

CALIFORNIA MARINE EMISSIONS ISSUES

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Air Resources Board
November 1, 2000

California Environmental Protection Agency

 Air Resources Board

Overview

- Who is ARB?
- Impact of Marine engine emissions
- Incentive and Control Programs
- Future Efforts

Who is ARB?

- California Environmental Protection Agency
- Maintain compliance with National Ambient Air Quality Standards
- Comply with 1988 California Clean Air Act including Marine Vessels
- Coordinate local districts' efforts for stationary sources
- Primary authority over mobile sources

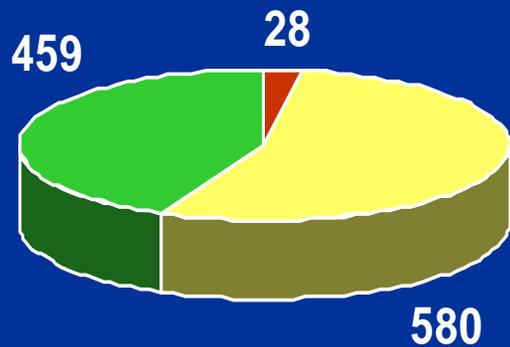
Categories of Mobile Sources

- Passenger Cars
- Light Duty Trucks
- Medium Duty Vehicles/Trucks
- Motorcycles
- Heavy Duty Trucks
- Off-road Diesels
- Off-road Small Spark Engines
- Off-road Large Spark Engines
- Off-road Motorcycles
- Recreational Marine
- Commercial Marine
- Locomotives

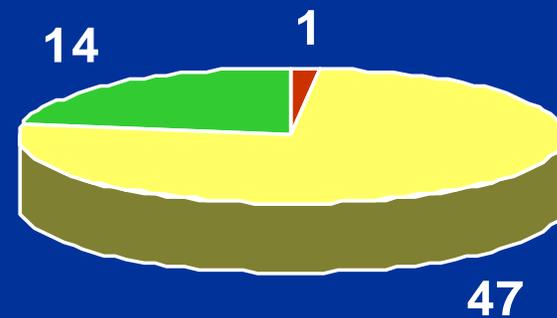
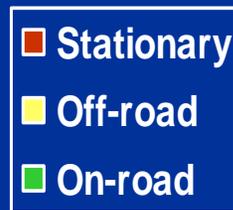
2010 Statewide Emissions Inventory

Diesel Engine Sources

Diesel Engine Sources



NOx Emissions, tpd

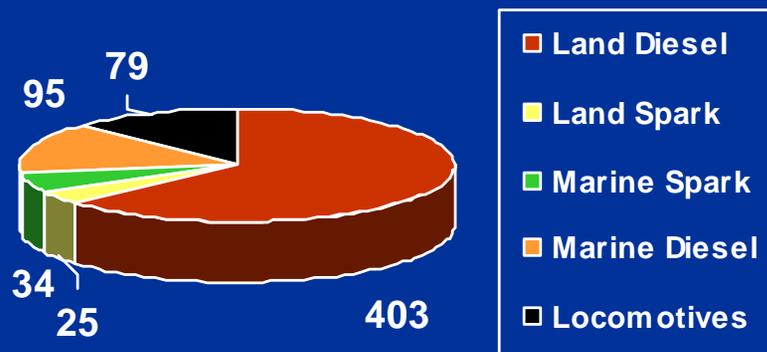


PM Emissions, tpd

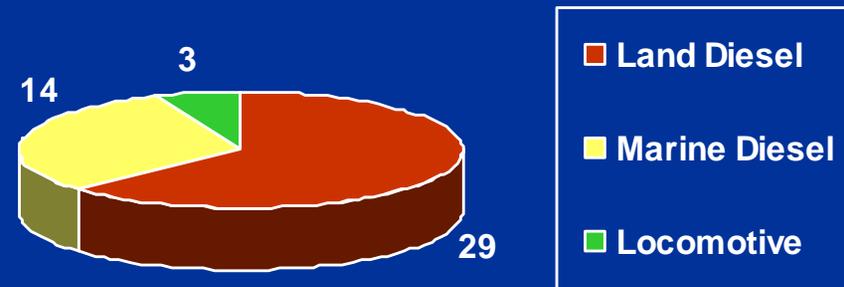
2010 Statewide Emissions Inventory

Off-road Sources

Off-road Sources



NOx Emissions, tpd



PM Emissions, tpd

California Marine Diesel Emission Control Programs

- State Implementation Plan
- Memo of Understanding
- Carl Moyer Incentive Program
- Risk Reduction Plan for PM

1994 State Implementation Plan for Ozone

- California's obligation to EPA to meet ozone standards
- SIP Measure M13 for Marine Diesels
 - EPA/IMO to adopt new engine standards for ocean going vessels
 - EPA to adopt new engine standards for “captive” fleet
 - Reroute shipping lanes and limit vessel speed

Memorandum of Understanding

- Ship speed reduction
- Precautionary Area/Reduced Speed Zone
- Enforced by Marine Exchange
- Emissions reduced per mile of travel

Carl Moyer Program Marine Vessels

- Voluntary incentive program
- Pays differential cost of new natural gas engine, electric motor, or replacement diesel
- Cofunded with local funds (67 state/33 local)
- 98-99 State contribution \$25 million
- 25% of funds went to clean diesel repowers of boats

ARB's Risk Reduction Plan for Diesels

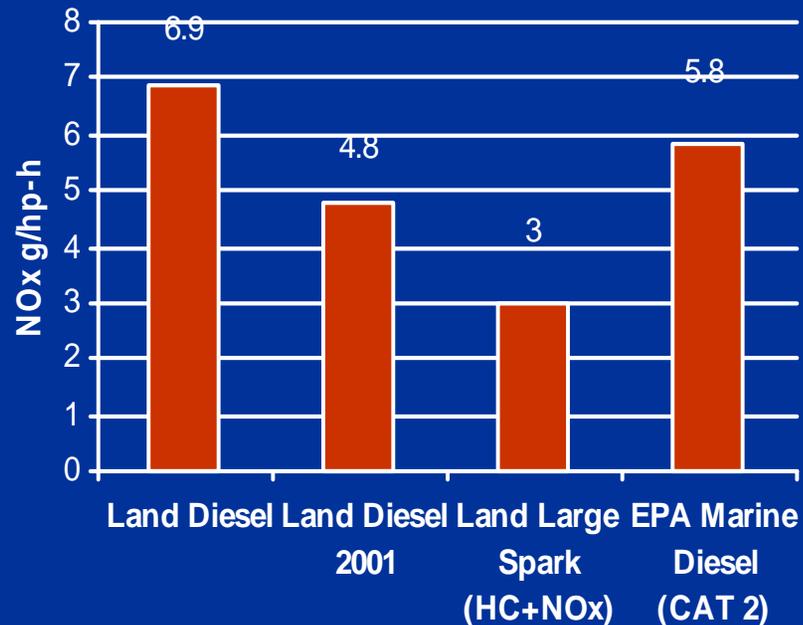
- Approved September 2000
- Commercial marine diesel
 - Voluntary speed reduction in CA coastal waters
 - Federal incentive program for repowering or retrofitting of existing engines
 - Federal emission standards for existing ships upon rebuild or repower
 - Sulfur limitations on marine diesel fuel

Future Efforts

- Continue to encourage EPA to control marine vessels further
 - NOx and PM Control
 - New and existing vessels
- Continue to offer funding for CA repowers and retrofits for marine engines
- Complete the MOU for South Coast Air Basin

OFF ROAD ENGINE EMISSION REQUIREMENTS

New Engine NOx Standards



New Engine PM Standards

