

# Shore Power (Cold-Ironing) Regulation

Shore Power Workgroup  
Meeting

January 11, 2007

California Environmental Protection Agency

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Air Resources Board

# Questions Via E-mail

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[coastalm@calepa.ca.gov](mailto:coastalm@calepa.ca.gov)

# Topics

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- ◆ **Background**
- ◆ Shore Power (Cold-Ironing) Feasibility Report
- ◆ Comments on Draft Feasibility Report
- ◆ Shore Power Regulation
- ◆ Status
- ◆ Questions
- ◆ Next Steps

# Background

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- ◆ Shore Power (Cold-Ironing) Feasibility Report
- ◆ Develop a Regulation to Reduce Hotelling Emissions
- ◆ Other Related Activities
  - Goods Movement Emission Reduction Plan
  - Climate Change Program (AB 32)
  - San Pedro Bay Ports Clean Air Action Plan

# Goods Movement Emission Reduction Plan

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- ◆ Approved by Board April 2006
- ◆ Emission Reduction Strategies Identified for:
  - Ships
  - Commercial harbor craft
  - Cargo handing equipment
  - Trucks
  - Locomotives

# Goods Movement Emission Reduction Plan (Continued)

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- ◆ Strategies for Ships
  - Ship auxiliary engine fuel (Adopted)
  - Cleaner fuels for main engines
  - Expanded vessel speed reduction program
  - Clean engines
  - Clean ships dedicated to California service
  - Shore power

# Goods Movement Emission Reduction Plan (Continued)

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- ◆ Goals of Shore-Based Electrical Power Measure for Ocean-Going Vessels
  - Shore power for 20% of visits by 2010
  - Shore power for 60% of visits by 2015
  - Shore power for 80% of visits by 2020
  
- ◆ Goals of Shore-Based Electrical Power for Harbor Craft
  - 30% reduction in fuel use by 2025

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# Overview

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- ◆ Analyzed Cost-Effectiveness, by Ship Category and Port
- ◆ Draft Released March 2006
- ◆ 30-day Comment Period

# Conclusions

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- ◆ Most Cost-Effective for Container, Passenger, and Refrigerated Cargo Ships
- ◆ Prime Candidate Ports: Los Angeles, Long Beach, Oakland, San Diego, San Francisco, and Hueneme
- ◆ 2/3 Of Capital Costs & Benefits at Los Angeles / Long Beach

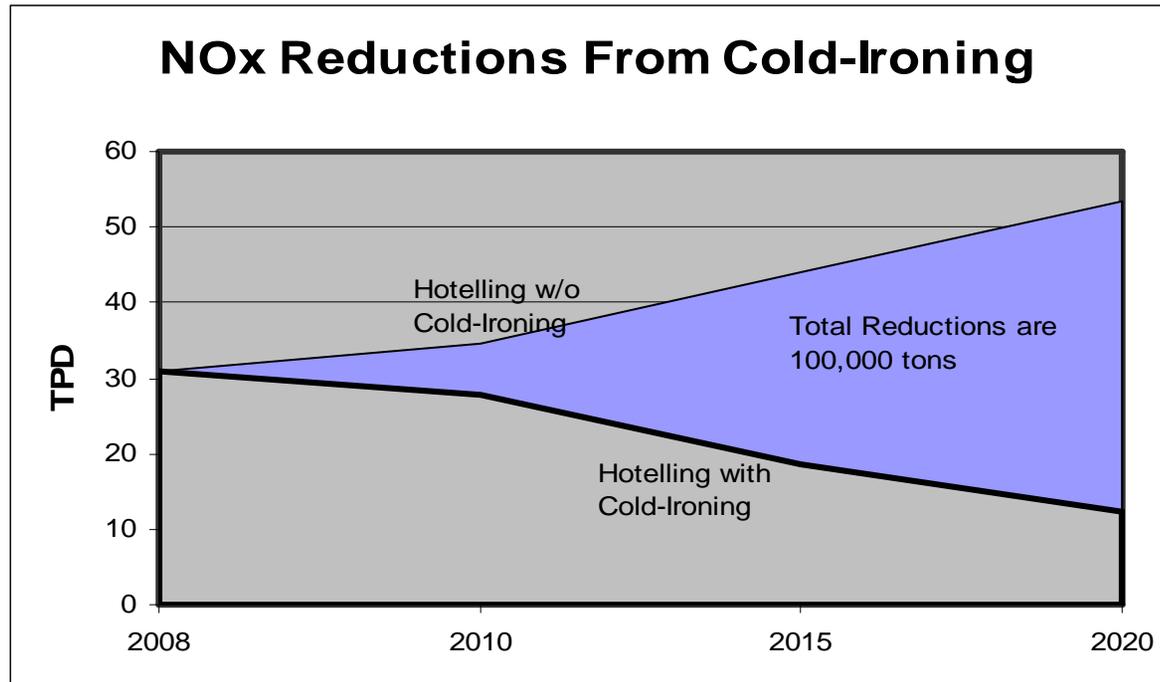
# Conclusions

(Continued)

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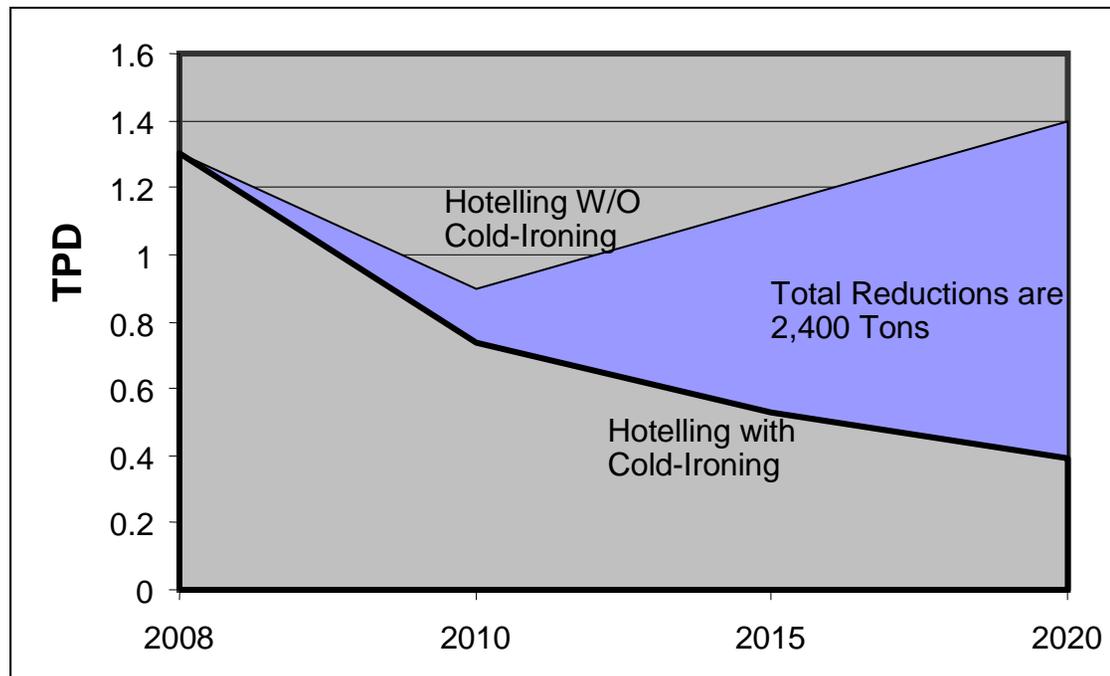
- ◆ Not Cost-Effective for Ships with Irregular or Infrequent Visits to California
- ◆ Will Require Significant Infrastructure Investments

# NOx Emission Benefits from Shore Power



\* Based on 20%, 60%, and 80% shore power targets

# PM Emission Benefits from Shore Power



\* Based on 20%, 60%, and 80% shore power targets

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# Comments on Feasibility Report

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- ◆ No Plans to Revise Draft Feasibility Report
- ◆ Use Comments As Stakeholder Input in Regulation Development Process

# Comments on Feasibility Report (Continued)

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- ◆ Alternative Approaches to Shore Power Should Be Considered
- ◆ Port Operation
  - Use of generic infrastructure costs are not representative
  - 2004 ship call database will not provide representative hotelling times for POLA/POLB
  - Vessel lifecycles are less than 10 years

# Comments on Feasibility Report (Continued)

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- ◆ Electricity
  - Utility costs were not properly factored into analysis
  - Availability of adequate power supply
  - Electricity cost (cents/kilowatt)
    - Does not consider future price increases
    - Appears low compared to existing applications
  - Special tariffs should be developed for shore power
  
- ◆ Cost-Effectiveness
  - Needs to better reflect future growth
  - Cost-effectiveness criteria should be identified

# Comments on Feasibility Report (Continued)

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- ◆ Need to Include Public Health Impacts / Benefits
- ◆ Shore Power Configuration
  - Transformer will be on ship
- ◆ Other Issues
  - Standardizing shore power application
  - 0.1 percent sulfur marine fuel

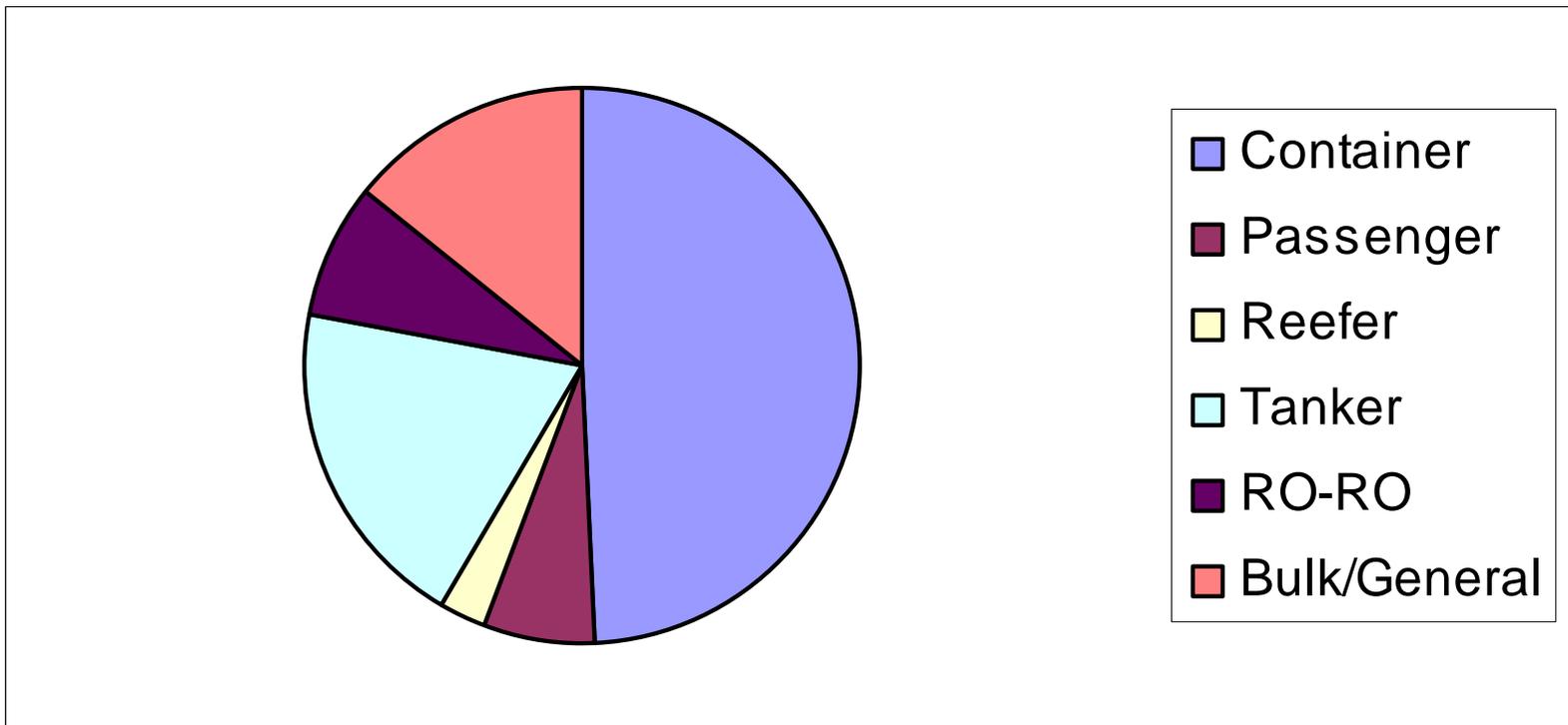
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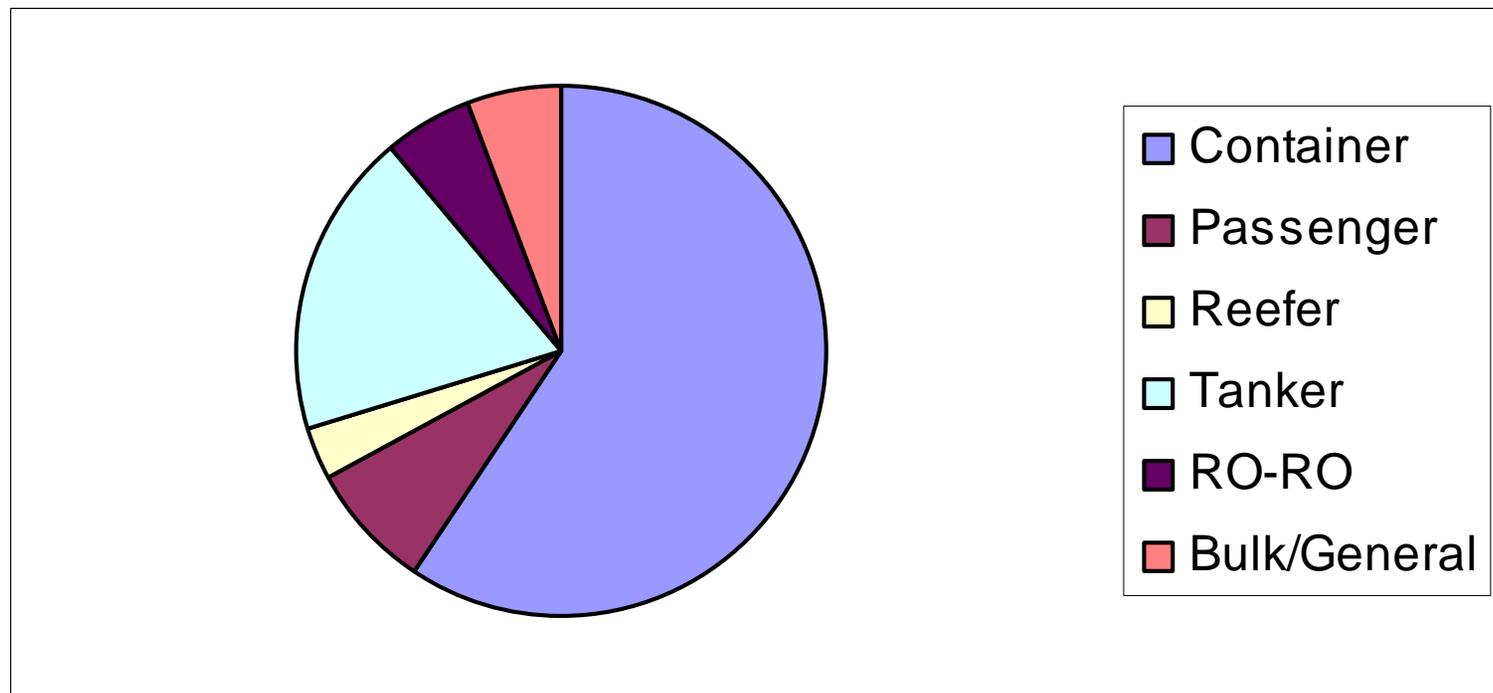
# Ship Calls to California Ports, 2004

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# Ship Calls to California Ports, 2004, By Ships Making 3 or More Visits

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# Ocean-Going Vessel Categories Considered for Shore Power

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- ◆ Container Ships
- ◆ Passenger Ships
- ◆ Refrigerated Cargo Ships
- ◆ Potentially Some Bulk Ships



# Ocean-Going Vessel Categories Considered for Alternative Techniques

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- ◆ Bulk Vessels
- ◆ General Cargo Vessels
- ◆ Ro-Ro Vessels
- ◆ Tankers

# Shore Power for Harbor Craft

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- ◆ Assist tugs
- ◆ Tugboats

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# Status of Current Activities

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- ◆ Gathering and Analyzing Data
  - Berthing data for 2003-2005 for select ports
- ◆ Work with Utilities
  - Infrastructure costs
  - Electricity costs
  - Power availability

# Status of Current Activities

## (Continued)

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- ◆ September 2006 Maritime Working Group Meeting
- ◆ Met with Stakeholders
  - Ports
  - Pacific Maritime Shipping Association, Representing Carriers

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# Questions

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# Regulatory Timetable

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- ◆ Present Regulation to Board for Consideration in November 2007
  - Workshop late summer 2007
  - Proposed regulation and staff report released late September 2007

# Workgroup Schedule

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- ◆ Additional Workgroup Meetings
  - March
  - May
- ◆ March: Discuss Regulatory Options
- ◆ May: Discuss Regulation Language

# Contacts

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- ◆ **Webpages:**

Shore Power:

[www.arb.ca.gov/ports/shorepower/shorepower.htm](http://www.arb.ca.gov/ports/shorepower/shorepower.htm)

Goods Movement Emission Reduction Plan:

[www.arb.ca.gov/planning/gmerp/gmerp.htm](http://www.arb.ca.gov/planning/gmerp/gmerp.htm)

