



Proposed Amendments to the Airborne Toxic Control Measure for Transport Refrigeration Units

Board Meeting
September 23, 2021

Transport Refrigeration Unit (TRU) Types

Truck TRU
(7-19 hp)



Trailer TRU
(23-35 hp)



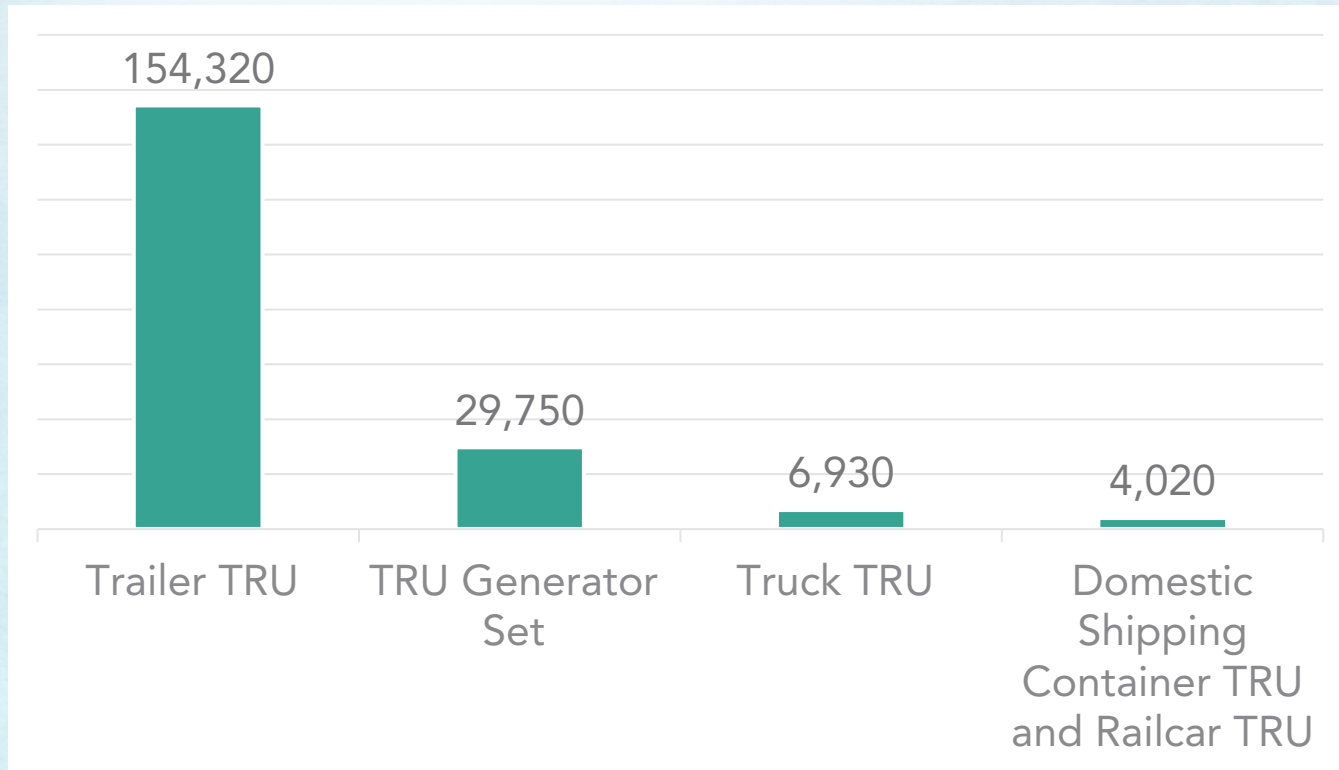
Domestic
Shipping
Container/
Railcar TRU
(23-35 hp)



TRU
Generator
Set
(23-35 hp)



2020 TRU Population



Current TRU Rule

- Requires reporting of California-based TRUs
- Requires all TRUs operating in California to meet in-use particulate matter (PM) standard 7 years after the engine model year
- Approximate 80 percent reduction in PM emissions and resulting health risk

Need for the Proposed Amendments



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

Need to Reduce Near Source Health Risk from TRUs

- Near-source cancer risk at high-activity facilities (~1,000 in a million)
- Facilities often sited in clusters



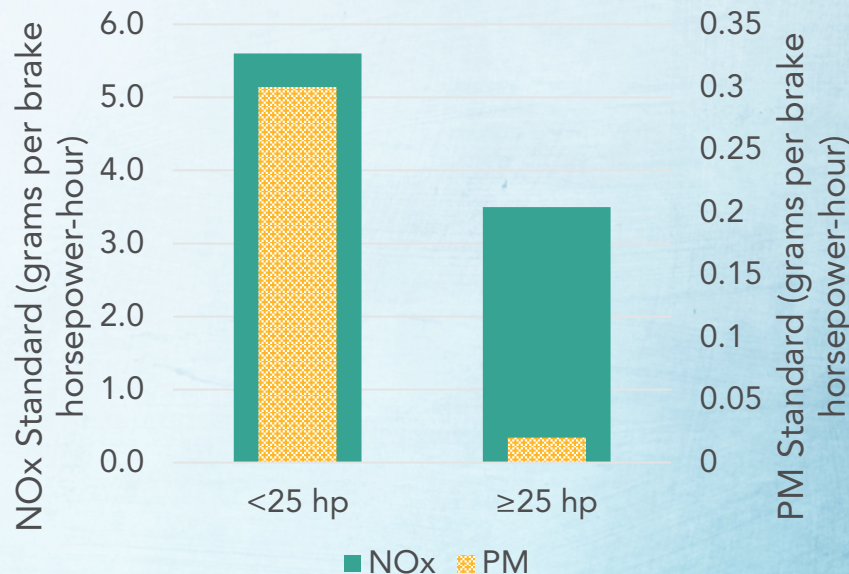
 = Facility size

Example: Salinas, CA

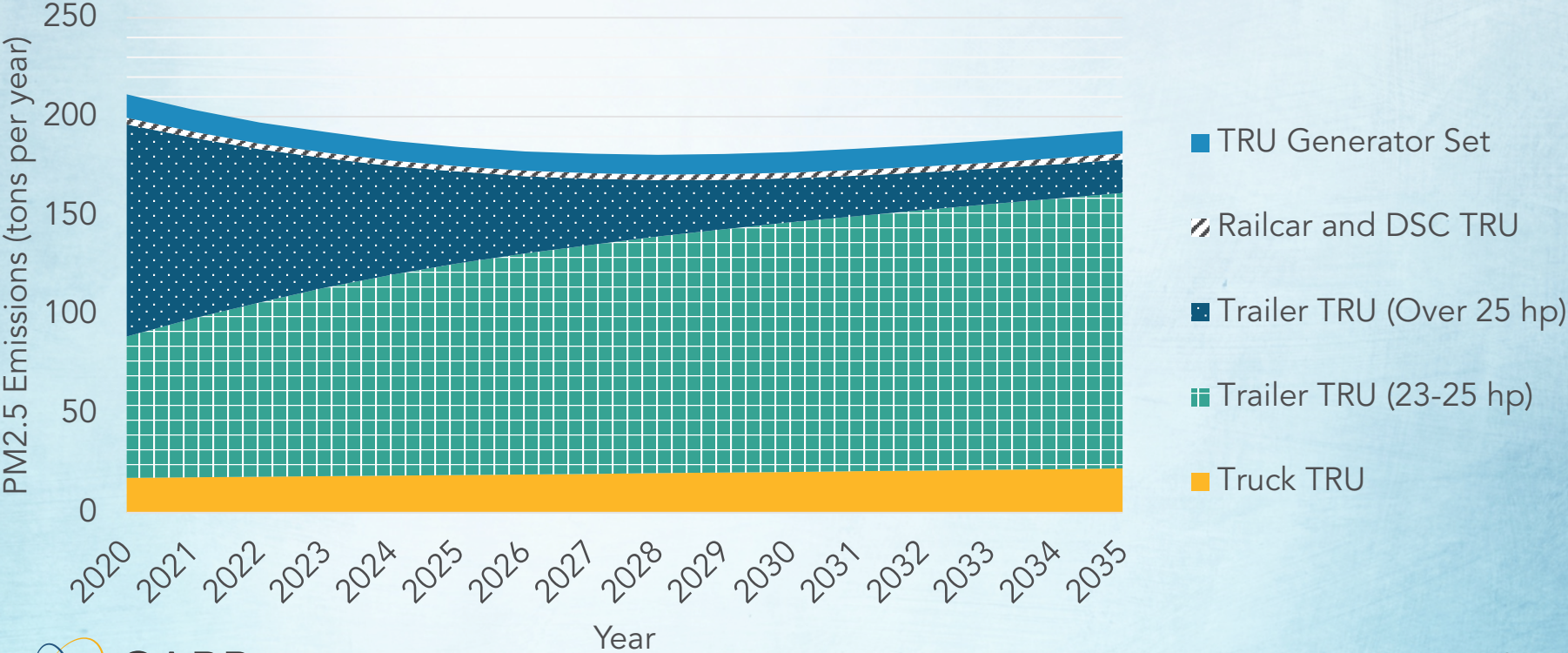
Need to Address Emissions from Less than 25 Horsepower Non-Truck TRUs

- Emergence of <25 horsepower non-truck TRUs
- Compared to ≥ 25 horsepower TRUs:
 - 1.5x higher oxides of nitrogen (NO_x) emissions
 - 15x higher PM emissions

Tier 4 Final Standards for Off-Road Diesel Engines



Baseline Statewide PM2.5 Emissions from TRUs Under the Current Rule



Staff Propose to Transition TRUs to Zero-Emission in Two Rulemakings



Part 1 (today's staff proposal)

- Zero-emission truck TRUs
 - California-based
 - Local, regional, and return-to-base operations
- PM emission standard for newly-manufactured trailer TRUs, container TRUs, railcar TRUs, and TRU generator sets
- Lower global warming potential refrigerant



Part 2 (subsequent rulemaking)

- Zero-emission trailer TRUs, container TRUs, railcar TRUs, and TRU generator sets
 - California and out-of-state-based
 - Used in long-haul operations and do not return-to-base each day
- Direct-drive refrigeration units

Regulatory Development Process

- 8 public workshops
- 3 work group meetings
- 40,000 postcards mailed to facilities
- 160+ stakeholder calls, meetings, and site visits
- Community listening sessions, Freight Days, and Environmental Justice Blog articles

Proposal - Zero-Emission Truck TRUs

- December 31, 2023
 - Truck TRU fleets required to phase-in zero-emission at 15 percent per year
 - All truck TRUs operating in California zero-emission by 2030
- Compliance extension for charging/fueling infrastructure installation delays



Proposal - PM Emission Standard

- December 31, 2022
 - Newly-manufactured TRU engines required to meet Tier 4 final PM emission standard for 25-50 horsepower engines, regardless of horsepower
 - Applies to trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets



Proposal - Lower Global Warming Potential Refrigerant

- December 31, 2022
 - Newly-manufactured TRUs required to use refrigerant with a global warming potential $\leq 2,200$, or no refrigerant at all
 - Applies to truck TRUs, trailer TRUs, and domestic shipping container TRUs

Proposal - TRU Reporting, Operating Fees, and Compliance Labels

- December 31, 2023
 - TRU owners required to report all TRUs that operate in California to CARB (including out-of-state-based TRUs)
 - Operating fees and compliance labels every three years

| Fee Type | Proposed Amount (per TRU every three years) |
|---------------------------------|--|
| Diesel TRU Operating Fee | \$54 |
| Zero-Emission TRU Operating Fee | \$27 |

Proposal - Applicable Facility Registration, Registration Fees, and Reporting

- December 31, 2023:
 - Applicable facility owners required to register facility with CARB
 - Registration fees (\$54 per facility every three years)
 - Report all TRU activity to CARB, or ensure only TRUs with a valid CARB compliance label or showing as compliant on CARB's website operate at facility



Proposal - Applicable Facility Types and Size Thresholds

Refrigerated
Warehouses or
Distribution
Centers

Building size greater than or equal to 20,000 square feet with TRU activity

Grocery Stores

Building size greater than or equal to 15,000 square feet with TRU activity

Seaport Facilities
and Intermodal
Railyards

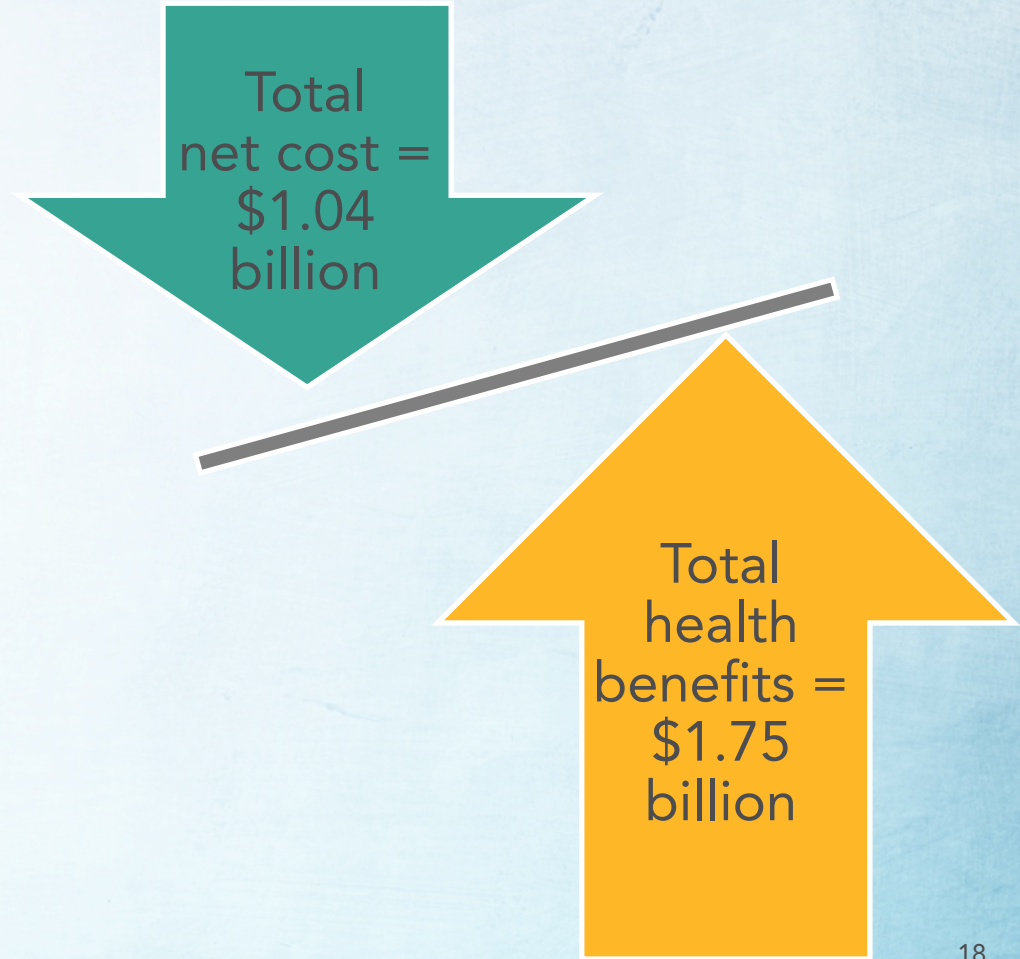
No square foot size threshold – All seaport facilities and intermodal railyards with TRU activity

Proposal - Vehicle Owner and Driver Requirements

- December 31, 2023
 - Vehicle owners required to ensure TRU is compliant
 - Drivers required to allow CARB enforcement staff to conduct inspections



Total Health Benefit Valuation and Net Cost from 2022 to 2034



TRU Incentive Funding

TRU Funding Assistance

Transport Refrigeration Unit

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CONTACT

ARBER Help Line

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Funding programs supporting the accelerated deployment of cleaner transport refrigeration units (TRU) are a crucial component of California's efforts to promote sustainability in the freight sector. The list below includes funding programs, both active and under development, which may provide funding for cleaner TRUs, as well as supporting electric charging or fueling infrastructure. Each of these programs have different funding requirements, application timelines, and limited funding availability. CARB encourages interested stakeholders to act early and utilize funding while it is available.

Clean Off-Road Equipment Voucher Incentive Project

The Clean Off-Road Equipment Voucher Incentive Project features a streamlined voucher process for buyers to receive funding that will offset the higher costs of clean, commercial ready zero-emission equipment including terminal tractors, transport refrigeration units, cargo-handling equipment, and more.

AB 617 Community Air Protection Incentives

AB 617 Community Air Protection Incentives are available for projects that result in immediate air quality benefits to the most impacted communities across the State. The Community Air Protection Incentives 2019 Guidelines, approved by the Board in May 2019, represent CARB's next steps in taking advantage of new opportunities for incentives to help clean up sources of air pollution.

Proposition 1B: Goods Movement Emission Reduction Program

Proposition 1B funding may be available for projects that achieve early or extra emissions reductions not otherwise required by law. Please contact your local air district for more information.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Program provides grant funding for cleaner-than-required engines and equipment. Please contact your local air district for more information.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard is designed to encourage the use of cleaner low-carbon fuels in California, encourage the production of those fuels, and therefore, reduce greenhouse gas emissions. Electricity utilized for electric TRUs may generate Low Carbon Fuel Standard credits that can offset costs for facility upgrades.

Electric Utility Transportation Electrification Programs

Many of California's electric utilities, supported by the California Public Utilities Commission, provide incentives that support transportation electrification activities, including TRUs and supporting infrastructure. Opportunities will vary by region. Please contact your local electric utility for more information.

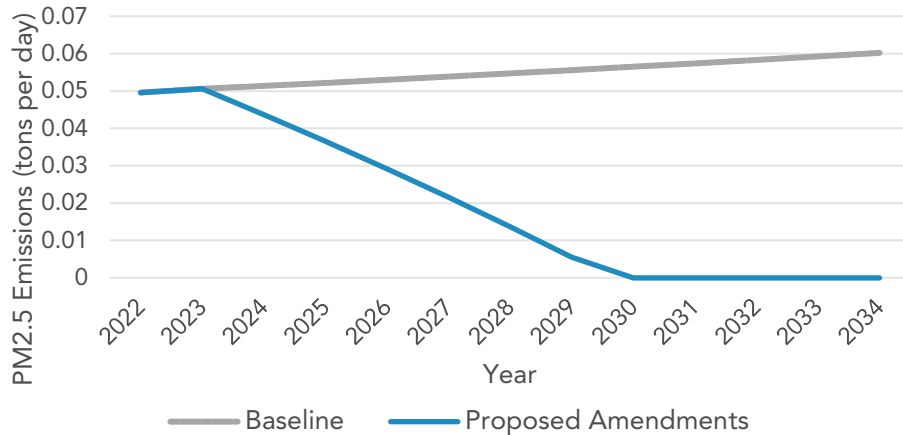
Clean Diesel and Diesel Emissions Reduction Act Programs

The Clean Diesel Program and Diesel Emissions Reduction Act Programs provide support for projects that protect human health and improve air quality by reducing harmful emissions from diesel engines. This program includes grants and rebates funded under the Diesel Emissions Reduction Act. Please contact the U.S. Environmental Protection Agency for more

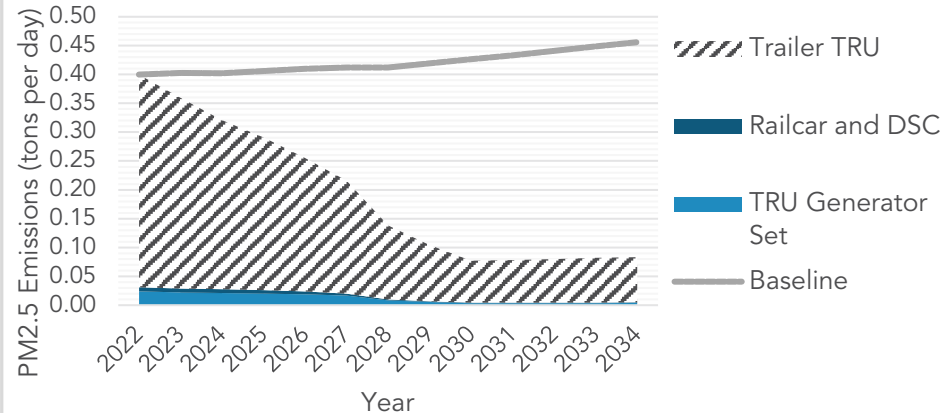
Estimated Emission Reductions from 2022 to 2034

- 1,258 tons of PM2.5
- 3,515 tons of NOx
- 1.42 million metric tons of carbon dioxide equivalents

Statewide PM2.5 Emissions from **Truck TRUs** under the Proposed Amendments

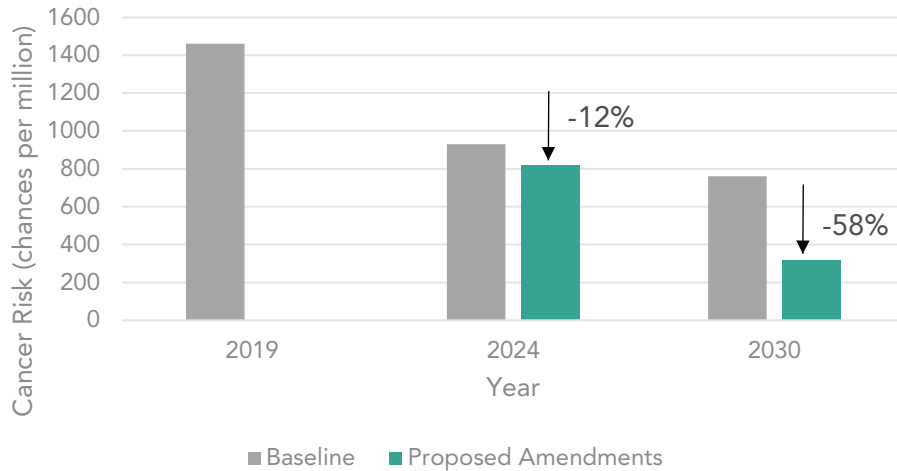


Statewide PM2.5 Emissions from **Non-Truck TRUs** under the Proposed Amendments

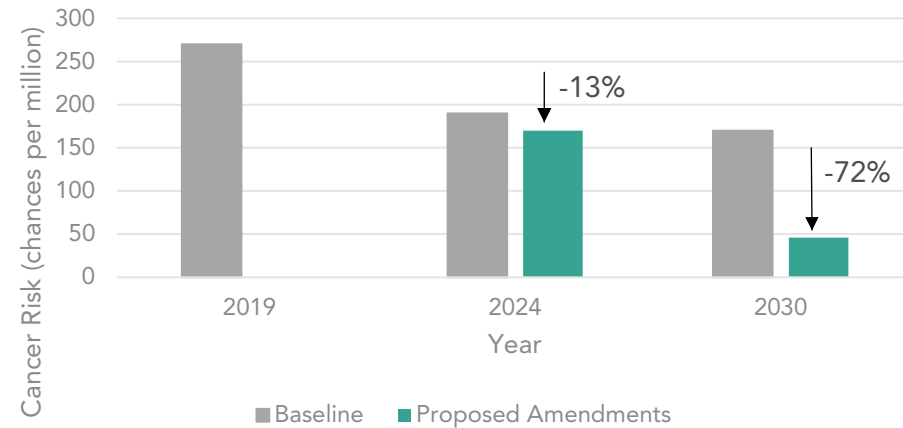


Estimated Individual Resident Cancer Risk and Risk Reduction

Cold Storage Warehouse



Grocery Store (7 Trucks, 2 Trailers, 1 Seasonal Scenario)



Environmental Analysis

- Draft Supplemental Environmental Analysis released for public comment
 - July 30, 2021 – September 19, 2021
- Next Steps
 - Prepare written responses to comments
 - Present Final Supplemental Environmental Analysis and written responses to comments to the Board

Summary of Public Comments Received

- CARB lacks authority to collect fees from TRU and applicable facility owners
- CARB should allow alternative labeling option
- Clarification of lessor/lessee requirements
- Applicable facility reporting requirements are unclear
- Environmental Analysis fails to address potential environmental impacts of facility reporting requirements

Potential 15-day Changes

- Revisit assumptions on TRU turnover and new sales populations
- Update TRU registration and applicable facility registration fees
- Add zero-emission truck TRU assurances

Staff Recommendation

Adopt Board Resolution 21-18 directing staff to:

- Return with a final proposal for adoption in the first quarter of 2022
- Propose a second rulemaking for zero-emission trailer TRUs (and remaining TRU categories) and direct-drive refrigeration units in 2024

Next Steps

2021

- First Board meeting for Part 1 today
- Potential 15-day changes
- Part 2 technology assessment

2022

- Second Board meeting for Part 1 (first quarter)
- Begin development of Part 2 rulemaking
- Begin implementation of Part 1

2024

- First Board meeting for Part 2