

# At-Berth Regulation Amendments Preliminary Concepts



July 19, 2018

California Environmental Protection Agency

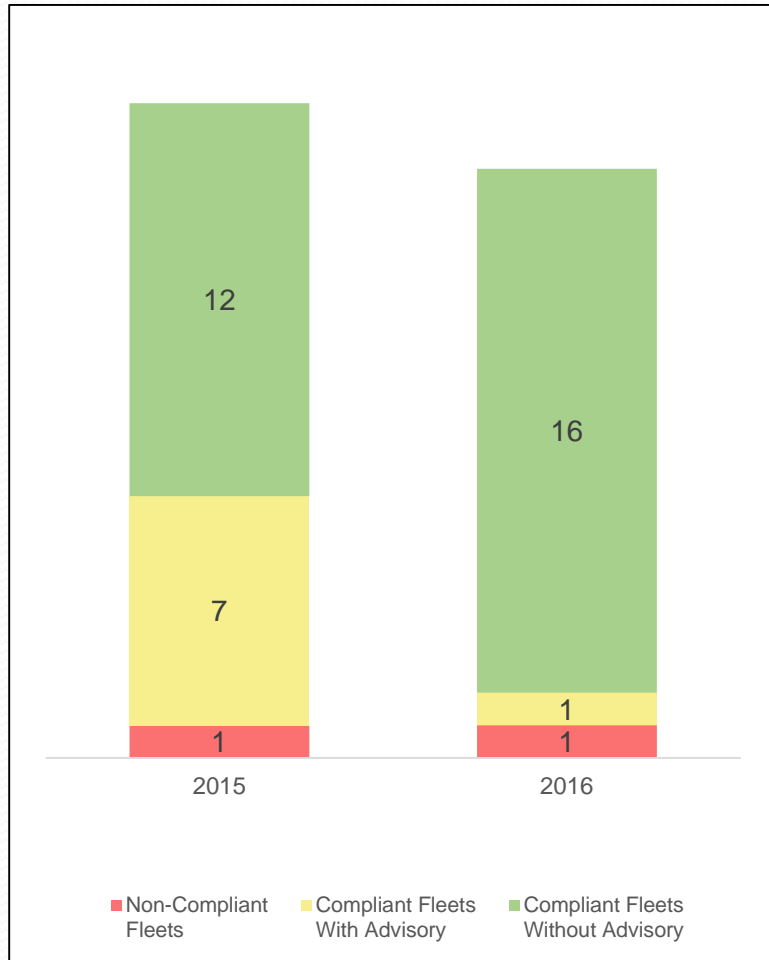
 **Air Resources Board**

# Goals of the Amendments

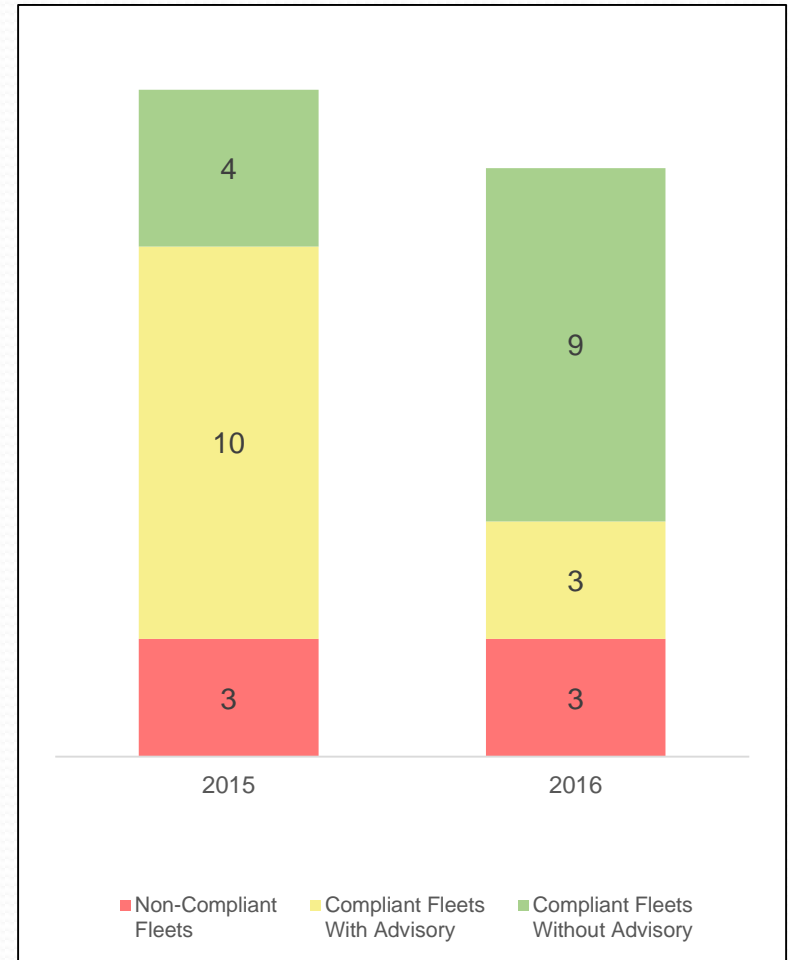
- Address issues learned from implementation
- Simplify requirements and increase enforceability
- Increase emissions reductions by including:  
additional vessels, ports, and vessel boilers
- Increase ability to hold terminals and ports  
accountable for their roles to achieve success
- Meet March 2017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

# Distribution of Fleet Compliance Status

Los Angeles/Long Beach

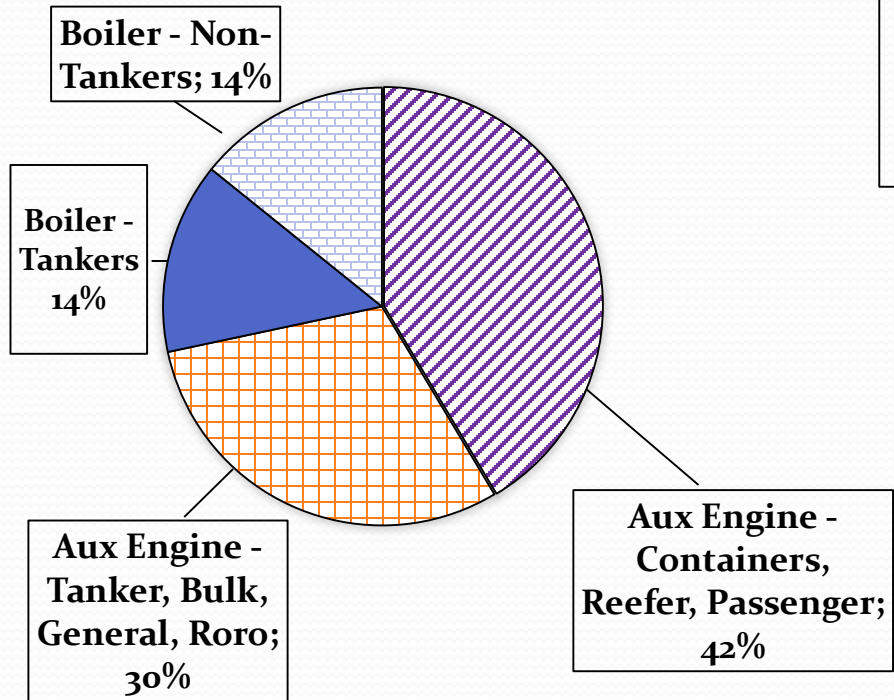


Oakland

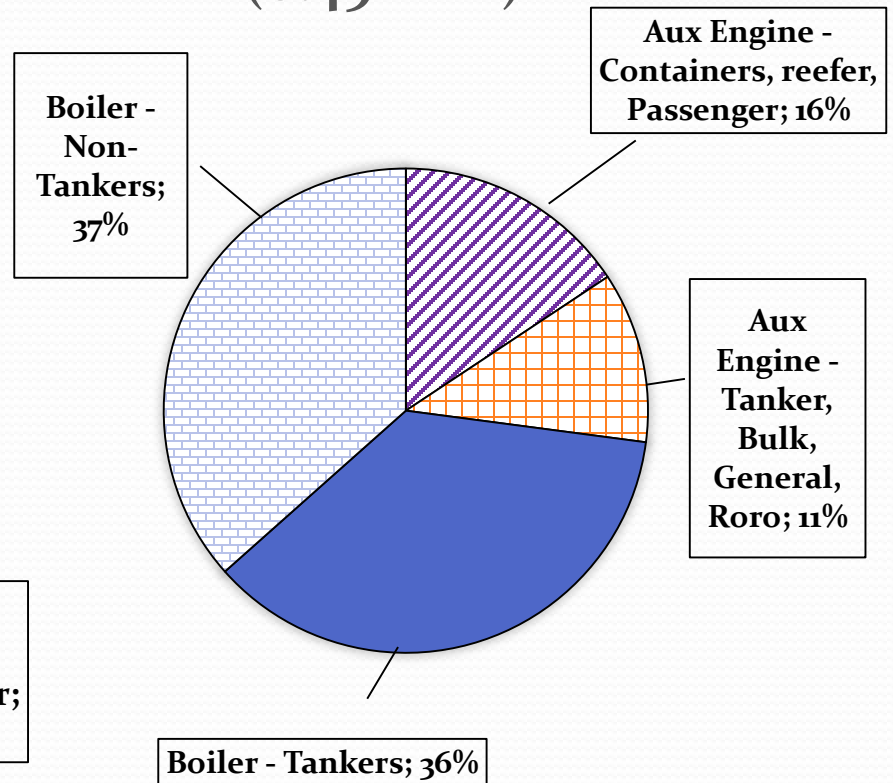


# Statewide At-Berth NOx and PM10 (TPD)

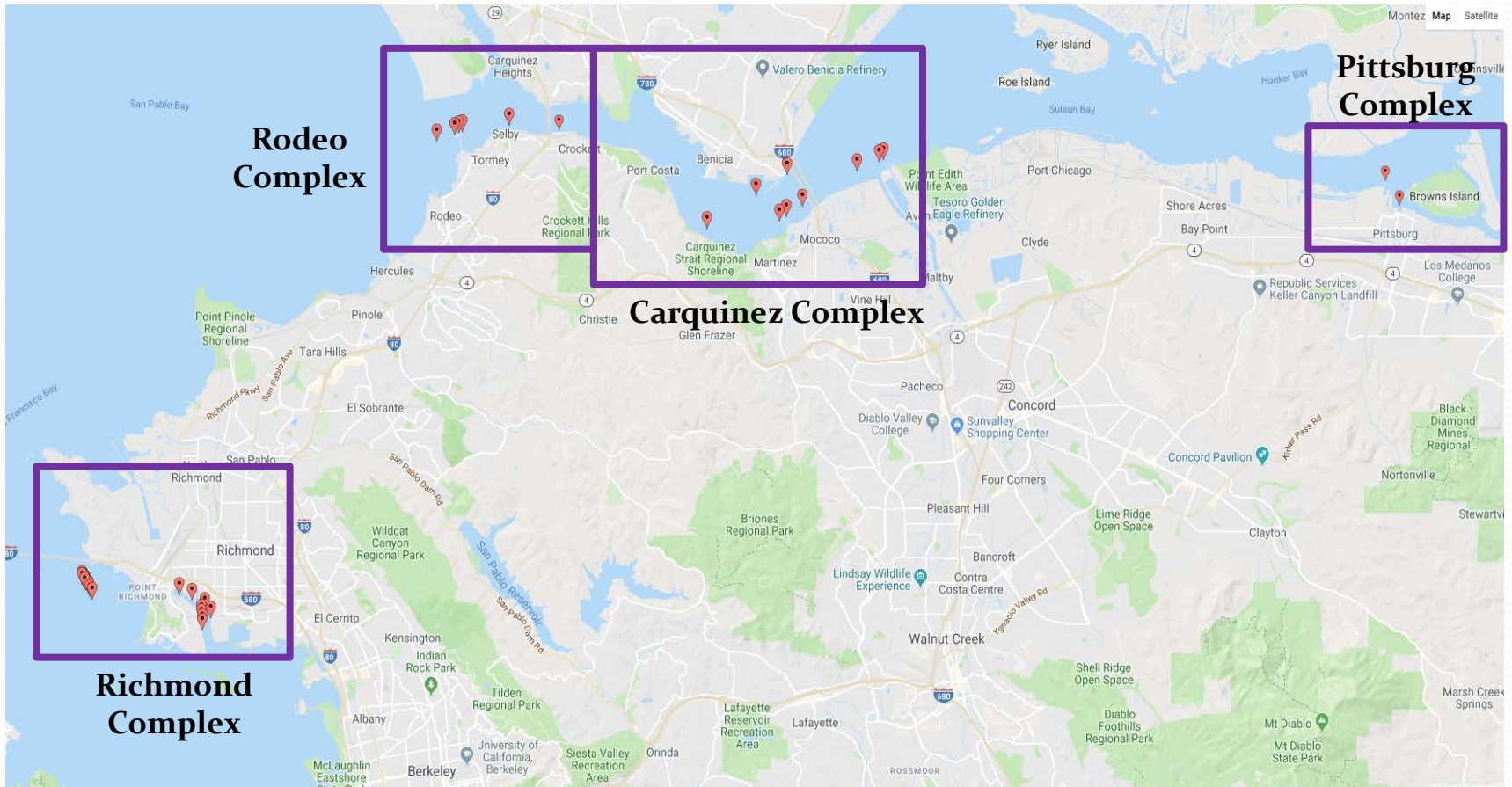
2020 NOX  
(10.4 TPD)



2020 PM10  
(0.49 TPD)



# Bay Area Preliminary Independent Marine Terminal Regional Groupings



\*Complexes made up of regional Independent Marine Terminals



# Regulatory Alternatives

- CARB staff are soliciting for alternatives to the preliminary regulatory amendment concepts
- Soliciting for regulatory alternatives is required for the Standardized Regulatory Impact Assessment (SRIA)
- Please provide alternative concepts to Kaylin Huang at [Kaylin.Huang@arb.ca.gov](mailto:Kaylin.Huang@arb.ca.gov) by ~~August 10~~ August 24, 2018 for timely consideration

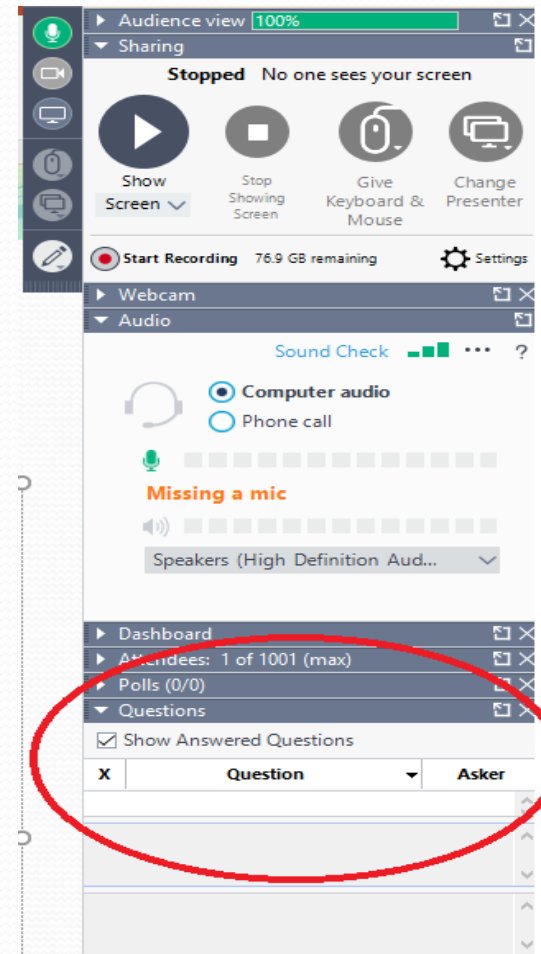


## Next Steps

- Mid-July – Stakeholder briefings
- Mid-August – Cost workgroup meetings/industry discussions
- Early Sept – 2<sup>nd</sup> Public Workshops  
(with Regulatory Language, cost, and health impacts data)
- September – Marine-focused community meetings

# Questions & Comments

- Please submit questions or comments during the July 19<sup>th</sup> webinar using the “Questions” section of the GoToWebinar interface
- Follow up calls can be scheduled with CARB staff to address any outstanding questions or comments





# CARB Staff Contacts

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CARB At-Berth Website:

<https://www.arb.ca.gov/ports/shorepower/shorepower.htm>

Preliminary Discussion Document

Preliminary Concepts – Implementation Schedule – For Non-Tanker Vessels Above Port/IMT<sup>1</sup> Complex, Terminal, and Berth Thresholds

		2021	2025	2031	
<p><b><u>Container/Reefer</u></b></p> <p><b>Ports Above Threshold:</b> Oakland, POLA, POLB, Hueneme, San Diego  <b>Port/IMT Complex Threshold:</b> 50 visits  <b>Terminal Threshold:</b> 25 visits  <b>Total Visits:</b> 4035, ~99% of visits after applying thresholds</p> <p><b><u>Cruise</u></b></p> <p><b>Port/IMT Complex Threshold:</b> 25 visits  <b>Terminal Threshold:</b> 5 visits  <b>Ports Above Threshold:</b> POLB, POLA, San Diego, San Francisco  <b>Total visits:</b> 537, ~99% of visits after applying thresholds</p>	Regulation Amendments Begin	✓ 100% of visits ----- Shore power or Alt Control Tech (ACT <sup>2</sup> min 80% CF <sup>3</sup> for aux engines, DPM, NOx)  GHG reductions**			
<p><b><u>Auto, Ro-Ro</u></b></p> <p><b>Port/IMT Complex Threshold:</b> 50 visits  <b>Terminal Threshold:</b> 25 visits  <b>Ports Above Threshold:</b> San Diego, Hueneme, POLB, POLA, Carquinez Complex, Richmond Complex  <b>Total visits:</b> 906, ~90% of visits after applying thresholds</p>			✓ 100% of visits ----- Shore power or Alt Control Tech (ACT min 80% CF for aux engines, DPM, NOx)  GHG reductions**		
<p><b><u>Bulk, General Cargo</u></b></p> <p><b>Port/IMT Threshold:</b> 75  <b>Terminal Threshold:</b> 25  <b>Ports Above Threshold:</b> POLB, Stockton, POLA, Richmond Complex  <b>Total Visits:</b> 908, ~61% of visits after applying thresholds</p>			✓ 100% of visits ----- Shore power or Alt Control Tech (ACT min 80% CF for aux engines, DPM, NOx)  GHG reductions**		

<sup>1</sup> IMT = Independent Marine Terminal (i.e., private terminal not part of a larger public port complex)

<sup>2</sup> ACT = Alternative Control Factor

<sup>3</sup> CF = Control Factor

**Preliminary Concepts – Implementation Schedule – For Tanker Vessels Above Port/IMT<sup>4</sup> Complex, Terminal, and Berth Thresholds**

		<b>2021</b>	<b>2025</b>	<b>2031</b>
<b>Tankers with Electrically Powered Pumps</b>	Regulation Amendments Begin		✓ 100% of visits ----- 50% CF for aux engines (DPM, NOx)  GHG reductions**	✓ 100% of visits ----- 80% CF Shore power or Alt Control Tech (ACT min 80% CF for aux engines, DPM, NOx)  GHG reductions**
<b>Tankers with Steam Powered Pumps</b>			✓ 100% of visits ----- 50% CF for aux engines (DPM, NOx) and boiler engines (PM, NOx)	✓ 100% of visits ----- 80% CF Shore power or Alt Control Tech (ACT min 80% CF for aux engines, DPM, NOx), 80% CF for boiler engines (PM, NOx)

**Port/IMT Threshold:** 25 visits

**Terminal Threshold:** 5 visits

**Ports above threshold:** POLB, POLA, Richmond Complex, Carquinez Complex, Rodeo Complex, Stockton

**Total Visits in 2017:** 1374, ~97% of visits would be regulated after applying thresholds

**Notes:**

\*All vessel types are required to get NOx, DPM reductions for aux engines; tankers with steam powered pumps must also reduce boiler emissions (PM, NOx)

\*\*All vessel categories assumed to get a % GHG reduction from shore power usage; amount of GHG reduction will vary depending on % of each vessel type’s shore power utilization. Alternative technologies are presumed to be GHG neutral for this preliminary draft concept.

<sup>4</sup> IMT = Independent Marine Terminal (i.e., private terminal not part of a larger public port complex)

**Preliminary Compliance Responsibilities**

	<b>Vessel Operator, Owner, and/or Crew</b>	<b>Terminal Operator</b>	<b>Port</b>
<b>Vessel is shore power capable</b>	<ul style="list-style-type: none"> <li>• Inform terminal of need for shore power berth and required direction of berthing at least 72 hours prior to arrival</li> <li>• Vessel is required to use shore power if placed at a shore power capable berth</li> <li>• Follow vessel checklist for compliance</li> <li>• Install and maintain compatible equipment that meets regulatory, manufacturer, and international standards                             <ul style="list-style-type: none"> <li>○ Shore power equipment must be commissionable</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Confirm shore power or alternative control availability to vessel at least 48 hours prior to arrival</li> <li>• Terminal must connect a vessel to shore power <u>or</u> arrange and provide a CARB-approved alternative technology                             <ul style="list-style-type: none"> <li>○ This can be done through purchasing/leasing a barge or land-based system or by contracting through a third party</li> </ul> </li> <li>• Follow terminal checklist for compliance</li> <li>• Install and maintain any shore power infrastructure or equipment <u>or</u> CARB-approved alternative control infrastructure or equipment that is necessary for compliance and within a terminal’s legal ability to provide</li> </ul>	<ul style="list-style-type: none"> <li>• Install and maintain any shore power infrastructure and/or equipment that is outside a terminal’s legal ability to provide</li> </ul>
<b>What could lead to a violation?</b>	<ul style="list-style-type: none"> <li>• Vessel fails to attempt to notify a terminal that a shore power berth is needed at least 72 hours in advance</li> <li>• Vessel does not adhere to compliance checklist</li> <li>• Vessel brings shore power equipment that is not commissionable by the terminal</li> <li>• Vessel chooses not use shore power when at shore power capable berth</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal fails to connect a shore power capable vessel <u>and</u> provides no alternative CARB-approved control technology</li> <li>• Terminal does not adhere to compliance checklist</li> </ul>	<ul style="list-style-type: none"> <li>• Port fails to install or maintain infrastructure or equipment that is necessary for compliance but is outside a terminal’s legal ability to provide</li> </ul>

	<b>Vessel Operator, Owner, and/or Crew</b>	<b>Terminal Operator</b>	<b>Port</b>
<p><b>Vessel not shore power equipped, compliance path using on-board alternative technology</b></p>	<ul style="list-style-type: none"> <li>• Inform terminal that on-board emissions control strategy will be used at least 72 hours prior to arrival</li> <li>• Ensure technology is CARB-approved</li> <li>• Follow vessel checklist for compliance</li> <li>• Emissions must be controlled by a CARB-approved technology the entire time vessel is at berth (as technically feasible)                             <ul style="list-style-type: none"> <li>○ If on-board technology fails, vessel must arrange and provide alternative CARB-approved technology</li> </ul> </li> <li>• CARB certification must be kept on board at all times</li> </ul>	<ul style="list-style-type: none"> <li>• Obtain a copy of vessel’s CARB certification for on-board control technology                             <ul style="list-style-type: none"> <li>○ Enforcement can use this to verify Terminal has no obligation for this visit</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• For on-board alternative technology, port has no direct obligation except record-keeping and reporting requirements</li> </ul>
<p><b>What could lead to a violation?</b></p>	<ul style="list-style-type: none"> <li>• Vessel fails to attempt to notify terminal of intended control strategy</li> <li>• Vessel uses technology that is not CARB-approved</li> <li>• On-board control technology is not used entire time at berth (as technically feasible)</li> <li>• Vessel does not adhere to compliance checklist for approved pathway</li> <li>• Vessel fails to keep a copy of CARB certification on-board for enforcement to check</li> </ul>	<ul style="list-style-type: none"> <li>• If emissions are not controlled during a visit, a terminal could be in violation <u>if</u> they did not obtain proof that vessel intended to use a CARB-approved control technology</li> </ul>	<ul style="list-style-type: none"> <li>• No violation risk for port if vessel using on-board technology</li> </ul>

	<b>Vessel Operator, Owner, and/or Crew</b>	<b>Terminal Operator</b>	<b>Port</b>
<p><b>Vessel has no shore power equipment or on-board alternative control equipment, will rely on using barge or land-based capture and control system</b></p>	<ul style="list-style-type: none"> <li>• Advise terminal that an emissions control strategy will be necessary at least 72 hours prior to arrival</li> <li>• If the terminal <u>does</u> have shore power, vessel must arrange and provide a CARB-approved technology <u>or</u> obtain documented proof from the terminal that the terminal will provide a control technology</li> <li>• Follow vessel checklist for compliance</li> <li>• Ensure technology is CARB-approved</li> </ul>	<ul style="list-style-type: none"> <li>• Confirm with vessel which emissions control strategy will be used at least 48 hours prior to arrival</li> <li>• Follow terminal checklist for compliance, if terminal is operating equipment</li> <li>• If the terminal <u>does not</u> have shore power, it must arrange for and provide a CARB-approved technology for the vessel <u>or</u> obtain documented proof from the vessel that they have acquired a third party control technology</li> <li>• If terminal <u>does</u> have shore power, the terminal obligation is met</li> </ul> <p>*Both terminal and vessel may receive NOV if neither has shore power connection capabilities and neither party has arranged to control emissions while vessel is at berth</p>	<ul style="list-style-type: none"> <li>• Install and maintain any alternative control infrastructure and/or equipment that is outside a terminal’s legal ability to provide</li> </ul>
<p><b>What could lead to a violation?</b></p>	<ul style="list-style-type: none"> <li>• Vessel fails to attempt to notify terminal of intended control strategy</li> <li>• Vessel fails to use a CARB-approved technology for the entire length of visit</li> <li>• Vessel does not adhere to compliance checklist</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal fails to attempt to confirm which CARB-approved strategy a vessel will use while at berth</li> <li>• Terminal without shore power connection fails to provide alternative control technology or documented proof from the vessel that they have acquired a third party control technology</li> </ul>	<ul style="list-style-type: none"> <li>• Port fails to install or maintain infrastructure or equipment that is necessary for compliance but is outside a terminal’s legal ability to provide</li> </ul>



**Vessel Operator/Owner/Crew preliminary responsibilities:**

- Vessel must use a CARB-approved technology to control emissions while at a regulated berth in a California port, unless exempt situation.
- Vessel must advise Terminal if vessel is shore power capable or if alternate control technology is needed at least 72 hours prior to arrival.
- Follow checklist for compliance with chosen emissions reduction strategy.
- Record-keeping and reporting as laid out in the regulation (TBD).

**Terminal preliminary responsibilities**

- Provide a CARB-approved emissions control technology for every regulated vessel.
- Confirm shore power berth or alternative control technology availability at least 48 hours prior to arrival.
- Install and maintain any shore power infrastructure or CARB-approved alternative control equipment that is necessary for compliance and within a terminal's legal ability to provide
- Follow checklist for compliance with chosen emissions reduction strategy.
- Record-keeping and reporting as laid out in the regulation (TBD).

**Port preliminary responsibilities:**

- Install and maintain any necessary emissions control infrastructure and/or equipment needed for compliance with the regulation that is outside of a terminal's contractual ability to provide.
- Confirm physical constraint exception submission from terminal.
- Record-keeping and reporting as laid out in the regulation (TBD).

**Alternative control technology operator preliminary responsibilities:**

- Adhere to checklist for compliance.
- Control emissions for entire length of vessel's stay, except for required connect/disconnect times
- Ensure alternative technology is CARB approved.
- Maintain equipment to approved capture rates.
- Maintain conditions laid out in Executive Order.

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- Conduct periodic emission testing or other types of monitoring to verify the proper operation of alternative control technologies or distributed generation equipment, or to verify the emission rate of an auxiliary engine.
- Ensure appropriate labor and training is available for operation of emissions control technology.
- If using any new alternative control technology that has not yet received CARB approval, technology operator must ensure the technology has been submitted to CARB for approval prior to arrival.
  - CARB certification prior to arrival is not necessary as long as vessel has a CARB-approved plan with a research exemption to test new technology.
- Record-keeping and reporting as laid out in the regulation (TBD).

**What happens if.....**

	<b>Terminal has shore power</b>	<b>Terminal has no shore power</b>
<b>Vessel is shore power capable</b>	<ul style="list-style-type: none"> <li>• Vessel must use shore power</li> <li>• Terminal must provide means to connect vessel to shore power <u>or</u> provide a CARB-approved alternative control technology</li> <li>• Terminal subject to violation if unable to connect vessel to shore power or provide a CARB-approved alternative technology to the vessel for the duration of the visit</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal must provide means to connect vessel to shore power <u>or</u> provide a CARB-approved alternative control technology</li> <li>• Terminal subject to violation if unable to provide a CARB-approved alternative technology to the vessel for the duration of the visit</li> </ul>
<b>Vessel has no shore power</b>	<ul style="list-style-type: none"> <li>• Terminal has fulfilled obligation</li> <li>• Vessel would be subject to violation if they fail to arrange and use a CARB-approved alternative technology</li> </ul>	<ul style="list-style-type: none"> <li>• Vessel and terminal must agree upon alternate CARB-approved control strategy                             <ul style="list-style-type: none"> <li>○ If no agreement is reached, the terminal must supply a vessel compatible ACT and the vessel would be subject to a violation</li> </ul> </li> <li>• If on-board technology used, vessel must provide notice of CARB-approval to terminal for confirmation</li> <li>• Both vessel and terminal would be subject to violation if emissions are uncontrolled for a vessel's visit</li> </ul>

- Terminal must install and maintain shore power infrastructure and related equipment or provide alternative control technology that is necessary for compliance and within a terminal's contractual ability
- Port must install and maintain shore power infrastructure and related equipment or provide alternative control technology that is necessary for compliance and outside a terminal's contractual ability.