

Workshop: Air Pollution Control Measure -Stationary Operating Time Limits for Transport Refrigeration Units California Air Resources Board April 13, 2016 – Cal/EPA Headquarters



- What Are the Air Quality Goals?
- What is a TRU?
- What is Cold Storage TRU Operation?
- How Many TRUs Operate in California?
- What Do TRUs Emit?
- Draft Concepts
- Current Incentive Programs
- Next Steps
- Discussion

During the workshop, questions or comments may be emailed to the meeting room at: sierrarm@calepa.ca.gov

Sustainable Freight: Pathways to Zero and Near-Zero Emissions

- Move freight more efficiently
- Zero emissions everywhere feasible
- Near-Zero everywhere else
- ARB actions to address localized health impacts, attainment of air quality standards, and climate goals:
 - Develop and propose a control measure to limit the use of internal combustion engine-powered refrigeration units for cold storage with incentive support for infrastructure





Pathways to Zero and Near-Zero Emissions Discussion Draft

Governor's Executive Order B-32-15 Sustainable Freight Action Plan

- State Agencies, in consultation with stakeholders, to develop plan by July 2016
 - Targets for efficiency, zero emission technology, and economics
 - Potential Actions to advance State objectives
 - Corridor-level freight projects
- Multi-decade, iterative process to transform California's freight system

What Are the Air Quality Goals?

- The Governor's Climate Change Pillars: 2030
 - Target: Reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030
 - Goal: 50 percent reduction in petroleum use in vehicles
- Draft Freight Technology Target: 2030
 - 100,000 vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy

What Is a TRU?

- TRUs are refrigeration systems powered by an internal combustion engine (inside the housing)
- Control the environment of temperature sensitive products that are transported in refrigerated trucks, trailers, railcars, or shipping containers
- TRUs may be capable of both cooling and heating

Trailer and Truck TRUs



Railcar and Domestic Shipping Container TRUs







How Are TRUs Used?

- TRUs are used in the transport of many products including:
 - Food
 - Beverages
 - Pharmaceuticals
 - Flowers
 - Medical products
 - Industrial chemicals
- Cold storage



What Is Cold Storage TRU Operation?

Tentative definition:

Cold Storage TRU Operation" means TRU operation that is powered by an internal combustion engine, while the refrigerated truck, trailer, railcar, or shipping container is stationary (parked) for any length of time.

Why Are TRUs Used for Cold Storage?

- Provide cold storage when none at facility
- Supplement grocery store cold storage capacity
 - Grocery stores run out of built-in cold storage capacity around major holidays
- Loaded inbound/outbound trailer wait times
 - Distribution center parks loaded trailer over weekend
- Event concessions
- Truck stops and rest areas

How Many TRUs Operate in California?

- Over 40,000 California-based TRUs
- Over 100,000 Out-of-State-Based TRUs that periodically operate in California
 - Over 12,000 units in California on any given day

What Do TRUs Emit?

- Estimated emissions from all TRUs operating in California (2016)
 - GHG: 90,000 metric tons per year (CO_2e)
 - NOx: 4,700 tons per year
 - □ PM 2.5: 160 tons per year

Draft Concepts

What Is the Focus of these Draft Concepts?

- Reduce GHG and criteria pollutant emissions by reducing stationary internal combustion engine operating time
- Types of activities to consider
 - Cold storage TRU operations at grocery stores
 - Over-weekend staging for Monday dispatch
 - Cargo space pre-chill operations
 - Time waiting for loading dock/labor (inbound loads)
 - Time waiting for driver and dispatch (outbound loads)
 - Other

How Can TRU Engine Operating Time Be Reduced?

- Use effective logistics, scheduling, tracking, and dispatch procedures
- Plug into electric power grid while stationary
 - Hybrid-electric TRUs (or electric standby)
 - All-electric refrigerated shipping containers
 - All-electric stationary transport refrigerators



How Can TRU Engine Operating Time Be Reduced? (cont'd)

- Use cryogenic transport refrigerators (liquid nitrogen, air, or CO₂)
- Build additional facility cold storage capacity



Who May Be Affected?

- Grocery stores that use TRUs for cold storage
- Distribution centers that load, park, and run TRUs for long periods of time before dispatch
- Private fleets (grocery, foodservice, food manufacturers)
- For-hire fleets
- Truck stops/drop yards
- Public rest areas (Caltrans)
- State and county fairs (concessionaires)
- Rail yards (refrigerated railcars and shipping containers)
- Intermodal facilities
- Other

When Is the Implementation Time Frame?

- Start implementation in 2020
- Phases going out to 2030
- Time to install infrastructure
 - At facilities where TRUs operate
 - Along California transportation corridors

What Issues Do We Need to Consider?

- Food Safety Modernization Act
- Hours of Service regulations
- Environmental justice disadvantaged communities
- Small business impacts
- Fairness level playing field
- Economics costs and benefits
- Enforceability ease of determining compliance
- Monitoring and reporting emissions reductions achieved
- Other regulations
 - TRU ATCM
 - Truck and Bus Regulation

TRU Airborne Toxic Control Measure (ATCM)

- Adopted in 2004 as a part of the Diesel Risk Reduction Plan
 - Requires TRU diesel engines to meet in-use performance standards based on engine model year or unit manufacture year and size of engine – phased in starting December 31, 2008
 - Compliance by end of 7th year after engine model year
 - Amended 2010 and 2011
 - All TRUs must eventually meet the most stringent in-use standard – Ultra-Low Emission TRU (ULETRU)

Current Incentive Programs

Low Carbon Transportation Investment Air Quality Improvement Program

- Funding Plan Discussion document identifies \$5 million for "Zero-Emission Freight Equipment Pilot Commercial Deployment Projects" for FY 2016-17
 - Fully zero emission TRs and supportive charging/fueling infrastructure would be eligible
 - At least 50 percent of funding must benefit disadvantaged communities
 - □ FY 2016-17 Funding Plan Discussion Document available now
 - Proposed FY 2016-17 Funding Plan to be released on May 20, 2016 for June 23, 2016 Board meeting
 - Funding contingent upon State Legislature's appropriation
 - Implementation would begin Fall 2016

http://www.arb.ca.gov/msprog/aqip/fundplan/fundplan.htm

Proposition 1B: Goods Movement Emission Reduction Program Diesel TRU replacement with zero-emission TRs All-electric TRs Cryogenic TRs Infrastructure Electric power plugs for eTRUs

Cryogenic refrigeration refueling

www.arb.ca.gov/bonds/gmbond/gmbond.htm

Current 1B Funding Status Local Agency TRU Funding **Status** \$5 Million **Closes April 28th** San Joaquin \$3 Million **Closes April 15th Bay Area** South Coast \$1.5 Million Currently closed San Diego \$600,000 Currently closed \$300,000 Sacramento **Closes May 13th**

Interested? Email gmbond@arb.ca.gov

Carl Moyer Program

- Zero-emission TRs (new purchases and conversions)
 - All-electric TRs
 - Cryogenic TRs
- Must meet cost-effectiveness criteria
 - **\$18,030 per ton**
- Must be surplus emission reductions (in advance of or in addition to what is required by regulation)
- Evaluated on case-by-case basis
- Contact local air district for more information

www.arb.ca.gov/msprog/moyer/moyer.htm

Next Steps



- Surveys
- Stakeholder Outreach
- Public workshops
 - June-August 2016 (Tentative)
 - October-November 2016 (Tentative)
 - □ First quarter 2017 (Tentative)

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Cold Storage Control Measure Website: www.arb.ca.gov/cc/cold-storage/cold-storage.htm





Discussion -Questions & Comments?



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