

Breakout Session #3

Powering New Freight Systems in NAFTA Trade Lanes



Agenda

- * Welcome – Ezra Finkin, Diesel Technology Forum
 - * The path to near zero emissions in diesel engines
- * **Don Stanton** – Cummins, Inc. Unique view of the future from one of North America’s leading engine manufacturer
- * **Martha Lenz** – Electro-Motive Diesel. A technology update from the leader in locomotive equipment
- * **Dr. Richard Stewart** – University of Wisconsin –Superior. Providing thoughts on natural gas as a transportation fuel.
- * Questions and Answers

About the Diesel Technology Forum

www.dieselforum.org

- *AGCO
- *BorgWarner
- *BOSCH
- *Caterpillar Inc.
- *Chrysler
- *CNH Industrial
- *Cummins Inc
- *Daimler
- *Delphi Automotive
- *Deere & Company
- *Ford Motor Company
- *General Motors
- *Honeywell
- *Isuzu Motors
- *Johnson Matthey

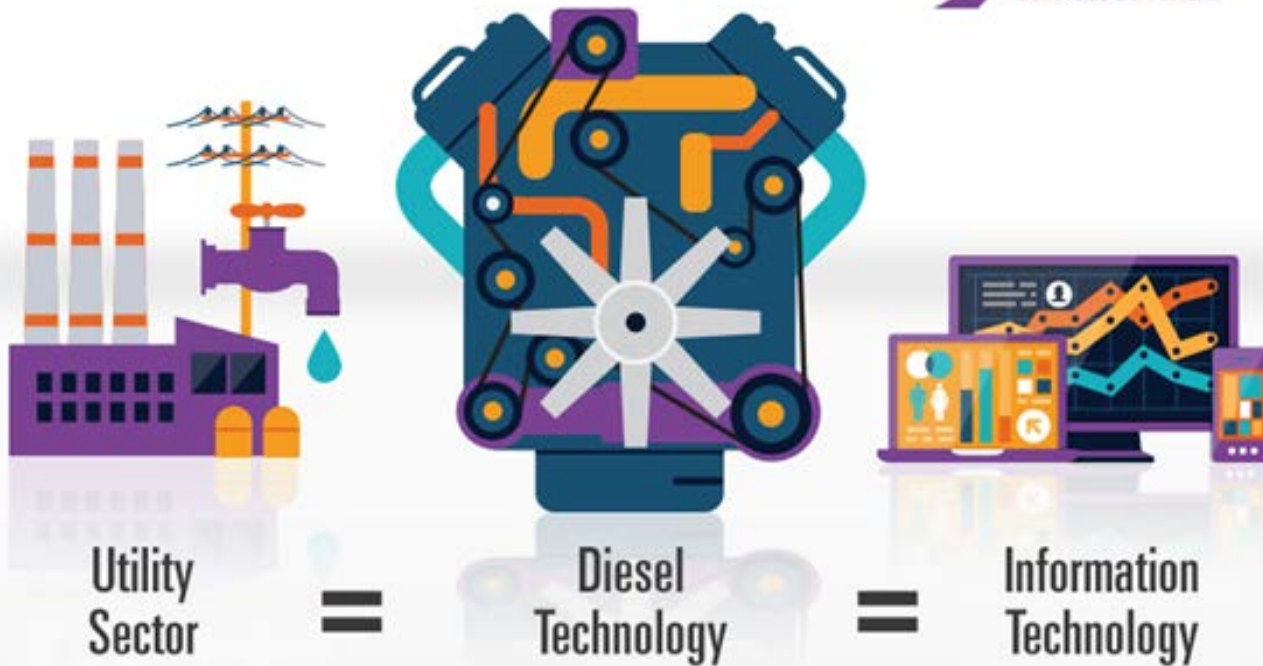
- *Mazda North American Operations
- *Navistar
- *Volvo Group
- *Volkswagen Group of America
- *Yanmar

Allied Members

- *Association of Diesel Specialists
- *National Biodiesel Board
- *Western States Petroleum Association

Diesel Powers the U.S. Economy

Diesel Technology generates **\$275 billion in economic activity per year** – about the same as the Utility and Information Technology Sectors.



Diesel Technology provides 1.25 million U.S. jobs

Over 90 percent of the heavy-duty truck fleet is manufactured in the U.S.

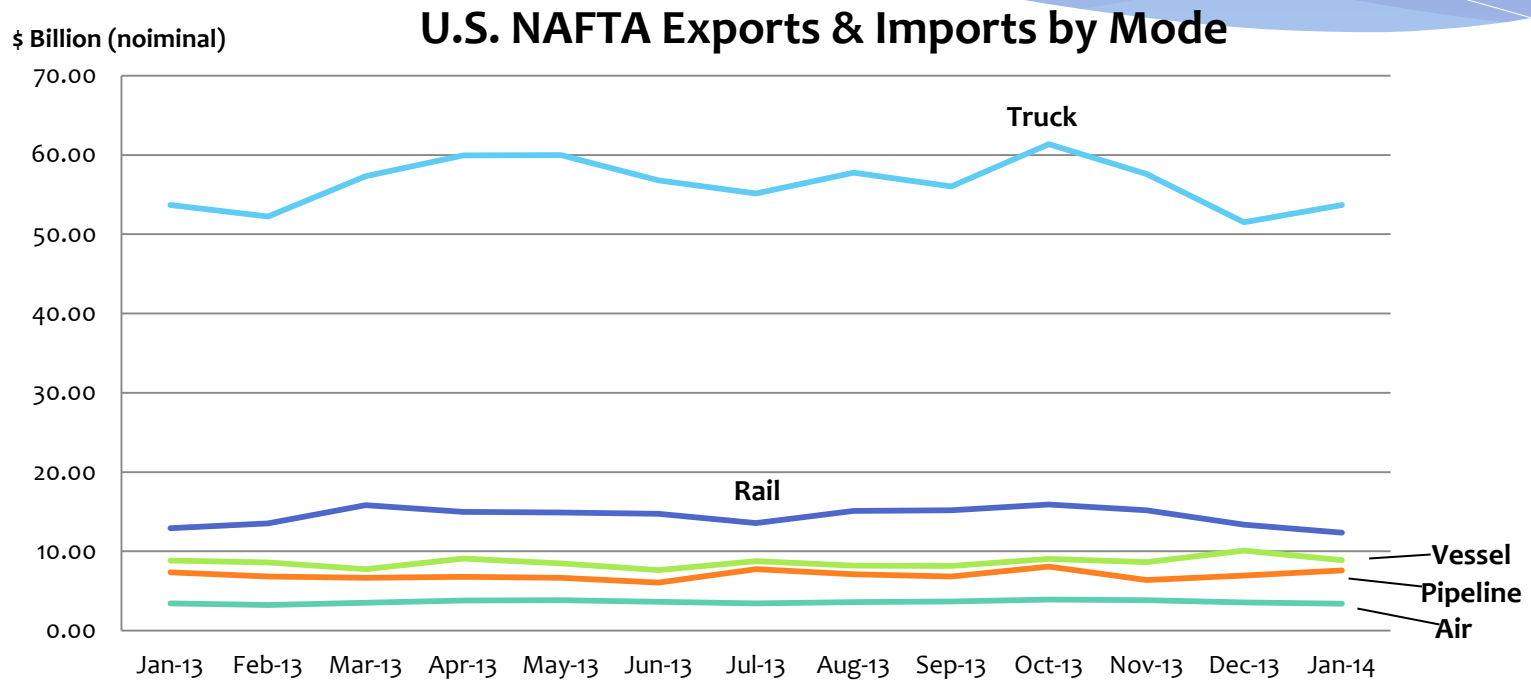
Diesel Technology is an Export Driver

- \$46.2 billion of diesel technology was exported, or 4.4% of total U.S. exports
- Export-to-value is 5 times higher than the national average
- ***One-in-four*** diesel engines manufactured in U.S. was destined for overseas markets

Leading Diesel Technology Exports (2009)

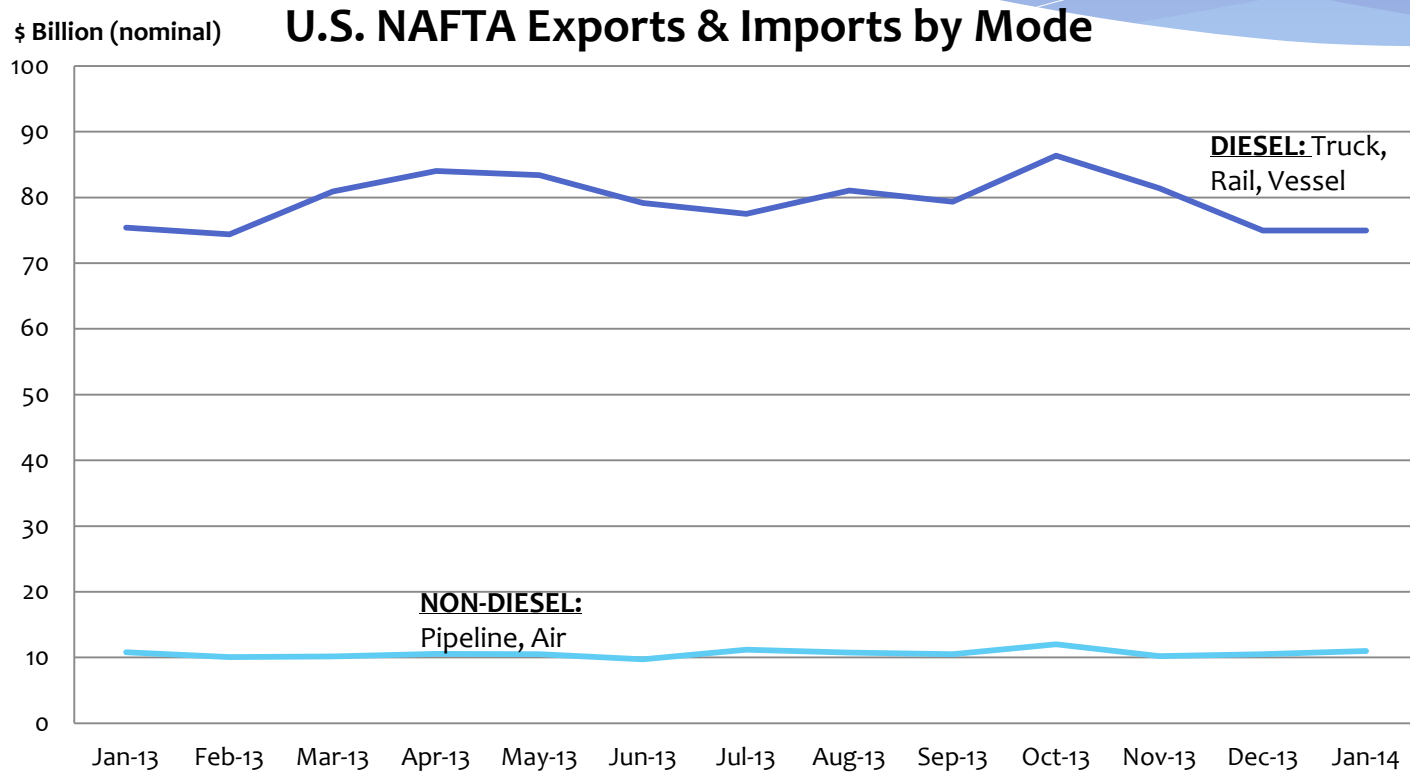
Refined Diesel Fuel:	\$9.5 billion
Diesel Trucks:	\$9.1 billion
Construction Equipment:	\$7.8 billion
Diesel Engines	\$6.9 billion

Why are we talking about Diesel and NAFTA?



SOURCE: North American TransBorder Freight Data; Bureau of Transportation Statistics

Put Another Way... NAFTA Runs on Diesel



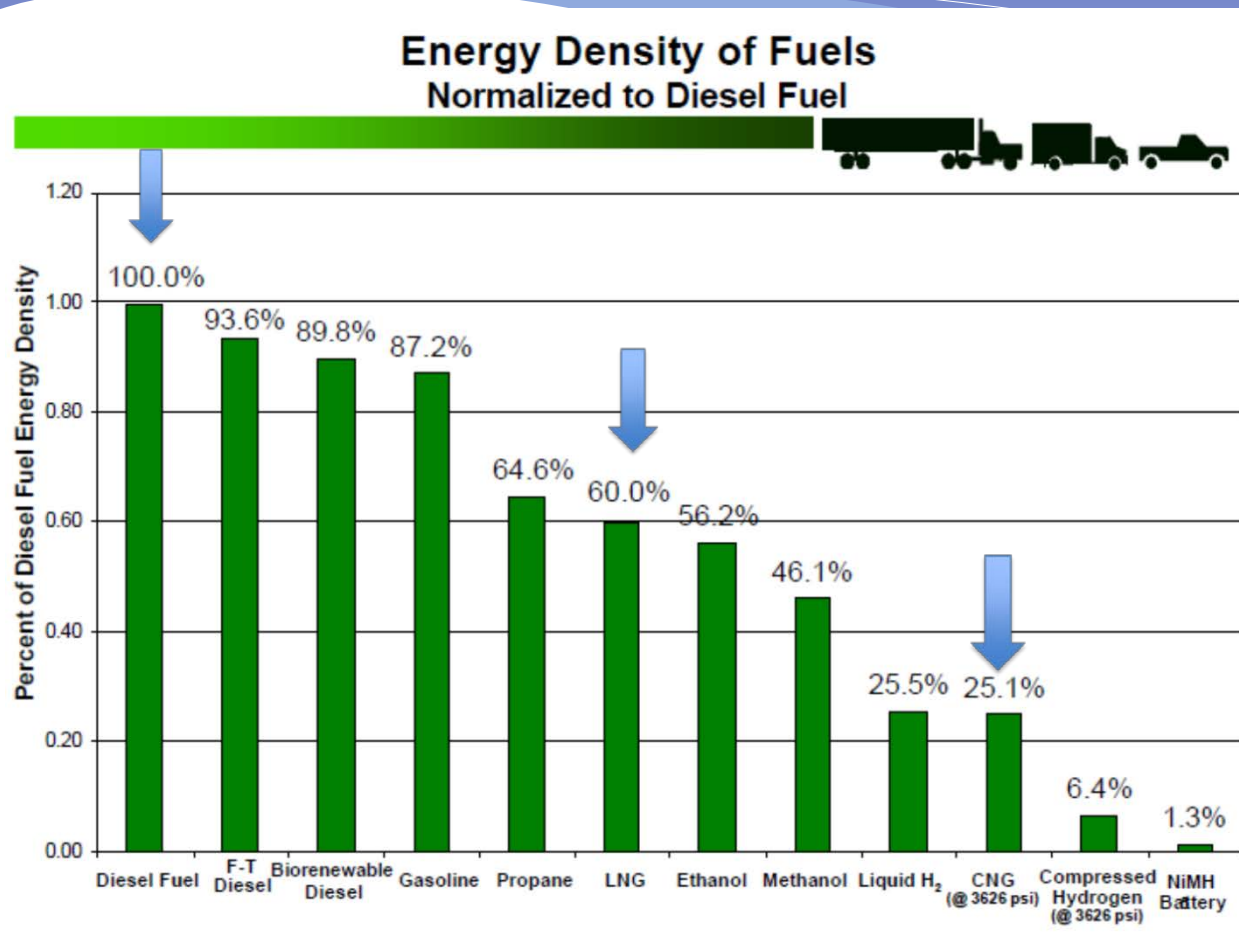
Diesel Powers....

98% of Trucks

Nearly All Freight Locomotives, Large Marine Vessels, and Great Lakes Freighters

SOURCE: North American TransBorder Freight Data; Bureau of Transportation Statistics

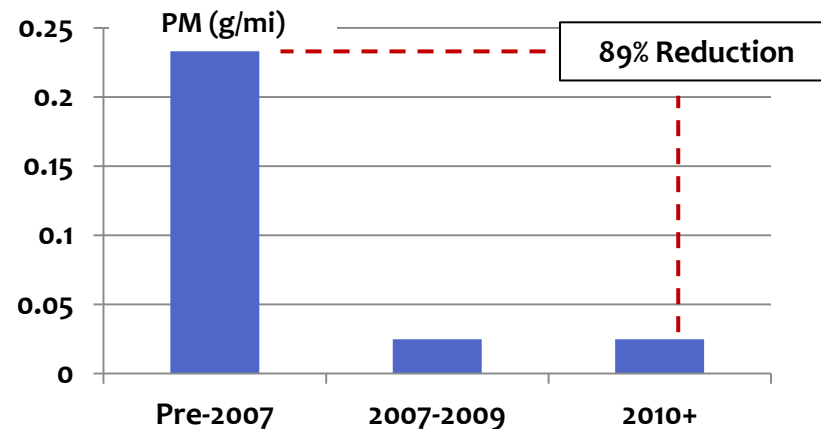
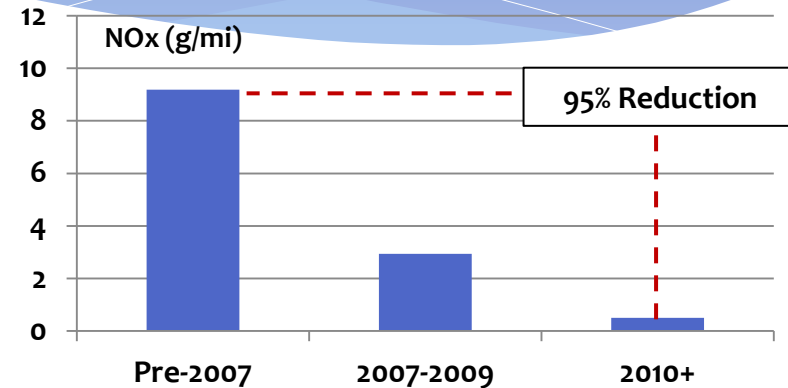
Diesel is the Standard Bearer in Freight Movement



**More Freight
Can be Moved
on a Gallon of
Diesel than
Any Other
Transportation
Fuel**

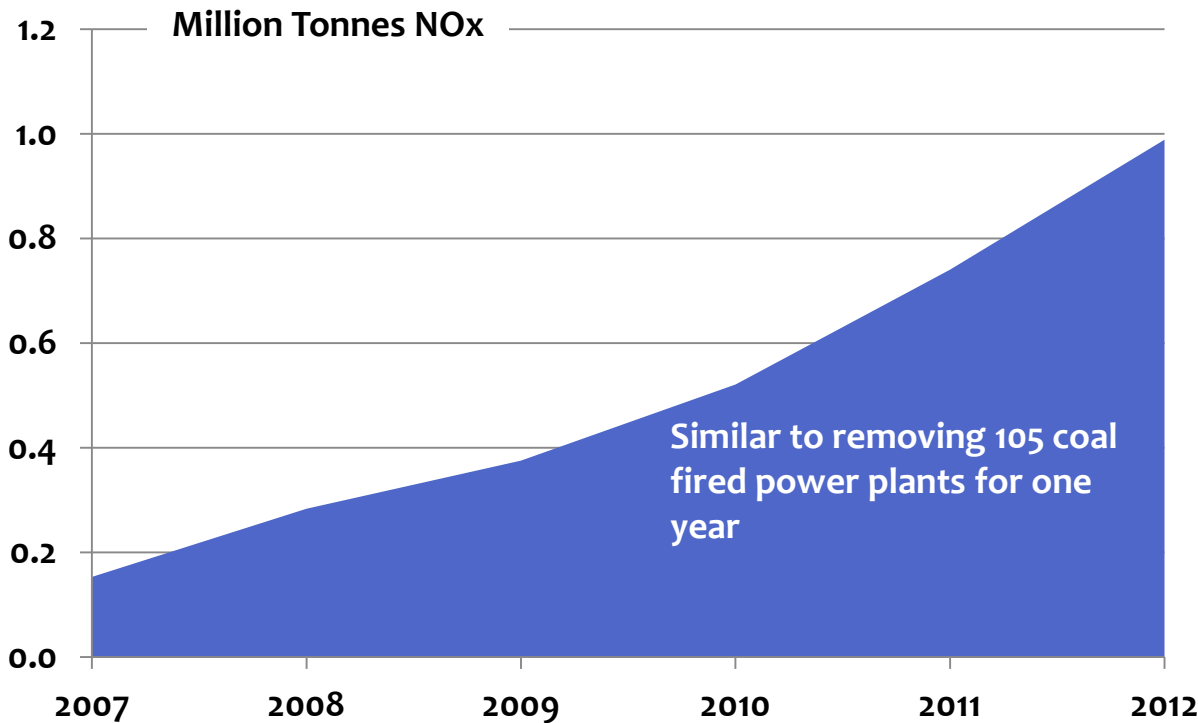
The Diesel Standard is Cleaner and More Efficient

Savings to the New Clean Diesel Buyer: <i>Class 8 Line Haul</i>	Per Year
Average vehicle miles traveled	125,000
Fuel savings - gallons	875
Fuel savings - bbl	21
Fuel cost savings @ \$4.00/gal	\$3,500
CO ₂ savings – metric tonnes	8.9
NO _x savings – metric tonnes	1.1
Particulate matter savings – kg	26



Clean Diesel Trucks on the Road Today: **33%**

Significant Benefits Accrue from Clean Diesel Trucks & Vehicles on the Road Today



Clean Diesel Trucks on the Road Today Save:

- 560 million gallons of fuel
- 13.3 million barrels of crude
- **5.7 million tonnes Co2**

New Locomotive Engines Improve Emissions Performance

Progress Towards Near Zero Emissions for New Locomotive Engines

