

California Ocean-Going Ship Auxiliary Engine Regulation



Maritime Air Quality Technical Working Group
Long Beach, California
September 12, 2006



California Environmental Protection Agency
Air Resources Board

Overview

- ◆ Summary of Regulation
- ◆ Air Quality Benefits
- ◆ Status of Regulation



Summary of Regulation



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Regulation Applies to Auxiliary Engines & Diesel-Electric Engines

Motor-Ship



Main Engine
for Propulsion
(not covered)



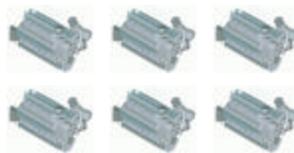
Auxiliary
Engines for
Electricity
(covered)



Diesel-Electric



Engines Provide Electricity for both
Propulsion & Shipboard Uses (covered)



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Regulation Applies Within 24 Nautical Miles of the California Coastline

- Retains the majority of health benefits
- Reduces the cost
- Utilizes international boundary



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Emission Limit Based on Use of Cleaner Distillate Marine Fuels

- ◆ January 1, 2007 Emission Limit
 - Use marine gas oil
 - Use marine diesel oil with a 0.5% sulfur limit
 - Use equally effective emission control strategies
- ◆ January 1, 2010 Emission Limit
 - Use marine gas oil with a 0.1% sulfur limit
 - Use equally effective emission control strategies
 - Fuel supply review in 2008

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Alternative Control of Emissions (ACE) Plan

- ◆ Operators may comply using alternative emission control strategies
- ◆ Must achieve equivalent or greater reductions
- ◆ Applicants may use fleet average emission reductions
- ◆ Special provision encourages the use of shore-side power
- ◆ Two public comment periods provided prior to final decision on approval or denial

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Noncompliance Fee Provision

- ◆ Option to pay a noncompliance fee
 - Unexpected redirection to a California port
 - Inability to purchase complying distillate fuel
 - Fuel found to be noncompliant enroute to CA
 - Extension needed for vessel modifications
 - Vessel modifications needed on infrequent visitor
- ◆ Funds to be used for port air quality projects

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Noncompliance Fee Schedule

Number of Port Visits	Diesel-Electric Vessels	Other Vessels
1	\$32,500	\$13,000
2	\$65,000	\$26,000
3	\$97,500	\$39,000
4	\$130,000	\$52,000
5 or More	\$162,500	\$65,000

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Air Quality Benefits



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Benefits of Distillate Fuel Compared to Heavy Fuel Oil

- ◆ Lower Sulfur Content = Lower SOx
 - 0.5% sulfur for distillate vs. 2.5% for HFO
- ◆ Lower Nitrogen Content = Lower NOx
 - Nitrogen in fuel can form NOx in exhaust
- ◆ Lower molecular weight HC's and lower levels of metals = Less PM
 - Metals result in ash (inorganic) PM

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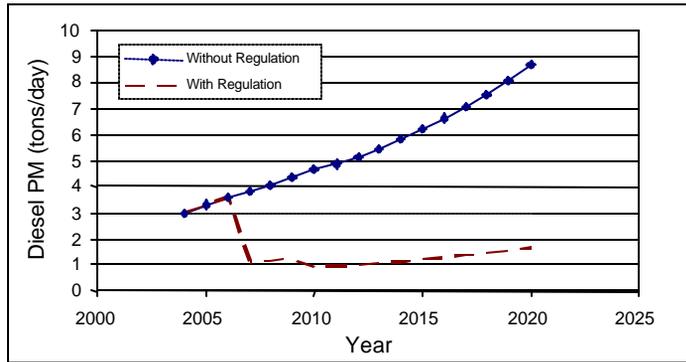
Estimated Percent Emission Reductions*

Pollutant	2007	2010
Diesel PM	75%	83%
NOx	6%	6%
SOx	80%	96%

* Emission reductions estimated from the use of 0.5% sulfur MGO in 2007, and 0.1% sulfur MGO in 2010, relative to the use of heavy fuel oil at 2.5% sulfur

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Estimated Emissions of Diesel PM with and without the Regulation in the 24 nm Zone



Estimated Emission Reductions (TPD)

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Status of Regulation



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Timeline

- ◆ A “Final Statement of Reasons” responding to formal public comments expected to be submitted to the Office of Administrative Law (OAL) in October
- ◆ OAL has 30 working days to review
- ◆ If approved by OAL, regulation generally becomes law in 30 days
- ◆ Regulation available at:
<http://www.arb.ca.gov/marine>
– (see May 18, 2006 item)

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Other Action Items

- ◆ ACE Guidelines to assist applicants interested in alternative control strategies
- ◆ Agreements with Ports to Collect Noncompliance Fees
- ◆ Enforcement Coordination with other Agencies

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