

Pre-Workshop Meeting to Discuss At-Berth Regulation Amendment Concepts

July 2017



California Environmental Protection Agency



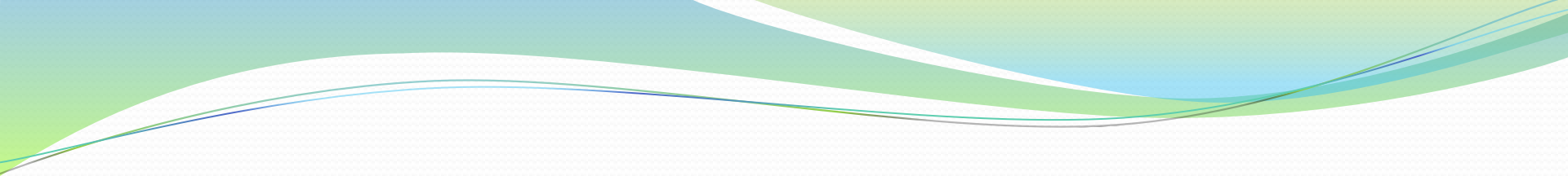
Air Resources Board

Board Direction

Addendum to Resolution 17-7 and Resolution 17-8
from March 23, 2017

BE IT FURTHER RESOLVED, that within 18 months of this date, ARB staff shall develop At-Berth regulation amendments that achieve up to 100% compliance by 2030 for LA Ports and Ports that are in or adjacent to areas in the top 10% of those defined as most impacted by CES;

Emissions from ships (at berth, at anchor, and in-transit) remain a significant contributor to community health risk.



Timeline

- Additional Data Collection and Collaboration with Stakeholders on Key Issues
- Public Workshop August 2017
- Community Meetings Fall 2017
- Additional Workshops and Meetings Fall 2017 –Spring 2018
- Bring Amendments to Board Fall 2018

Goals of the Amendments

- Address issues learned from implementation
- Simplify requirements and increase enforceability
- Increase emissions reductions by including:
additional vessels, ports, and vessel boilers
- Increase ability to hold terminals and ports
accountable for their roles to achieve success
- Meet March 2017 Board direction to return with
amendments in 18 months (September 2018)

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Regulatory Implementation Changes

- Vessel Emission Baseline
- The 3-hr Rule
- Visit Timeline
- Exemptions



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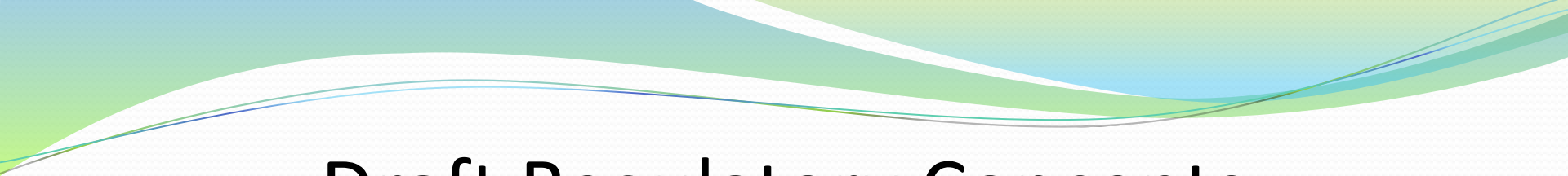
Regulatory Implementation Changes

Vessel Emission Baseline

- Visit compliance is based on a percent reduction below vessel emission baseline from auxiliary engines
- Currently regulation assumes vessel auxiliary engine is a Tier 0 (uncontrolled), considering changing to a Tier 1 baseline for reducing PM_{2.5}, NO_x, and GHG emissions
- New auxiliary engine emission baseline would be:
 - 11.5 g/kWh NO_x based on IMO Tier 1¹
 - 0.25 g/kWh PM_{2.5} baseline from EMFAC²

¹ IMO Tier 1 for medium speed auxiliary engine operating at 900 rpm

² Emission Factor (EMFAC) model based on auxiliary engine and boilers operating on 0.1%S distillate



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Regulatory Implementation Changes

3-hr Rule & Visit Timeline

- Eliminate the 3-hour rule
- Redefine visit or berthing time
 - Staff is evaluating changing the visit start-time to “all-fast” to address delays associated with inspection and clearance
- Explore concepts for short calls, and ensure a viable compliance pathway

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Regulatory Implementation Changes

Exemptions

- Considering exemptions for:
 - Experimental testing under approved test plan
 - Emergency events
 - First commissioning visit to port
- Fee may be tied to exemption for
 - Additional commissioning visits
 - Unexpected equipment failure
 - Similar to OGV Fuel Rule non-compliance fee

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New Requirements

- New Vessel Types
- New Terminals and Ports
- Flexible Performance Standard
- Shared Responsibility
- Opacity
- Online Reporting



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Vessel Requirements

- Requirements based on every vessel, every visit
 - All vessels will be subject to at-berth regulatory requirements on every visit to a CA port with few exceptions
 - Exploring an appropriate threshold for low activity ports, terminals, or berths
- No longer targeting only large vessel fleets
- Each vessel is treated equally, same requirements

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New Vessel Types

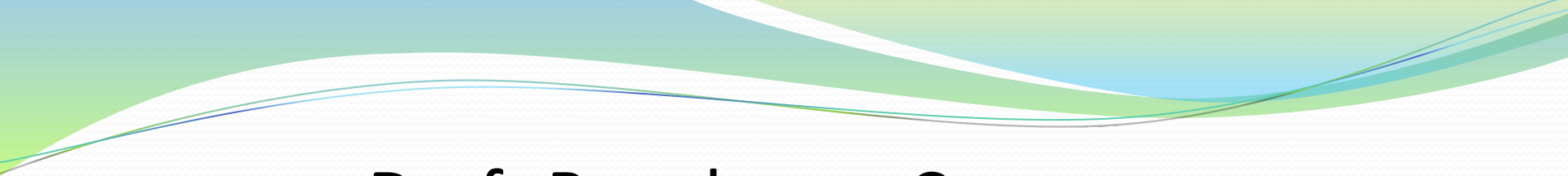
- Will expand at-berth requirements to new vessel categories and additional CA ports
- New vessel types
 - Bulk, general cargo
 - Roll-on/roll-off (Auto carriers)
 - Tankers
 - Tanker boilers



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New Vessel Types Cont.

- Tankers
 - Typically operate on tramper schedule
 - Present greater implementation challenges versus other types of cargo vessels
 - Special safety concerns due to flammable cargo
 - Specialized terminals
 - Tanker boiler emissions are greater than auxiliary engine emissions at-berth due to the offloading of crude
 - Flexible performance standard (booster pumps, shore-based capture and control, shore power)



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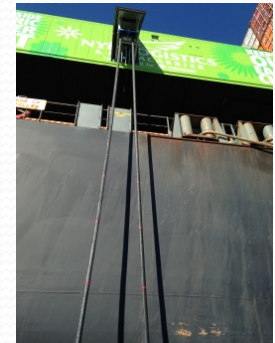
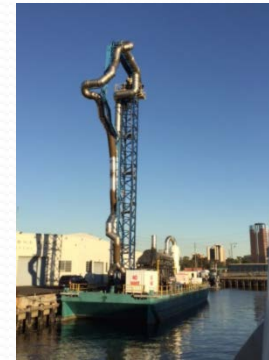
New Terminals and Ports

- Based on ship visits from unregulated categories, staff is reviewing which visits to additional terminals and ports should be included in the regulation
- The following CA ports and marine terminals are being considered for regulatory requirements:
 - Richmond, Carquinez, El Segundo, Stockton, Catalina, Redwood, Sacramento, Santa Barbara, and Humboldt

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Flexible Performance Standard

- Visit emissions reduction requirement can be achieved through combination of:
 - Shore power
 - Approved alternative control technology
 - Approved onboard control technology
 - Auxiliary engines cleaner than baseline
- Allows room for new innovative technologies to be developed and utilized



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Terminal Requirements are Necessary

- Shore power equipped vessels having difficulty accessing shore power berths which presents a loss of emission reductions
- Some emission control options are land-based or may be directed by terminals
 - Shore-side booster pumps and associated infrastructure to reduce vessel pumping power
 - Capture and control systems (land-based or barge-based)

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Shared Responsibility

- By 2028, every vessel visit has requirements with few exceptions
- During phase-in, terminals have a requirement where a percentage of annual visits must be controlled
 - Terminals and vessels share emission reduction requirements
- Ports required to provide necessary infrastructure

Vessel Category	Responsible Party	Visit Requirement				
		2022	2024	2026	2028	2030
Container, Reefer, Passenger	Terminals/Ports	Every Visit				
	Vessels					
All other vessel categories	Terminals/Ports	25%	50%	75%	Every Visit	
	Vessels	N/A				

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Opacity Requirements

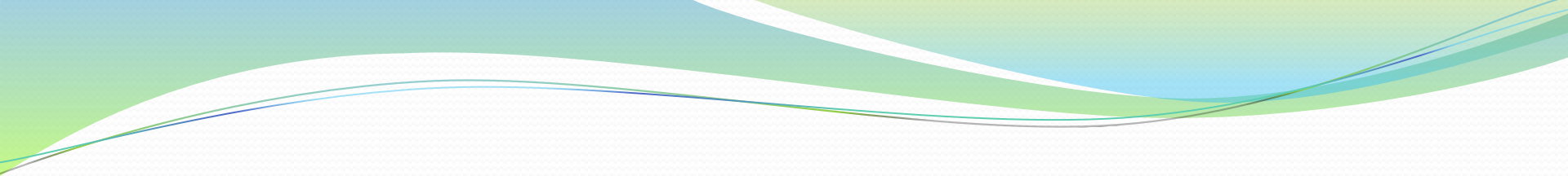
- Staff plans to include opacity limits in the At-Berth Regulation
 - Every vessel must meet visible emission opacity standards while at-berth and at-anchor
- Support district/port requirements and enforcement



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On-line Reporting

- Shift to on-line reporting
 - Provide real-time reporting capability
 - Enable feedback
 - Simplify review of compliance information



Questions?