



California Air Resources Board

Freight Activities

July 28, 2022

CARB's Objectives



Cut community health risk
(support Assembly Bill 617 emission reductions)



Help attain regional air standards
(support State Implementation Plan)



Mitigate climate change (support Scoping Plan and
Short-Lived Climate Pollutant Reduction Strategy)





Governor's Executive Order N-79-20

Transition from Combustion

 **100% ZEV sales** by 2035

Full transition to
ZEV drayage trucks by 2035 

 Full transition to **ZEV buses & heavy-duty long-haul trucks** by 2045* 

 Full transition to
ZE off-road equipment
by 2035*

*where feasible

Addressing Freight Emissions Through Regulations



Marine Vessels



Trucks



Locomotives



Transport Refrigeration Units



Cargo Handling Equipment



Forklifts

CARB strategies already implemented to cut freight emissions and health risk

Trucks	Ships	Locomotives	Equipment	Harbor Craft
<ul style="list-style-type: none">• Fuel/engine• In-use trucks/turnover• GHG limits• Idling and smoke limits• In-use compliance	<ul style="list-style-type: none">• Fuel• At berth reductions• Ship incinerator ban	<ul style="list-style-type: none">• Fuel• Fleet emission limits• Diesel soot reduction at railyards	<ul style="list-style-type: none">• Fuel/engine• Port & rail equipment• Forklifts• Airport equipment• Transport refrigerators	<ul style="list-style-type: none">• Fuel• Harbor craft engines
Incentives to demonstrate & deploy cleaner models				

Addressing Freight Emissions At the Port of Oakland

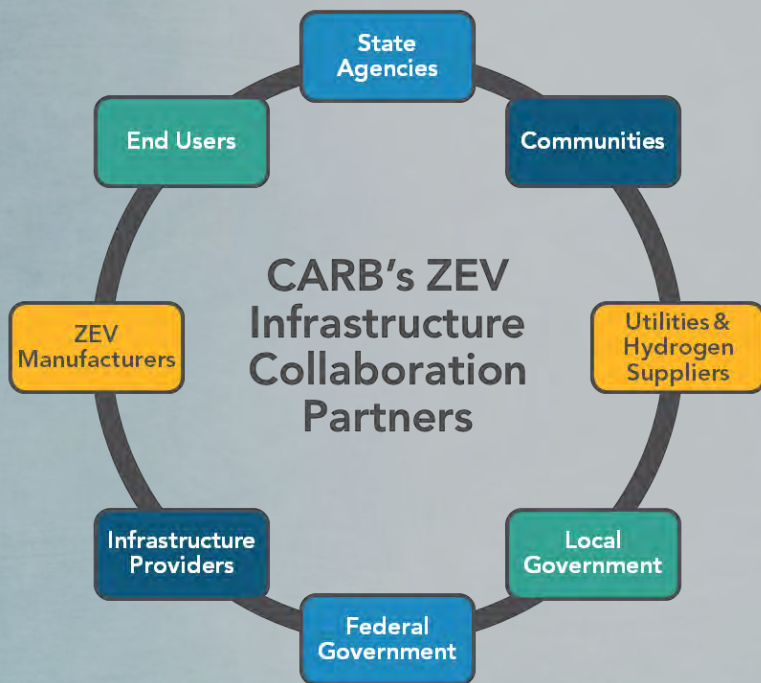


Coordinating Statewide Freight Policies

- Multiple Air Quality Improvement, Public Health, and GHG Reduction Plans
- Core strategies
 - Zero-emissions everywhere feasible
 - Improved efficiency
 - Cleaner fuels and cleaner combustion everywhere else



Infrastructure Deployment is Crucial

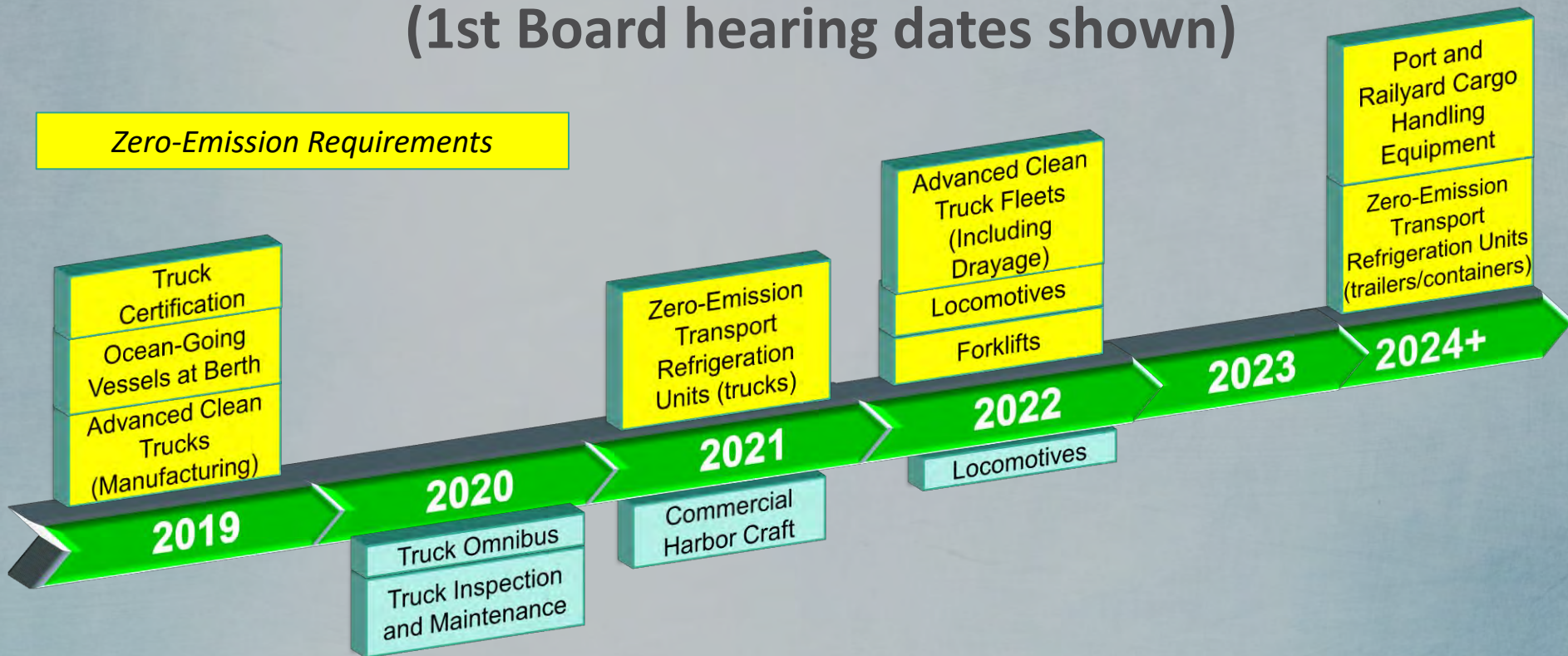


State Agencies

- Governor's Office of Business & Economic Development (GO-Biz)
- CA Energy Commission (CEC)
- CA Public Utilities Commission (CPUC)
- CA Independent System Operator (CalSO)
- CA Building Standards Commission (CBSC)
- Housing and Community Development (HCD)
- CA Department of Transportation (CalSTA)

New CARB Freight Regulatory Actions (1st Board hearing dates shown)

Zero-Emission Requirements



Cleaner Combustion Requirements



Trucks

Truck and Bus Regulation Overview

- Applies to all heavy-duty diesel vehicles operating in California
 - PM filters 2012-2016
 - 2010 model year engines by 2023
- Compliance statistics
 - 85% upgraded to 2010 engines 1,580,000
 - Upgrades still needed for about 36,900, California registered and up to 192,400 out-of-state trucks

Transition to Heavy-Duty Zero-Emissions

- Innovative Clean Transit (2018)
 - Zero-emission fleet by 2040
- Zero Emission Airport Shuttle Bus (2019)
 - Zero-emission fleet by 2035
- Zero Emission Powertrain Certification (2019)
- Advanced Clean Trucks (2020)
 - Requires manufacturers to sell increasing percent of 2024-2035
- Advanced Clean Fleets (ACF) 2022 - Tentative)
 - Plans to require the transition of truck and bus fleets to zero-emission by 2035
 - Includes drayage truck fleets



Innovative Clean Transit: <https://www.arb.ca.gov/msprog/ict/ict.htm>

Zero-Emission Airport Shuttle Bus: <https://www.arb.ca.gov/msprog/asb/asb.htm>

ZE HD Powertrain Certification: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-powertrain-certification>

Advanced Clean Fleets: https://ww2.arb.ca.gov/sites/default/files/2022-03/ACF%20Fact%20Sheet_ADA.pdf

Drayage Truck Proposal Considerations

- Impacts to disadvantaged communities
 - Intermodal seaports and railyards under the current Drayage Truck Regulation are all located within ~1 mile of a disadvantaged community
- Existing Drayage Truck Requirements
 - Sunsets December 31, 2022
 - Trucks will have to meet 2010 MY (model year) engine standards beginning in 2023



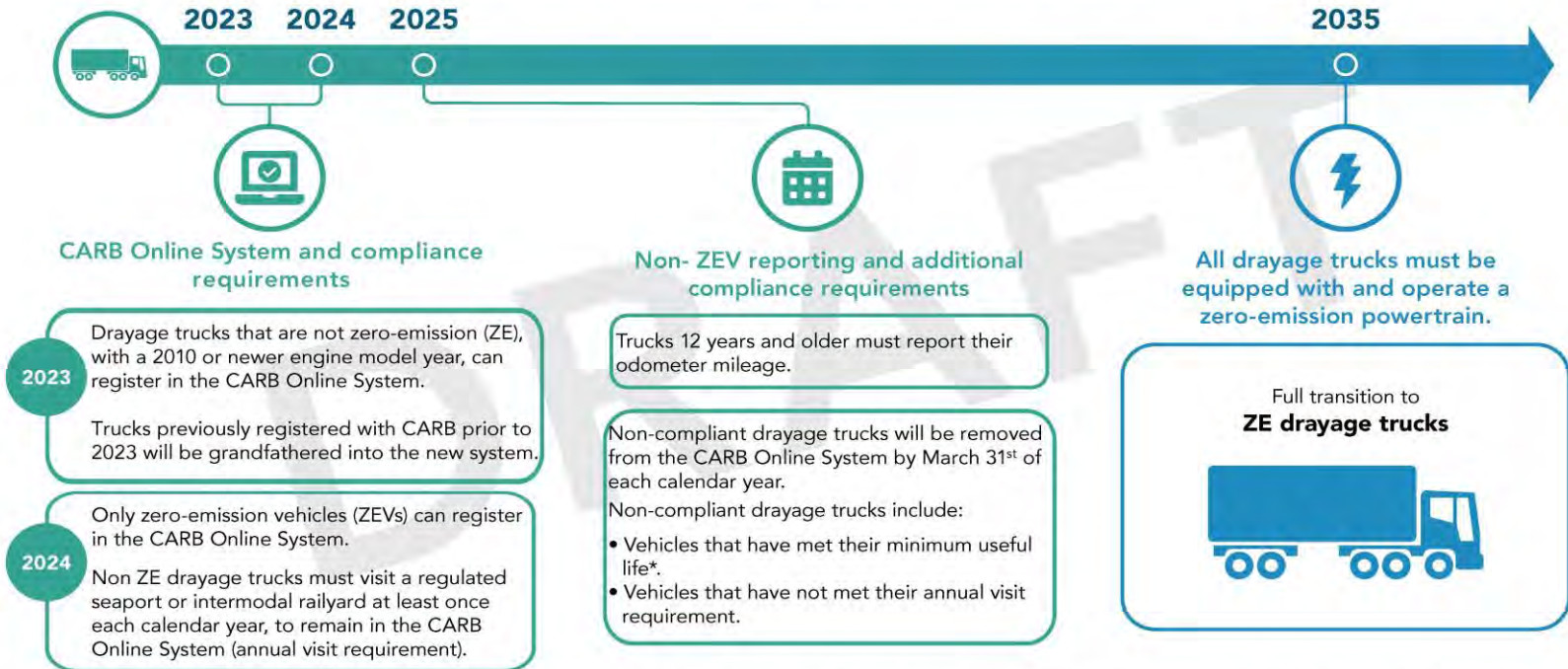
Drayage Truck Proposal Requirements (Part of Advanced Clean Fleets)

- Transition all Class 7 and 8 drayage trucks operating at California's intermodal seaports or railyards to full zero-emission by 2035
- After January 1, 2024, only zero-emission trucks are eligible to be added to the CARB online system
- Trucks must visit a California seaport or railyard at least once each calendar year to remain in the CARB online system
- Seaport and railyard reporting requirements

Timeline for Transitioning Drayage Trucks to Zero-Emission

Proposed Requirements and Compliance Deadlines

The proposed Advanced Clean Fleet Regulation contains the following requirements and compliance deadlines for drayage trucks.

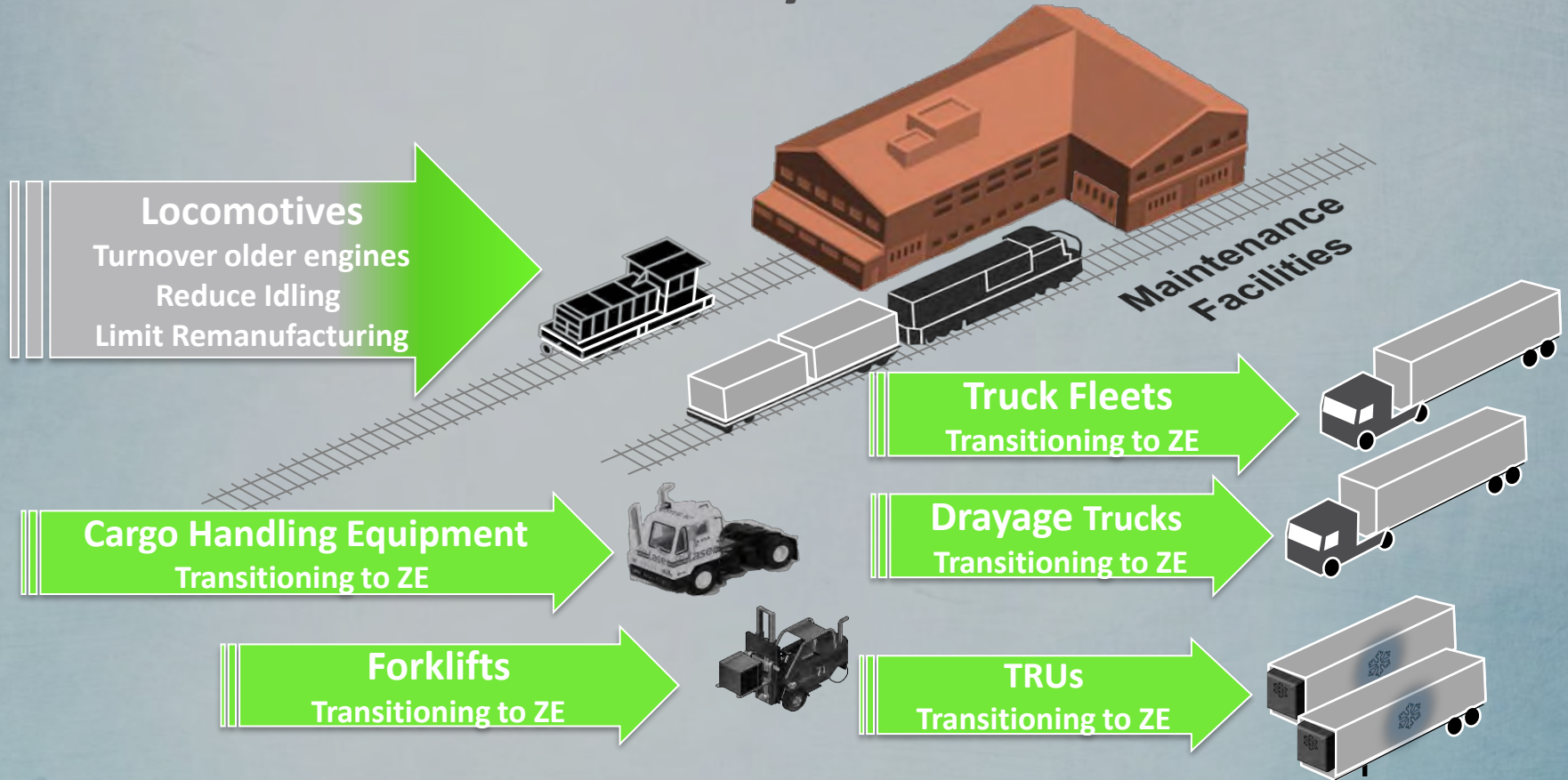


*Minimum Useful Life: The later of thirteen years from engine certification or 800,000 miles traveled or 18 years from engine certification (whichever comes earlier of the later two). For example, a drayage truck with a 2012 certified engine will begin annually reporting odometer mileage in 2024. If that truck has not exceeded 800,000 miles traveled by 2025, it can remain in the CARB Online System. That truck would then be removed from the system after it first reaches either 800,000 miles traveled or 18 years. If the truck reached 800,000 miles traveled before 2025, it will be removed from the system by March 31st of that year.



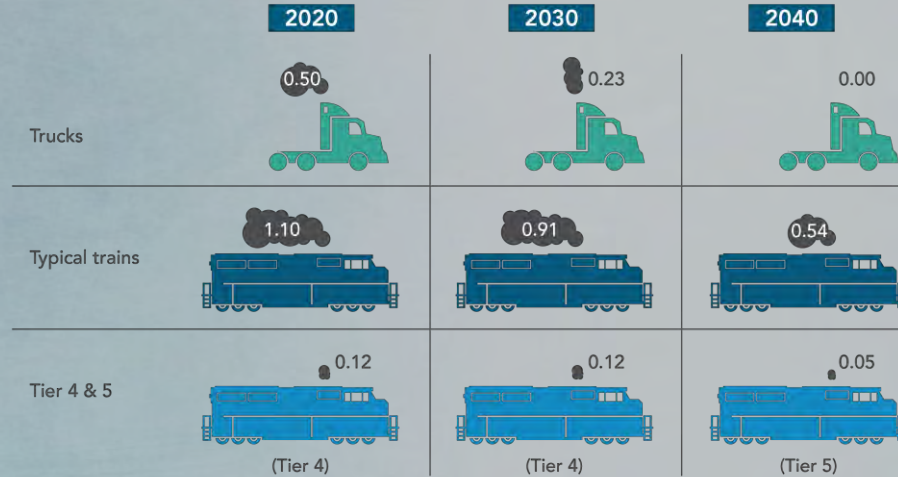
Locomotives

Railyard



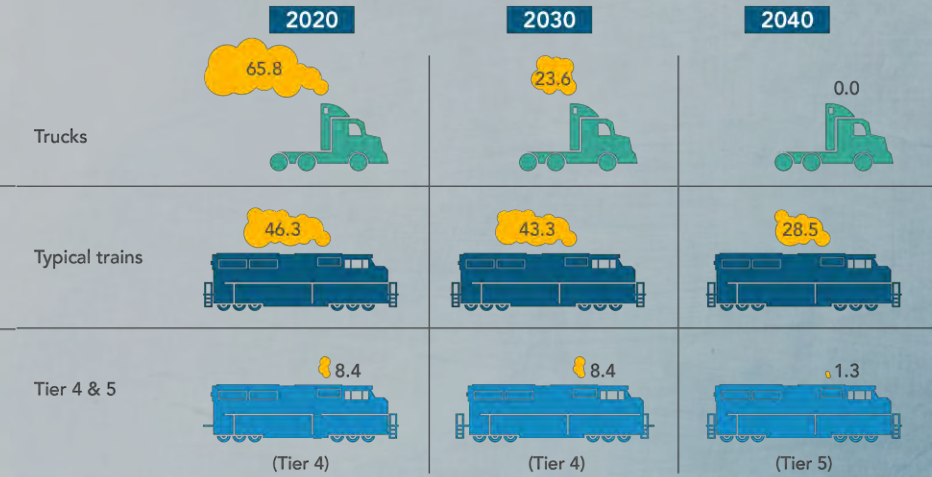
Draft Truck vs Train Emissions Analysis

Total PM_{2.5} Emissions in Communities within 20 Miles of the Ports



All emissions are in pounds

Total NO_x Emissions in Communities within 20 Miles of the Ports



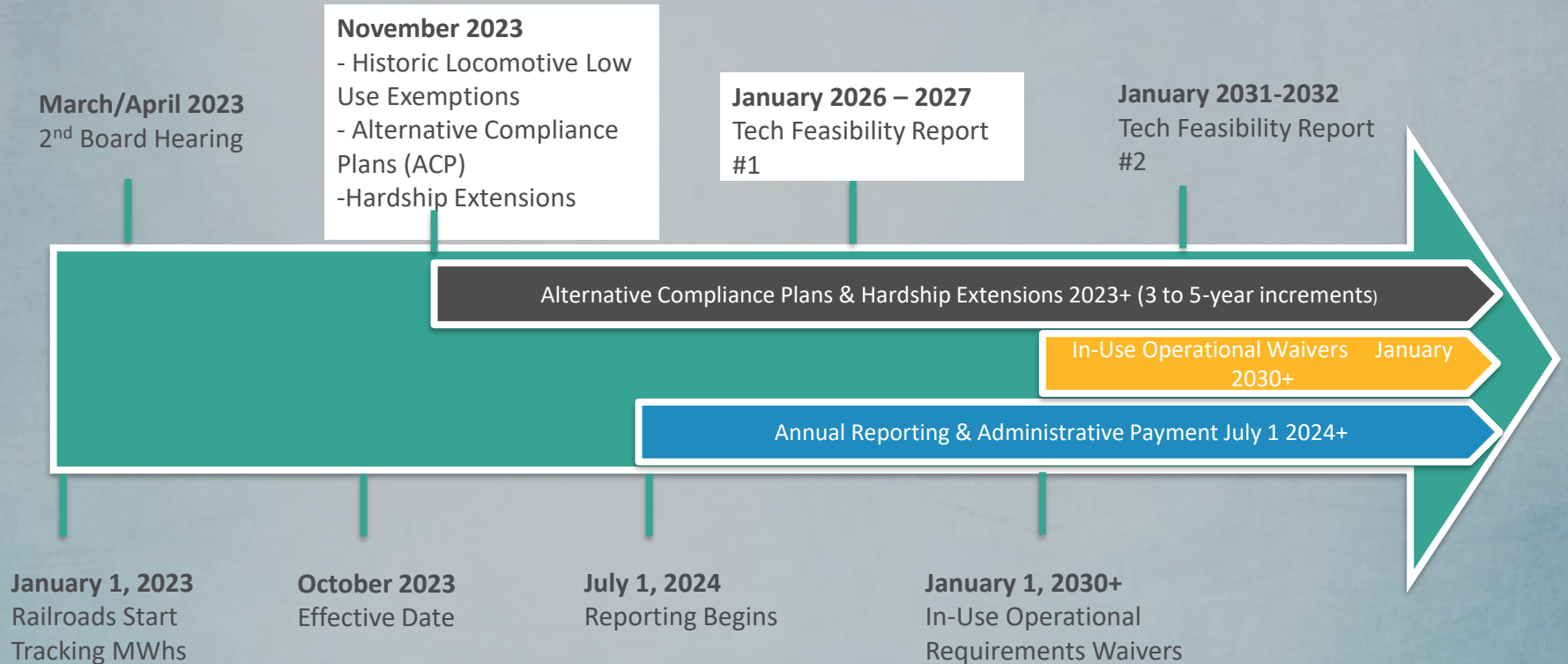
All emissions are in pounds

Draft In-Use Locomotive Regulation



- Establish a Spending Account
- Impose In-Use Operational Requirements
- Eliminate unnecessary idling
- District level reporting and recordkeeping

Locomotive Regulation Timeline





Transport Refrigeration Units (TRU)

Transport Refrigeration Units (TRU)

- Used to control the environment of temperature-sensitive products transported in trucks, trailers, railcars, or shipping containers
- Existing regulation requires TRU owners to upgrade to cleaner equipment over time
 - Most TRUs are still diesel-powered
- Staff are developing two rulemakings to transition diesel-powered TRUs to zero-emission



Part 1: Zero-Emission Truck TRUs

Adopted in February 2022

- Key Elements
 - Zero-emission truck TRUs
 - PM standard for newly-manufactured non-truck TRU engines
 - Lower global warming potential refrigerant
- Next Steps
 - U.S. EPA authorization
 - Implementation



Non-Truck TRUs



Trailer TRU



Domestic Shipping Container TRU

TRU Generator Set

Railcar TRU



Part 2: Zero-Emission Non-Truck TRUs

- Zero-emission Technology Assessment
 - Workshop - May 17th
 - Publish 2022
- Second rulemaking
 - Outreach begins - 2022
 - 1st Board hearing - 2025





Other Freight Activities

Ocean-Going Vessels (OGV)

- CARB has two regulations addressing OGVs
 - At-Berth Regulation
 - Clean Fuels Regulation
- OGVs are challenging to regulate
- CARB is assessing a regulation for OGVs in transit



Fact Sheet – At-Berth: https://ww2.arb.ca.gov/sites/default/files/2020-08/External%20At-Berth%20Fact%20Sheet%20August%202020%20ADA_0.pdf

Fact Sheet – Clean Fuels: https://ww2.arb.ca.gov/sites/default/files/2020-10/marine_notice_2020-2_final_ADA.pdf

Commercial Harbor Craft (CHC)

- CHC includes a wide range of vessels, barges, and dredges
- Proposed regulation amendments adopted early 2022
- New amendments take effect 2023



Fact Sheet: <https://ww2.arb.ca.gov/news/carb-passes-amendments-commercial-harbor-craft-regulation>

Cargo Handling Equipment (CHE)

- Equipment used at seaports and railyards to move containers and freight
- 2011 amendments established accelerated turnover requirements
- Proposed regulation will transition ports and railyards to 100% zero-emission



28

CEQA Review

- Comment on freight-related projects such as warehouses, ports and railyards
- Suggested mitigation measures include:
 - Zero-emissions infrastructure
 - Plug-in capable TRUs
 - Zero-emission service equipment
 - Expedite transition to zero-emission vehicles



Clean Construction Equipment



Zero-Emission Trucks



Plug-in Capable TRUs



Loading Dock Power Plugs



Questions?



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

AGENDA: 6

Federal Mobile Sources Update

**Mobile Source and Climate Impacts
Committee Meeting
July 28, 2022**

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Presentation Outcome



Staff will provide an update on current federal regulatory activities related to mobile sources.

Presentation Outline



- New Heavy-Duty Engine and Vehicle Standards
- Regulations for Emissions from Aircraft Engines
- Regulations for Lead Emissions from Aircraft
- Advanced Clean Car Program

Presentation Requested Action



None; informational only.

Heavy-Duty Truck Rule



- On March 28, 2022, the U.S. Environmental Protection Agency (EPA) published proposed rule: *Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards*.
- Proposes stronger nitrogen oxide (NO_x) and greenhouse gas (GHG) standards to reduce pollution from heavy-duty vehicles and engines starting in MY 2027.
- Consistent with President Biden's Executive Order 14037.
- EPA intends to finalize this proposal before the end of 2022.

Emissions from Aircraft Engines



- On February 3, 2022, EPA published proposed rule: *Control of Air Pollution From Aircraft Engines: Emission Standards and Test Procedures*.
- Equivalent to the engine standards adopted by the United Nations' International Civil Aviation Organization (ICAO) in 2017 and 2020 and would apply to both new type design aircraft engines and in-production aircraft engines.
- Scheduled public hearing pending.

Lead Emissions from Aircraft



- EPA is now evaluating, under the Clean Air Act, whether emissions of lead from piston-engine aircraft cause or contribute to air pollution that endangers public health or welfare – this action is collectively referred to as the “endangerment finding.”
- EPA plans to issue a proposed endangerment finding in 2022 for public review and comment and issue any final endangerment finding in 2023.

Advanced Clean Cars Program



- On April 28, 2021, the EPA solicited public input on reconsideration of its 2019 action withdrawing a 2013 Clean Air Act (CAA) waiver of preemption for California's GHG emission standards and zero-emission vehicle (ZEV) sale mandate, which are part of California's Advanced Clean Car (ACC) program.
- On March 14, 2022, the EPA issued a Notice of Decision that rescinds its 2019 action. This means that the CAA waiver granted to California to implement its ACC program in 2013 is back in force.
- Consistent with President Biden's Executive Order 13990.



Questions / Discussion