

Union Pacific Railroad Community Meeting Diesel Particulate Matter Mitigation Plan for the City of Industry Railyard City of Industry, CA December 2, 2008



Lanny Schmid, *Director – Environmental Operations*

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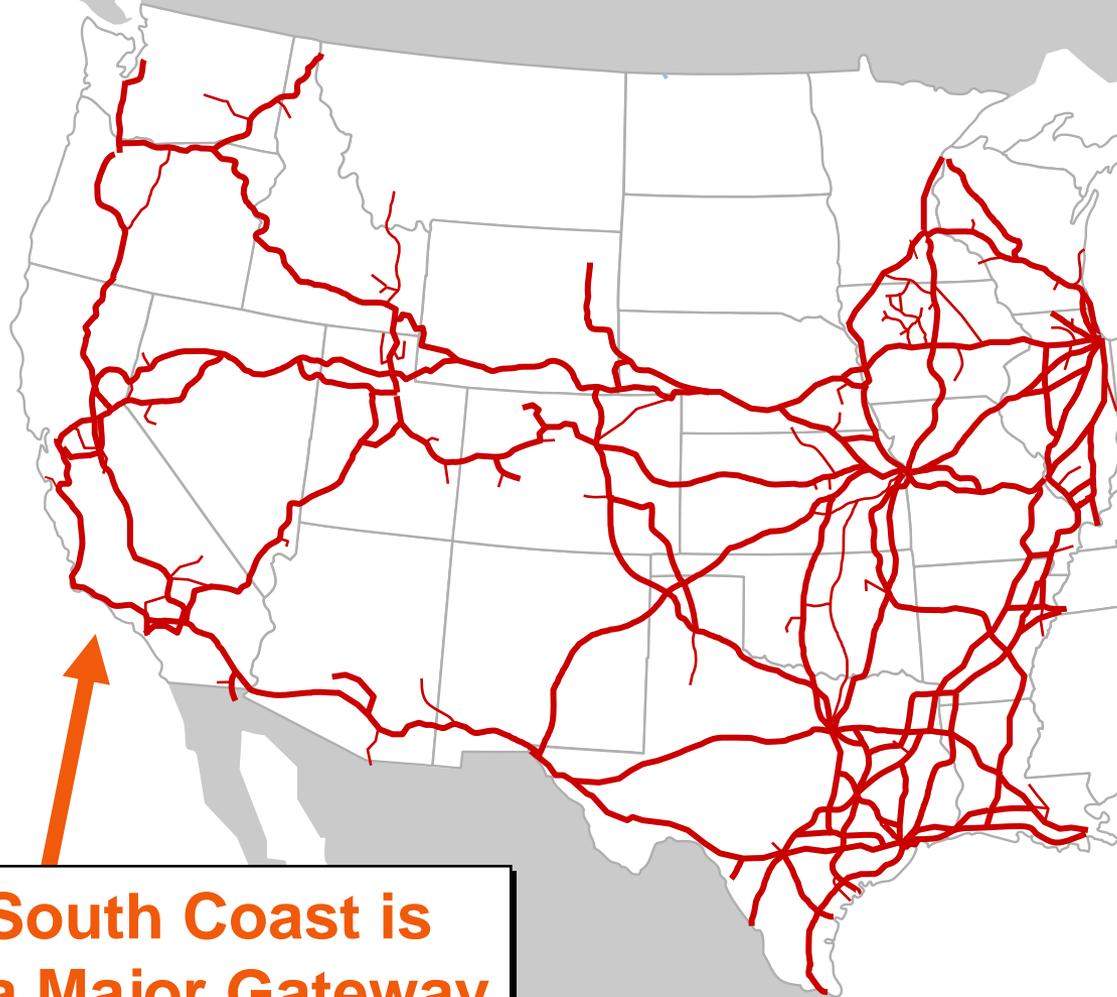
Agenda

- Emissions Trends Summary
- System and Facility Overview
- 2005 Baseline 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

Emission Trends – DPM Reductions from 2005 Baseline

- **Actual**
 - **30% by 2007**
- **Projected**
 - **76% by 2020, including expected growth**

Union Pacific System Overview



**South Coast is
a Major Gateway**

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
- 5,860 in California
- 1,900 in Los Angeles area

Facility Overview

- **100+/- Acres for Cargo Handling**
- **Yard Includes:**
 - **Receiving Tracks**
 - **Tracks Used to Maintain or Repair Rail Cars or Locomotives (Light Repair)**
 - **Tracks Used to Load and Unload Containers From Rail Cars, and for Train Departures**
- **Facility Operates 24 Hours a Day, 365 Days a Year**
- **About 20 Trains a Day Operate Through or Originate / Terminate at UP's COI Yard**

2005 Baseline Emissions Inventory

Equipment Category	DPM Emissions (tpy)
Locomotives	5.9
- <i>Line Haul</i>	2.6
- <i>Switch</i>	3.3
- <i>Shop/Service</i>	0.01
Cargo Handling Equipment	2.6
Diesel Drayage Trucks	1.8
Diesel-Fueled Heavy Equipment	0.2
TRUs and Reefer Cars	0.2
Other Sources	0.2
TOTAL	10.9

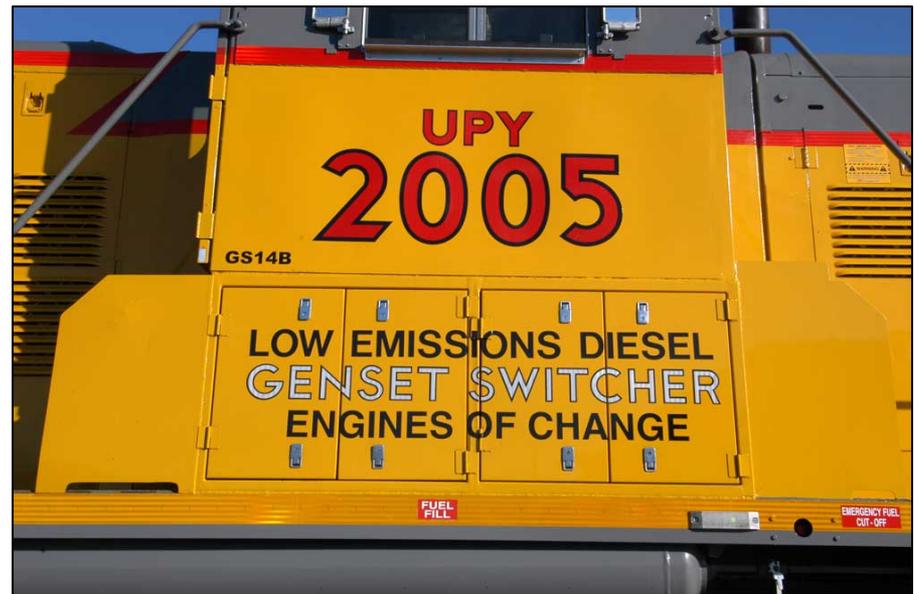
Current UP Emission Reduction Measures

- **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**



Current UP Emission Reduction Measures, Cont.

- **Ultra Low Emitting Locomotives (ULEL's)**
 - Reduce NOx & PM Emissions by +/- 85%
 - Reduce Fuel Consumption by 16 - 37 %
- **Expanded Use of Technologically Advanced Switch Locomotives**
 - Gensets - 11 in or around COI
 - Gensets - 61 in South Coast
 - Green Goats - 12 in South Coast



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
 - 35% of UPRR Total Fleet
 - All New Locomotives Since 2001 Have Factory ICD's
- **Supported research and development efforts**
 - UPRR has invested > \$37M in locomotive R&D since 1989
- **Aggressive Conservation = Lower Emissions**
 - A 12% improvement in fuel efficiency achieved since 1995

Current UP Emission Reduction Measures, Cont.

- **Use of cleaner fuels – only Ultra Low Sulfur Diesel (ULSD) is dispensed in CA**
- **Cleaner Cargo Handling Equipment (CHE)**
 - In 2005, retired 2 pieces of higher-emitting equipment (1 RTG and 1 top pick).
 - In mid-2008, 2 additional RTGs (1991 model year) were retired and replaced with new, cleaner units. A VDECS will be installed on each new unit in 2009.
- **Employee Training**
 - Fuel Conservation Via Use of Simulators
 - Locomotive Shutdown Procedures
 - Visible Emissions

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**

Proposed Future Emission Reduction Measures, Cont.

- **Cleaner CHE**

- By the end of 2010, all pre-2006 model year CHE at the yard will be replaced, repowered, or retrofitted with VDECS to meet the requirements of the CHE Rule.

- **Cleaner drayage fleet**

- Natural fleet turnover
- Reduced idling due to installation of Automated Gate System (AGS)
- Port's Clean Truck Program
- CARB's proposed drayage truck regulation

- **Cleaner TRUs**

- Beginning in 2008, TRUs operating at ICTF will be required to meet lower emission standards. Standards are further reduced in 2010.

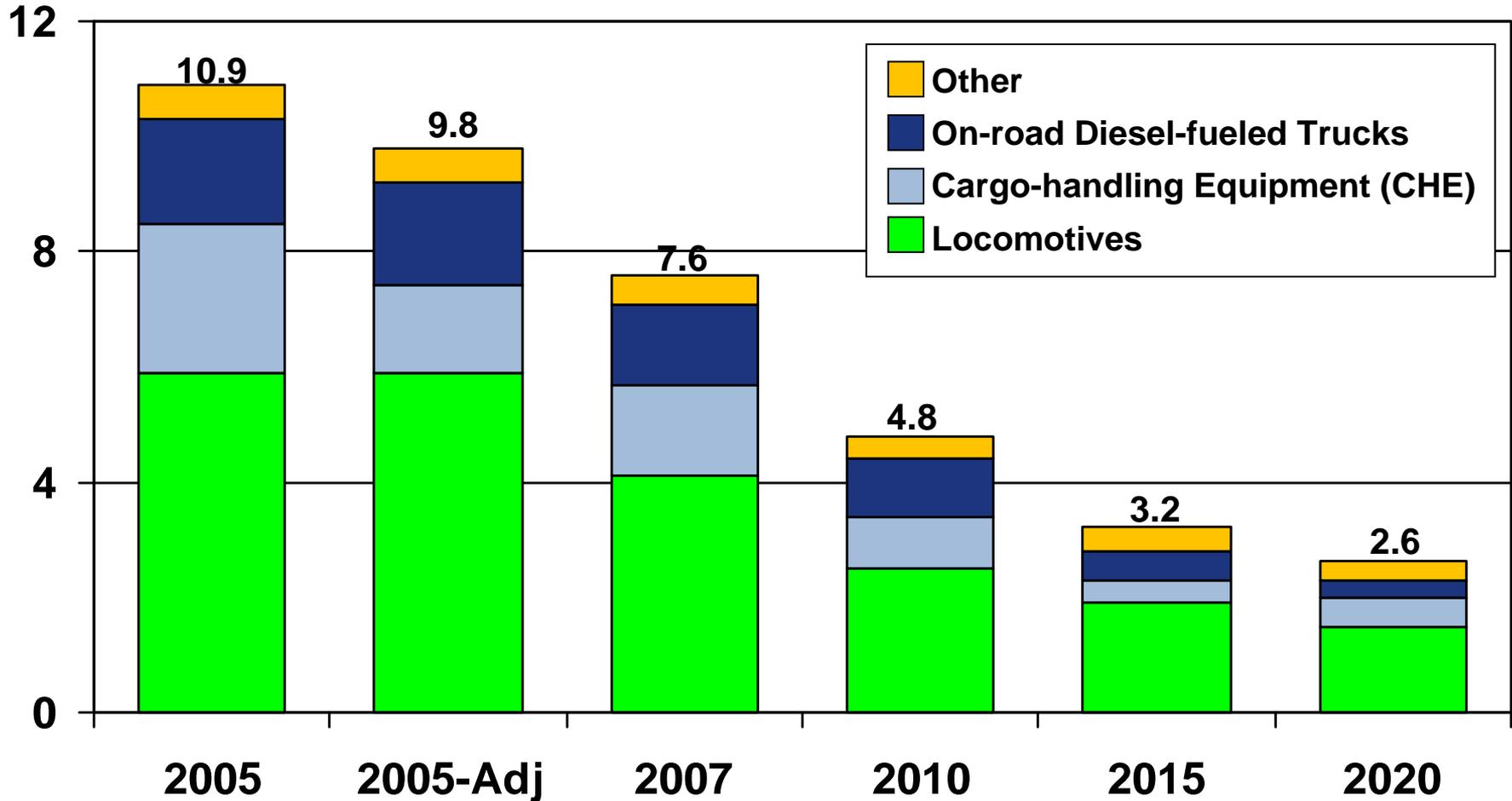
Summary of Reductions by Source

Equipment Type	2005	2007	2010	2012	2014	2016
Line Haul Locomotives	Fleet is Continuously Being Improved					
Genset Switchers, % of Total	0%	>80%	>80%	>80%	>80%	>80%
Cargo Handling Equipment % of Total Upgraded	21 Units 0%	3 of 21 14%	9 of 21 43%	16 of 21 76%	21 of 21 100%	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					

Note: UPRR does not own or operate the drayage trucks and/or TRUs and reefer cars.

DPM Emissions by Source (Calendar Years 2005-2020)

Emissions (Tons / Year)



Criteria for Evaluation of Mitigation Measures

- **Safe**
- **Technologically Feasible**
- **Consistent w/ Legal Requirements (i.e. – FRA)**
- **Operationally Feasible**
- **Cost Effective**
- **Other Yard Specific Considerations**

What has UPRR Done to Reduce DPM Emissions from Our Operations

- **Continuing Research and Development**
 - Since 1989, UPRR has invested more than \$37M in locomotive research and development
 - Several ongoing initiatives will continue to keep both UPRR and rail at the forefront as the most environmentally friendly and efficient means of overland goods transportation

Result is the most comprehensive & aggressive program of identification, evaluation, development, aquisition, deployment, optimization, & utilization of new & evolving technologies of any RR in No America

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

