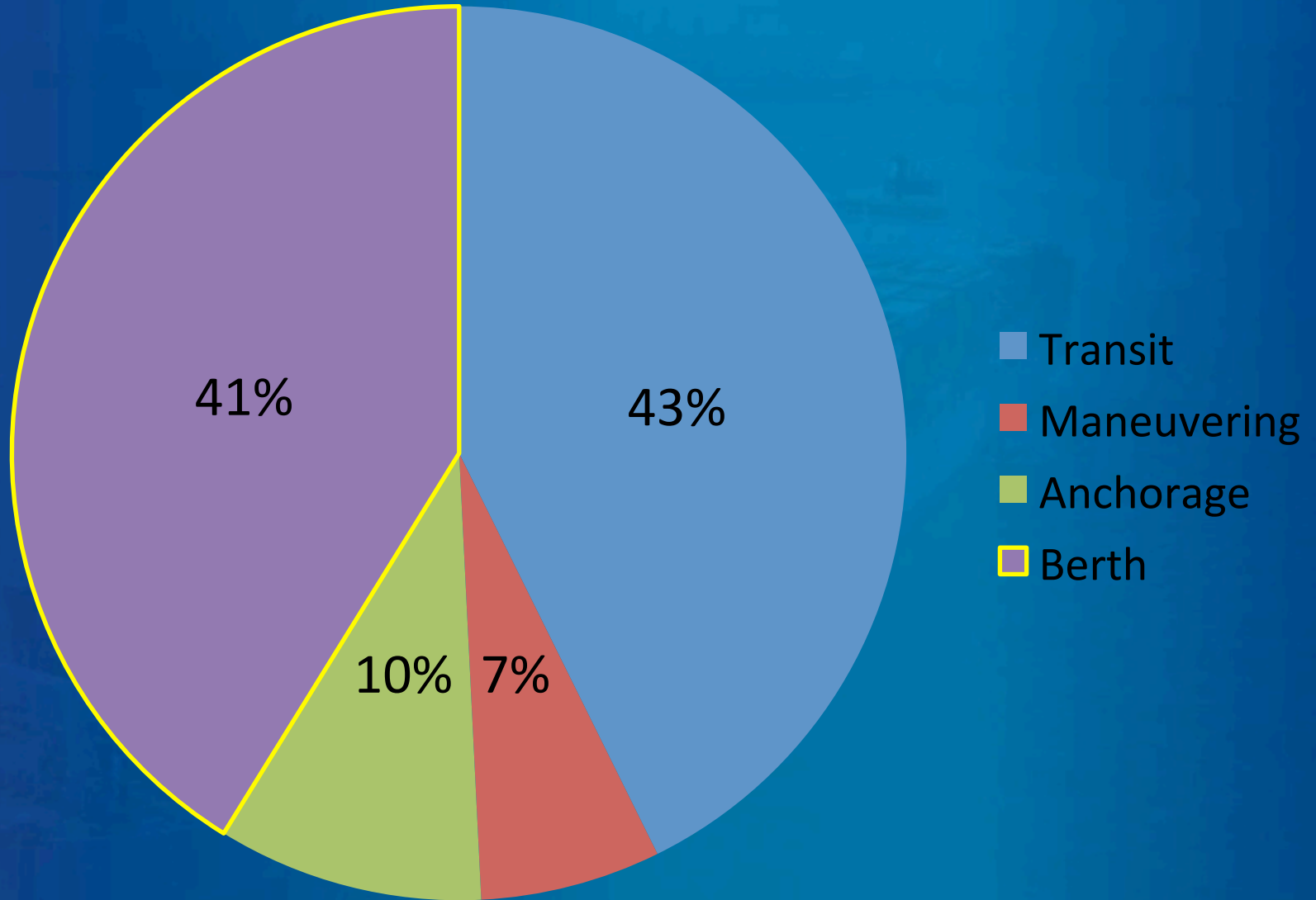
- Ship plugged into electrical grid
- Auxiliary engines turned off
- Significantly reduced emissions



Emissions by ship mode (2011)



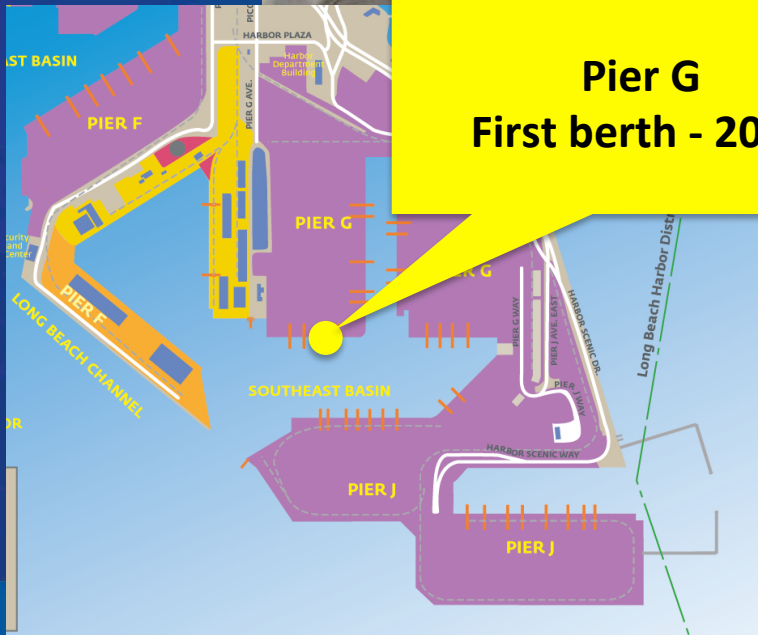
Emissions by ship mode (2011)



Leading the way: ITS/K-Line

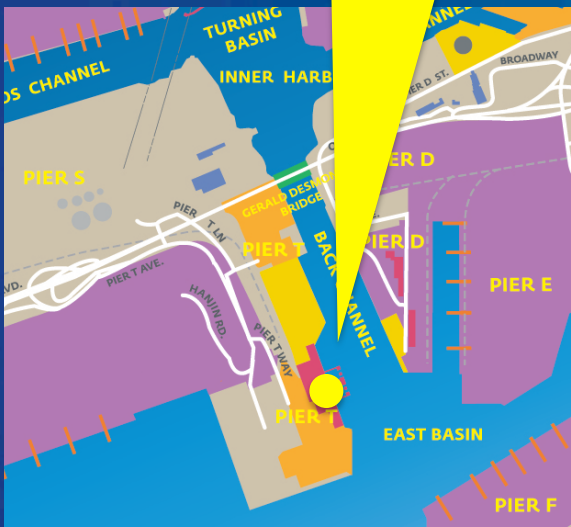


**Pier G
First berth - 2008**



Leading the way: BP

Pier T - BP
World's only shore
powered oil facility
2009



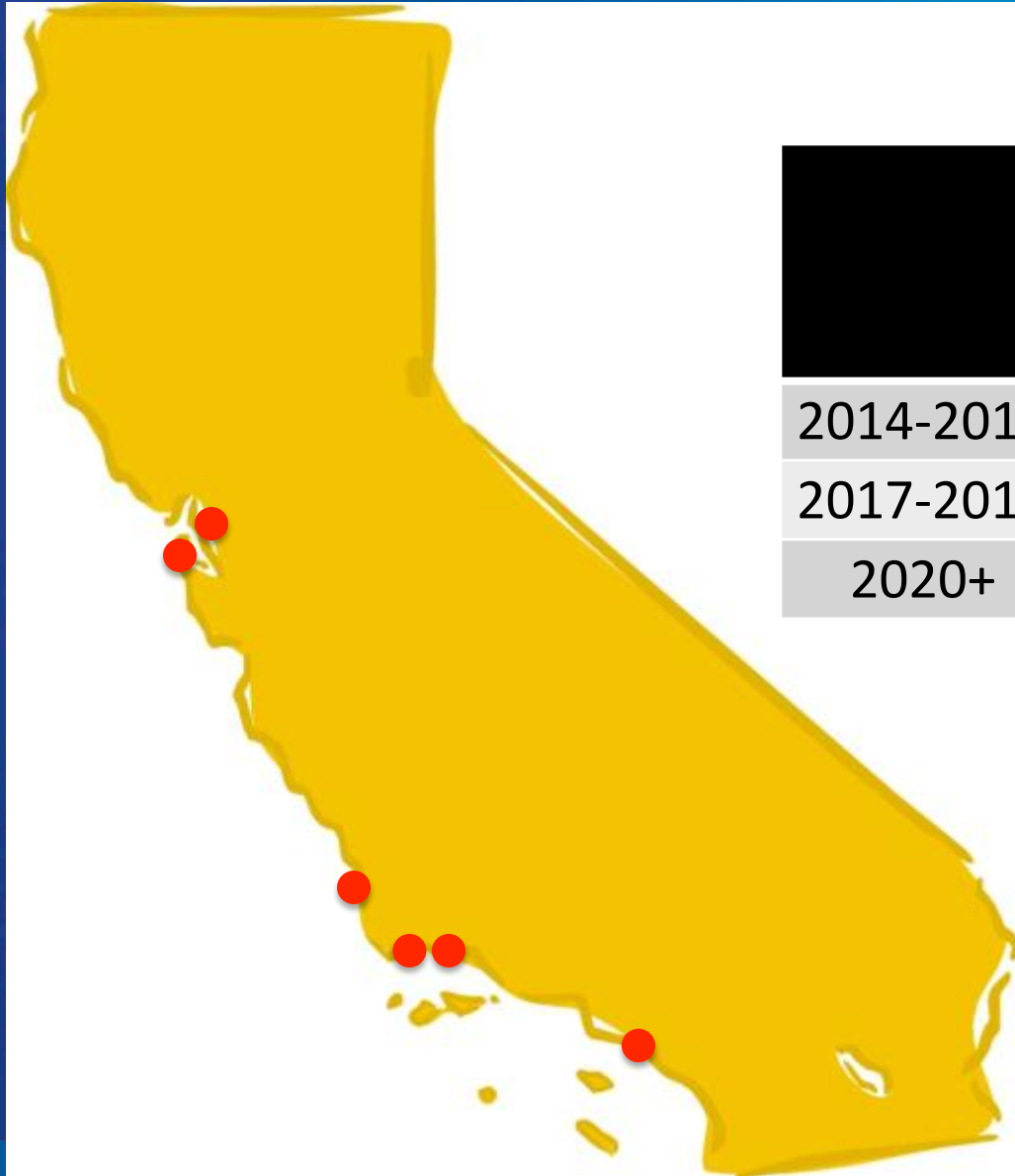
Leading the way: SSA/Matson



**Pier C
Two berths - 2011**



California shore power regulation



	% of Fleet's Visits	% Emission Reductions
2014-2016	50%	50%
2017-2019	70%	70%
2020+	80%	80%

Building for the future

- \$65 million over next two years
- Careful sequencing
- Substantial industry cooperation



International shore power standard

- Published 2012
- Three standards organizations
 - ISO
 - IEC
 - IEEE
- “High Voltage Shore Connection System”
- Covers system requirements, ship connections, verification and testing

System design

- 6,600 volts, 3 phases, 60 Hz
- Can provide 7.5 MVA of power – enough for fully loaded ship at max demand
- More details at www.polb.com

Challenges

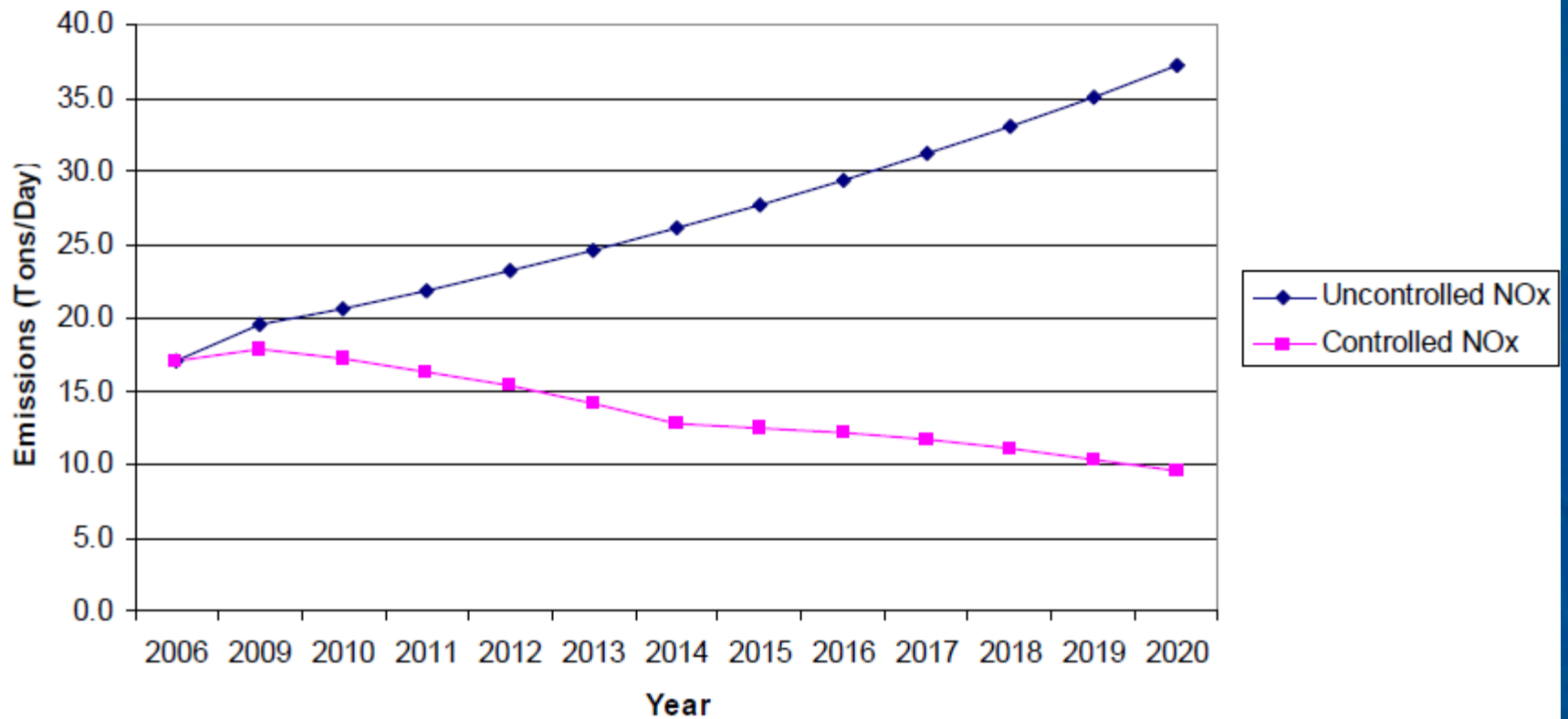


- Cost
- Industry cooperation
- Technical issues



Benefits

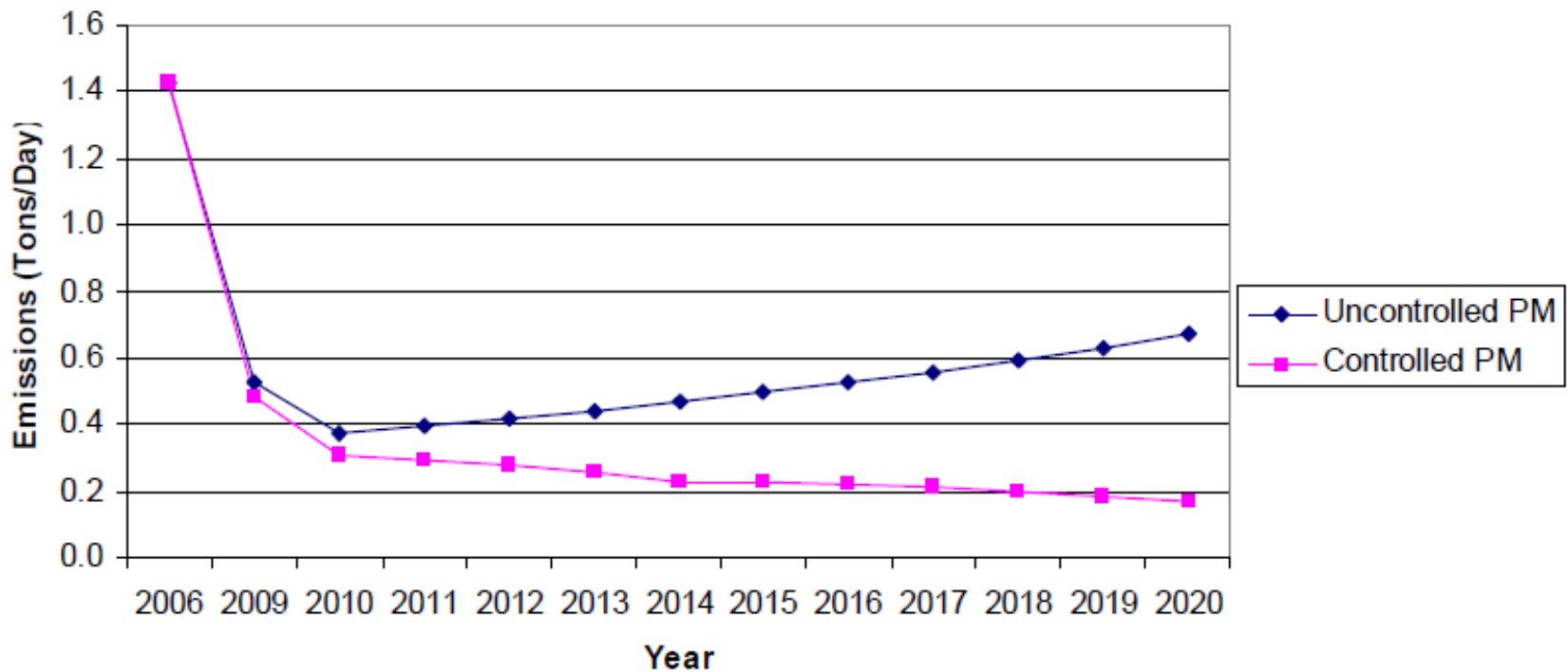
Figure 2: Projected NOx Emissions with and without the Proposed Regulation



California Air Resources Board, 2007

Benefits

Figure 1: Projected Diesel PM Emissions with and without the Proposed Regulation



California Air Resources Board, 2007

Cutting the health risk

2005

10 - 100

101 - 250

251 - 500

501 - 1,000

1,000 +

Land Use Zoning

- Commercial/Industrial
- Open Space
- Residential



2020

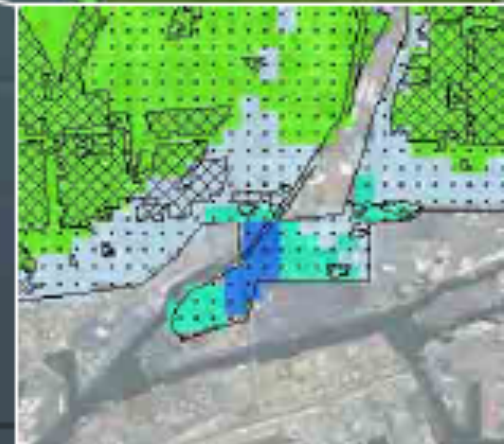
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Landuse Zoning

- Commercial/Industrial
- Open Space
- Residential



Questions?

