

Union Pacific Railroad Community Meeting Diesel Particulate Matter Mitigation Plan for the Commerce Yard

Commerce, CA



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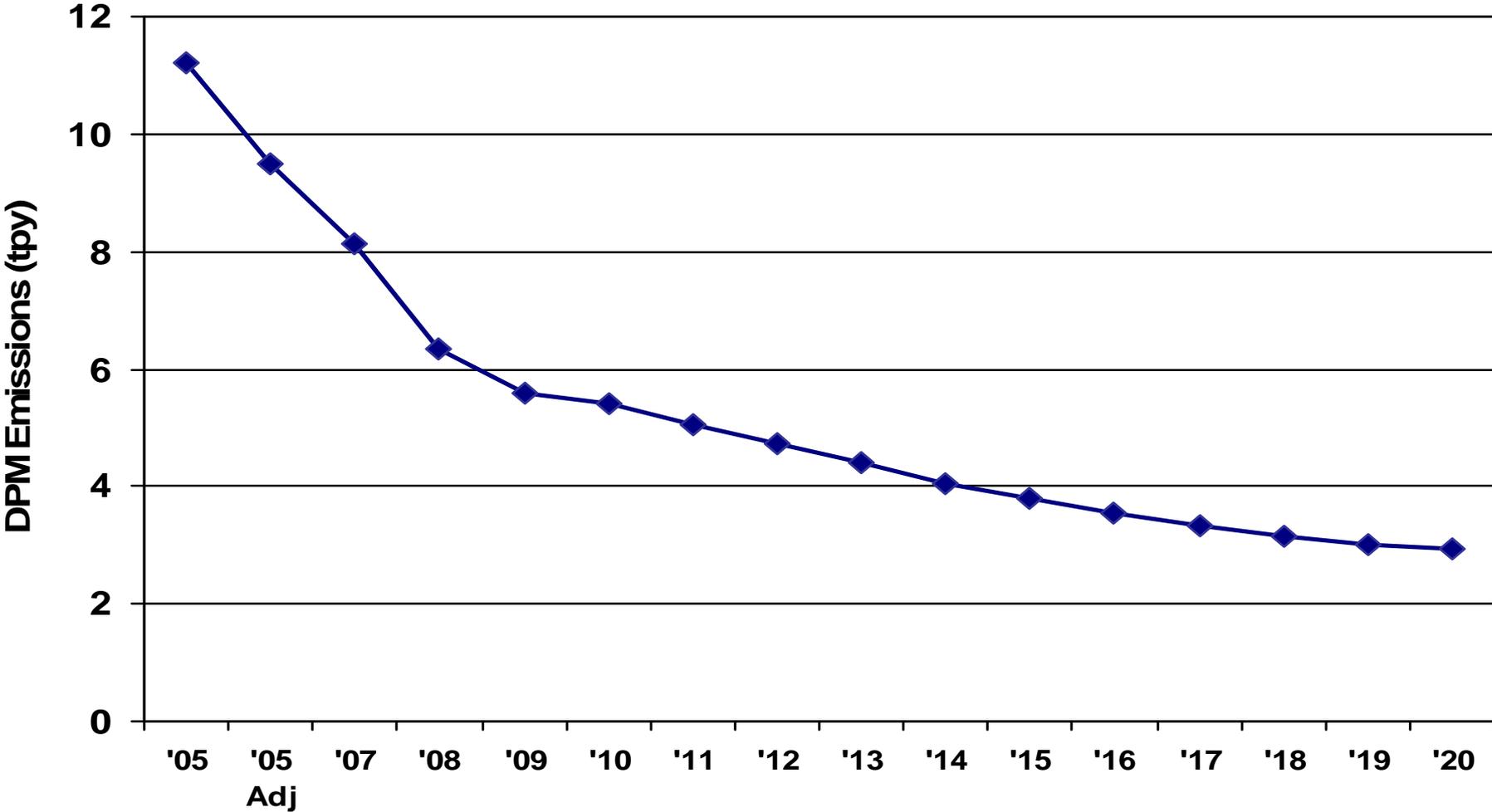


UPRR Commerce Yard

- Facility Overview
- 2005 Baseline Inventory
- Inventory Updates
- Where We Are Today – 2007 Inventory
- Current and Proposed Mitigation Measures
 - **We need your help to identify additional ideas for potential emissions reductions**
- Emission Trends – Past and Future
- Evaluation of Mitigation Measures
- Tracking Progress

UPRR Commerce Yard

Facility Wide DPM Emission Trend (2005-2020)



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Emission Trends

- **29% Reduction From 2005 Baseline to 2007**
- **74% Reduction From 2005 Baseline to 2020, including expected growth**
- **78% Reduction in DPM Emissions From 2005 to 2020 Per Ton of Cargo Handled, including expected growth**

Union Pacific System Overview



Fast Facts

• Miles of Track

- 32,300 in 23 States
- 3,455 in California
- 1,272 in Los Angeles area

• Employees

- 50,000+ in US
- 5,900 in California
- 1,900 in Los Angeles area

UPRR Commerce Yard

Facility Overview

- **160-acre Cargo-handling Facility**
- **Yard Includes:**
 - **5 Receiving Tracks**
 - **6 Tracks Used to Sort Rail Cars by Destination**
 - **9 Tracks Used to Maintain or Repair Rail Cars or Locomotives**
 - **8 Tracks Used to Load and Unload Containers or Trailers From Rail Cars, and for Train Departures**
- **Facility Operates 24 Hours a Day, 365 Days a Year**
- **About 40 Trains a Day Operate Through or Originate / Terminate at UP's Commerce Yard**

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2005 Baseline Emissions Inventory

Equipment Category	DPM Emissions (tpy)
Locomotives	4.9
- <i>Line Haul</i>	1.3
- <i>Switch</i>	1.9
- <i>Shop/Service</i>	1.7
Cargo Handling Equipment	3.9
Diesel Drayage Trucks	2.0
Light Duty Trucks	0.02
Diesel-Fueled Heavy Equipment	0.1
TRUs and Reefer Cars	0.3
TOTAL	11.2

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Current UP Emission Reduction Measures

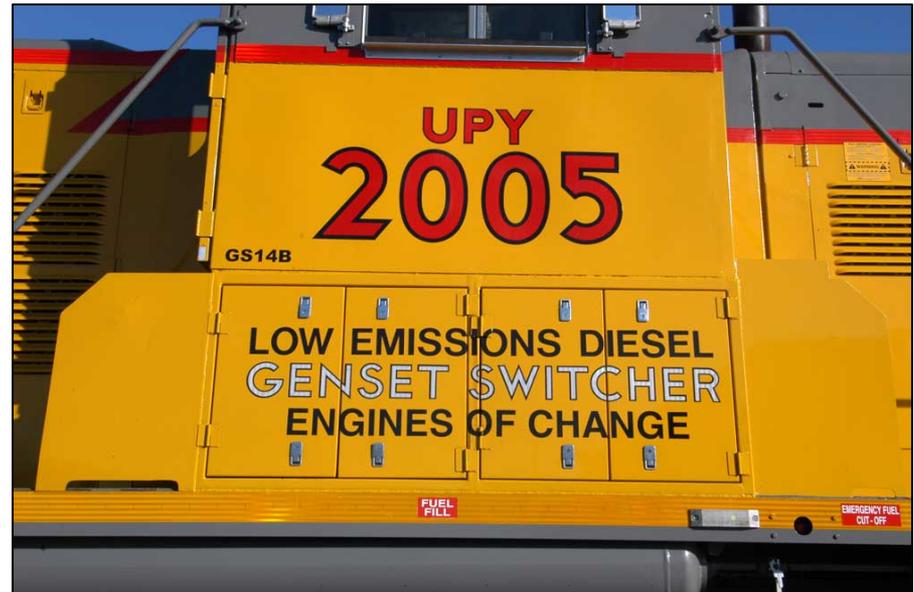
- **Continued Aggressive Acquisition & Use of Tier 2 Road Locomotives With Advanced Emission Controls**
 - 1,189 Tier 2 Locomotives thru October 2008
 - 5,500+ Tier 0, 1, or 2 Locomotives in the Fleet
- **Continued Remanufacture of Older Locomotives With New, Lower Emitting Components**
 - 2,000 Units Since 2000
- **On Target for Tier 2 Fleet Average in SoCal by 2010**



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Current UP Emission Reduction Measures, Cont.

- **Ultra Low Emitting Locomotives (ULEL's)**
 - Reduce NOx & PM Emissions by +/- 85%
 - Reduce Fuel Consumption by Over 16 %
- **Expanded Use of Technologically Advanced Switch Locomotives**
 - Gensets - 10 in or around Commerce
 - Gensets - 61 in South Coast
 - Green Goats - 12 in South Coast



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Current UP Emission Reduction Measures, Cont.

- **Increased Use of Idle Control Devices (ICD's) for Auto Start-Stop of Locomotives**
 - 100% of CA Intrastate Units Equipped by June 2008
 - 35% of UPRR Total Fleet
 - All New Locomotives Since 2001 Have Factory ICD's
- **Supported research and development efforts**
 - Since 1989 UPRR has invested more than \$37M in locomotive research and development
- **Aggressive Conservation = Lower Emissions**
 - A 12% improvement in fuel efficiency has been achieved since 1995

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Current UP Emission Reduction Measures, Cont.

- **Use of cleaner fuels – only Ultra Low Sulfur Diesel (ULSD) is used in CA**
- **Cleaner Cargo Handling Equipment (CHE)**
 - In 2007, replaced 3 pieces of higher-emitting equipment with new cleaner units
 - VDECS will be installed on each new unit in 2008
- **Employee Training**
 - Fuel Conservation Via Use of Simulators
 - Locomotive Shutdown Procedures
 - Visible Emissions

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Proposed Future Emission Reduction Measures

- **Continued acquisition of ULEL locomotives**
- **Continued acquisition of Tier 2 locomotives and newer technology (i.e. Tier 3 and 4) when available**
- **Continued remanufacture and retrofit of older line haul locomotives with lower emitting components**
- **Continued support of locomotive research and development efforts**
- **Continued Aggressive Employee Training**
 - **Fuel Conservation Via Use of Simulators**
 - **Locomotive Shutdown Procedures**
 - **Visible Emissions**

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Proposed Future Emission Reduction Measures, Cont.

- **Continued modernization of CHE**
 - By 2010, all of the 1988 through 2006 model year lift equipment (17 units) will be replaced or retrofitted.
 - All new units purchased will have the cleanest available engines and be retrofitted with a VDECS to further reduce emissions
- **Cleaner drayage fleet**
 - Natural fleet turnover
 - Port's Clean Truck Program
 - CARB's proposed drayage truck regulation
- **Cleaner TRUs**
 - Beginning in 2008, TRUs operating at Commerce will be required to meet lower emission standards. Standards are further reduced in 2010.

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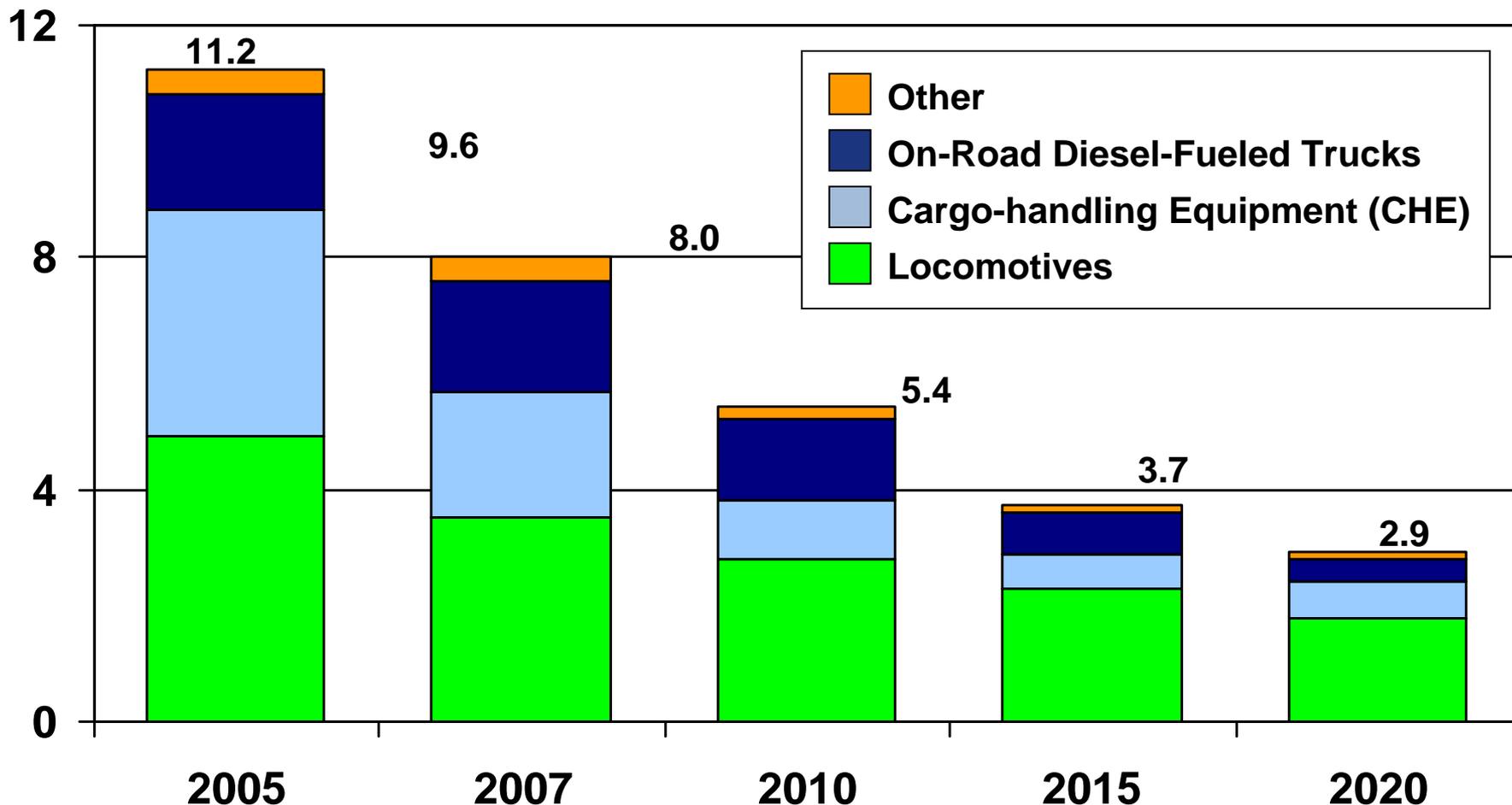
Summary of Reductions by Source

Equipment Type	2005	2007	2010	2015	2020
Line Haul Locomotives	Update UPRR's Line Haul Fleet to Comply with Rules 213 and 1033				
Genset Switchers, % of Total	0%	>80%	>80%	>80%	>80%
Cargo Handling Equipment % of Total Upgraded	20 Units 0%	3 of 20 15%	15 of 20 75%	20 of 20 100%	NA 100%
Drayage Trucks	Truck Owners Must Comply with Either the Port's Truck Rule, CARB's Drayage Truck Rule, and/or other appropriate State and Federal Regulations				
TRUs and Reefer Cars	TRU Owners Must Comply with CARB's Airborne Toxic Control Measure (ATCM) for TRUs				

UPRR Commerce Rail Yard

DPM Emissions by Source (Calendar Years 2005-2020)

Emissions (Tons / Year)



UPRR Commerce Yard

Criteria for Evaluation of Mitigation Measures

- **Safety**
- **Technologically Feasibility**
- **Consistent w/ Legal Requirements (i.e. – FRA)**
- **Operationally Feasibility**
- **Cost Effective**
- **Other Yard Specific Consideration**

THE ROAD TO THE FUTURE ISN'T A ROAD AT ALL.

