

Clean Diesel Powering the Future

*Remarks to the ICAMP
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*Ezra Finkin
Director of Policy*



Our Members are the Leaders in Clean Diesel Technology

AGCO

BP

BorgWarner

BOSCH

Caterpillar Inc.

Chrysler

Cummins Inc

Daimler

Delphi Diesel Systems

Deere & Company

Ford Motor Company

General Motors

Honeywell

Johnson Matthey

Mazda North American
Operations

Navistar

Terra Environmental

Volvo Group

Volkswagen of America

Yanmar

Allied Members

Association of Diesel
Specialists

National Biodiesel Board

Western States Petroleum
Association

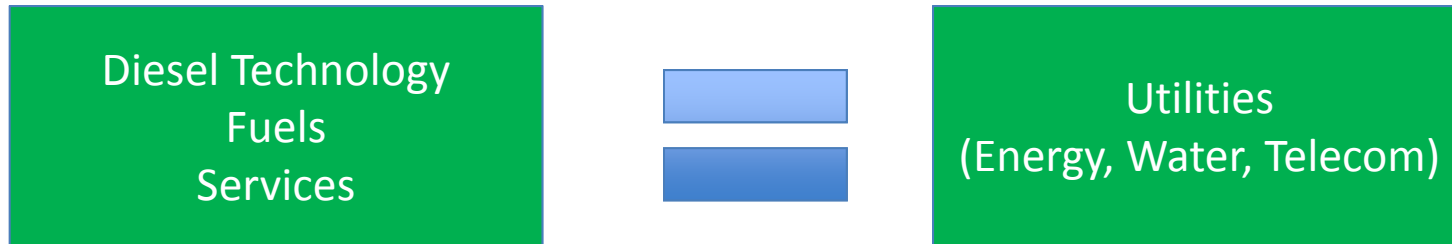


Overview

1. Role of diesel in the economy
2. The clean diesel system
3. Benefits of clean diesel technology
4. Policy framework supporting clean diesel system
5. Advocacy, outreach and public education supporting clean diesel: a parallel pathway



Economic Powerhouse: Diesel Power Facilitates Large Share Of U.S. GDP

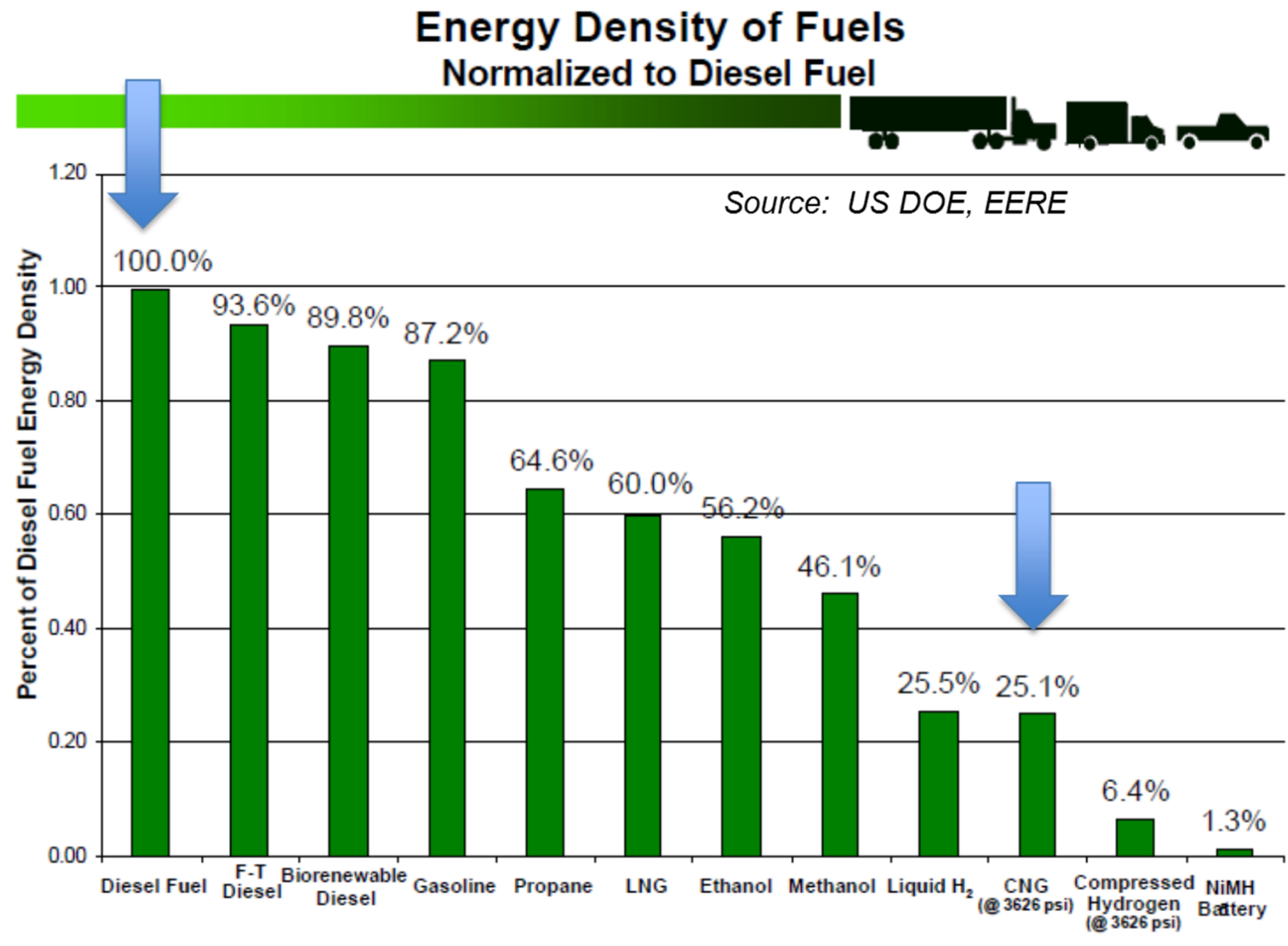


- *Diesel technology, fuels and services produced about the same economic output as all Utilities: 4.5% GDP*



- *The total of technology, fuels, services and diesel-reliant sectors is about the same as the Information Sector, about 4.5% of US GDP*

WHY DIESEL? ENERGY DENSITY STANDS OUT



What do leading energy authorities say?

Diesel to be # 1 Transport Fuel by 2020

- **ExxonMobil:** Diesel will surpass gasoline as the number one global transportation fuel by 2020.
- **The World Energy Outlook:** Diesel fuel will remain the dominant growth fuel between now and 2035.
- **The National Petroleum Council:** Diesel engines will remain the powertrain of choice for HD (heavy-duty) vehicles for decades to come because of their power and efficiency.
- **The California Energy Commission:** The decline in domestic and statewide gasoline consumption and the increase in diesel and aviation fuel demand may present challenges to some California refineries that would need to make investments to reconfigure their refineries.

THE CLEAN DIESEL SYSTEM

Advanced Engine Technology

*Advanced engine electronic combustion control ,
fuel injection systems, and turbochargers
optimize performance and low-emissions*

Clean Diesel System

Cleaner Diesel Fuels

*Ultra low Sulfur Diesel Fuel
produces lower emissions and
enable advanced emissions
treatment systems
(catalysts and filters)*

Emissions Treatment

*Particulate filters, oxidation
catalysts reduce emissions of
ozone-forming compounds
(NOx and VOCs),
trap and eliminate fine particles*





THE JOURNEY TO CLEAN DIESEL



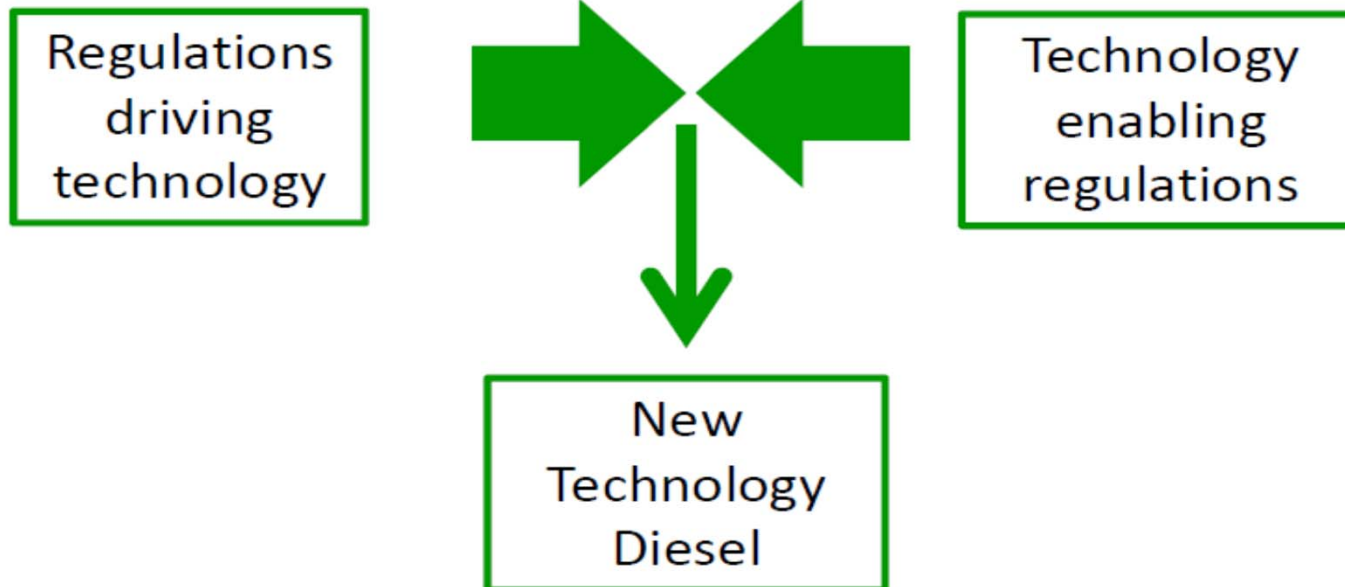
U.S. Regulatory Framework Supports Successful Adoption of Clean Diesel System

- Established aggressive standards for new technology well in advance (*pathway set in 2000; implementation began in 2007, ended 2010*);
- Respect Clean Air Act parameters:
 - adequate lead time (4 years)
 - regulatory stability (3 years) for engine manufacturers to R&D, develop and invest and recoup in new technologies
- Harmonization: USEPA and CARB heavy-duty
- Establish performance-based standards
- Technology and fuel neutral



U.S. Regulatory Framework Supports Successful Adoption of Clean Diesel System

Recognize the significant progress we have made together



Existing In-Use Population: Incentive Programs

- Incentive based
- Verified solutions
- Competitive grants
- Support in-use emissions testing:
 - Smoke opacity testing to identify those who tamper or fail to maintain equipment off the road



California's Policy Innovations

- CA uniquely has institutionalized the systematic modernizing of existing diesel engines: “Retrofit”
 - Established both incentives and regulatory deadlines to advance the adoption of cleaner technology
 - Diesel Risk Reduction Program
 - Carl Moyer Program – incentive funding
 - Transportation Bond Funding
- Port Emissions Reduction Strategies
 - Port of Long Beach & Port of Los Angeles: Clean Truck Program – technology & fuel neutral



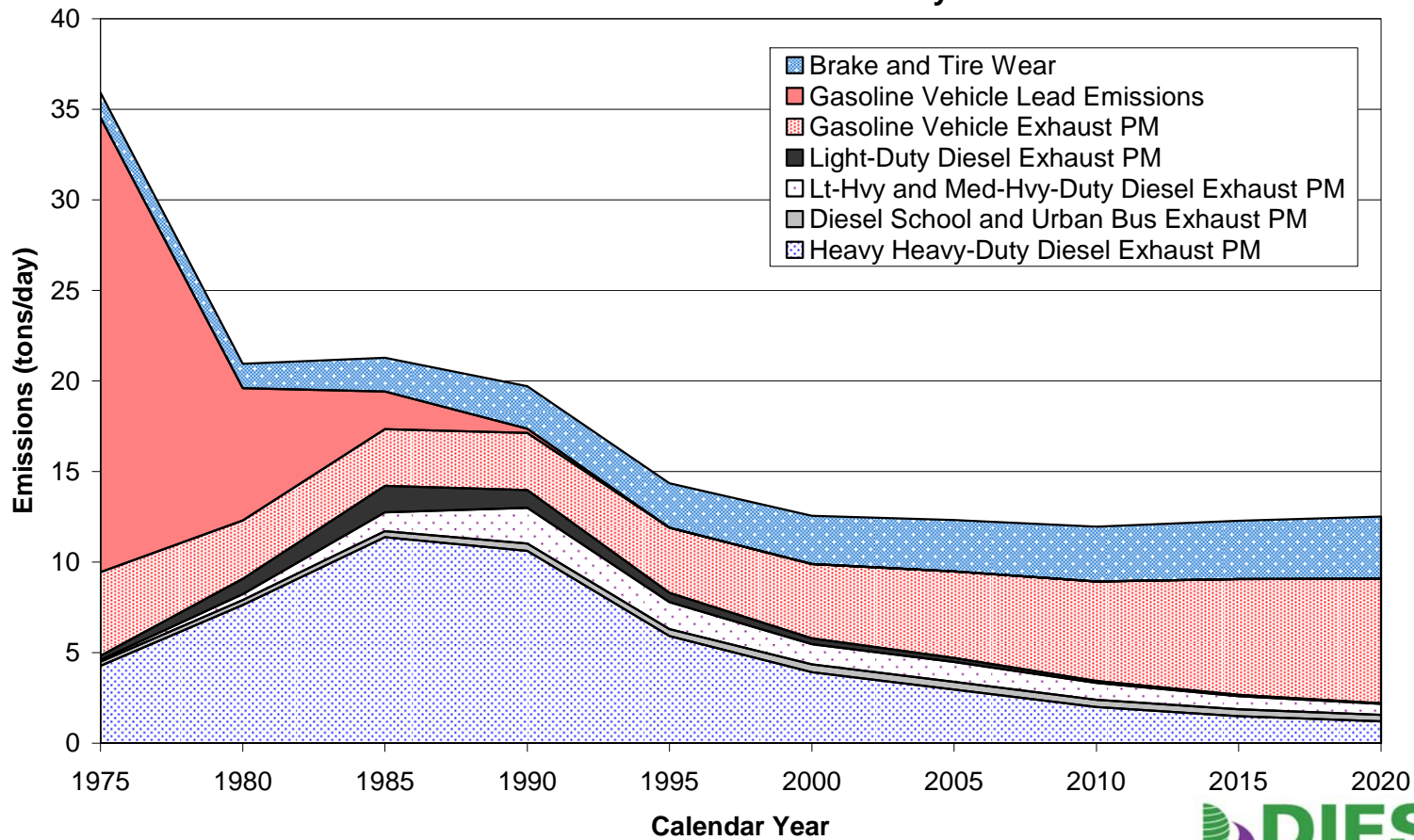
Out with the old, in with the new

- Economic conditions trump everything
 - Cost of owning and operating existing and new technologies, government regulation, uncertainty/risk of new technology (real or perceived),
 - Benefits of new technology and needs: business growth, confidence, access to credit, incentives.
 - Tales from the recession: Idled machines and equipment do not generate emissions
 - Highway trucks:
 - From 2005-2010 average age increased by 1.8 to 2.6 years
- Unintended consequences of regulations
 - Pre-buys for model year 2006(pre– 2007 emissions standards)



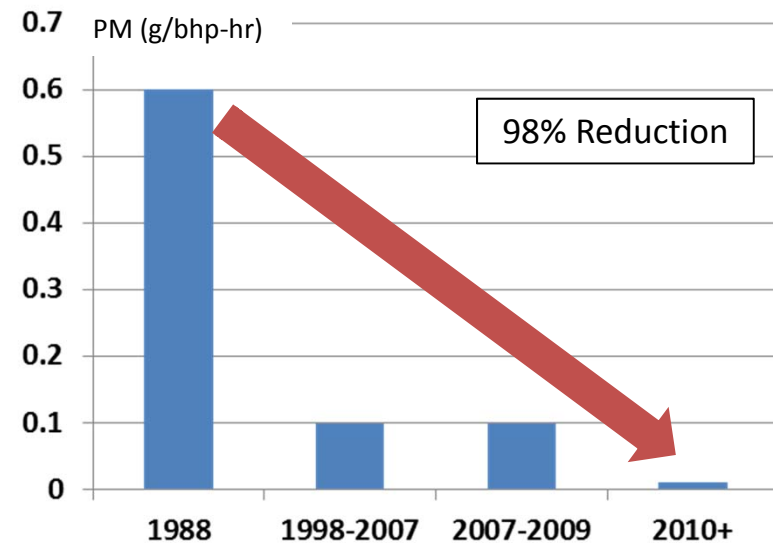
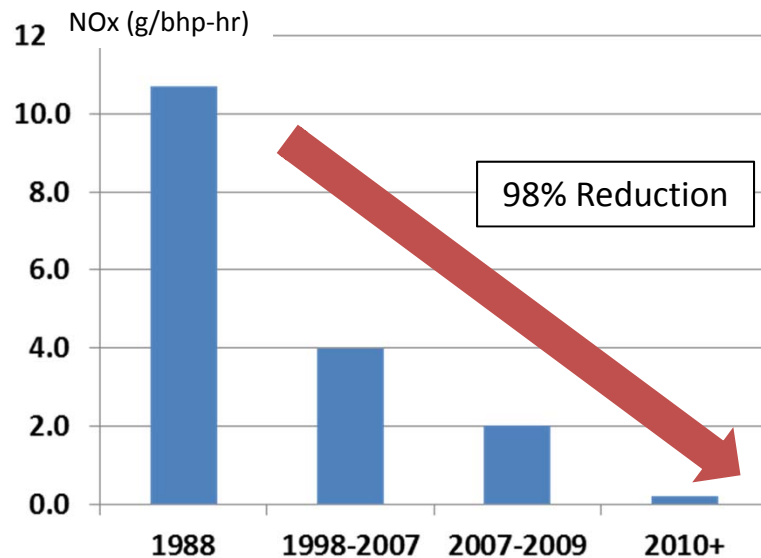
California Experience: Diesel a declining part the L.A. air emissions inventory

South Coast Air Basin
On-Road Motor Vehicle Exhaust PM_{2.5}, Brake/Tire Wear PM_{2.5},
and Lead Emissions Inventory



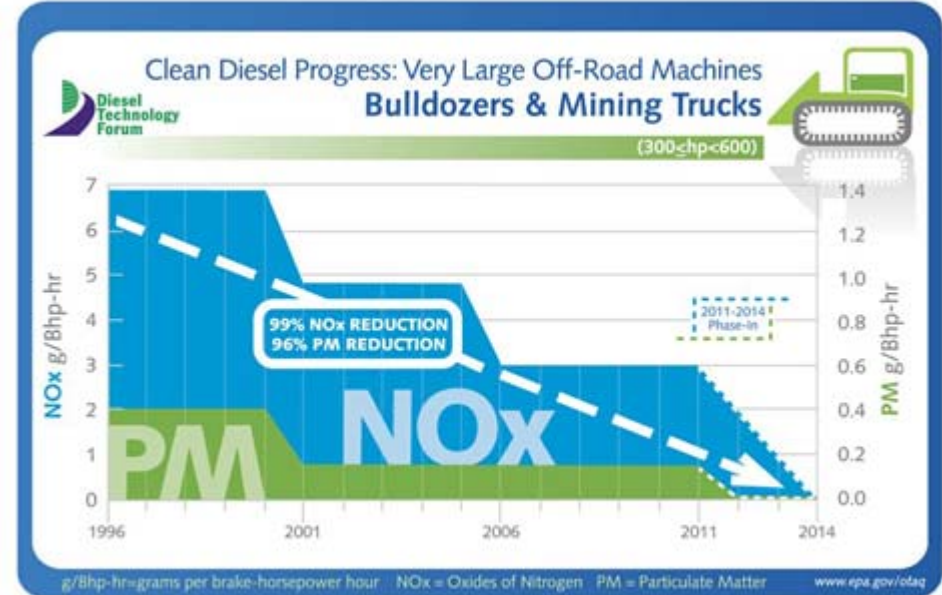
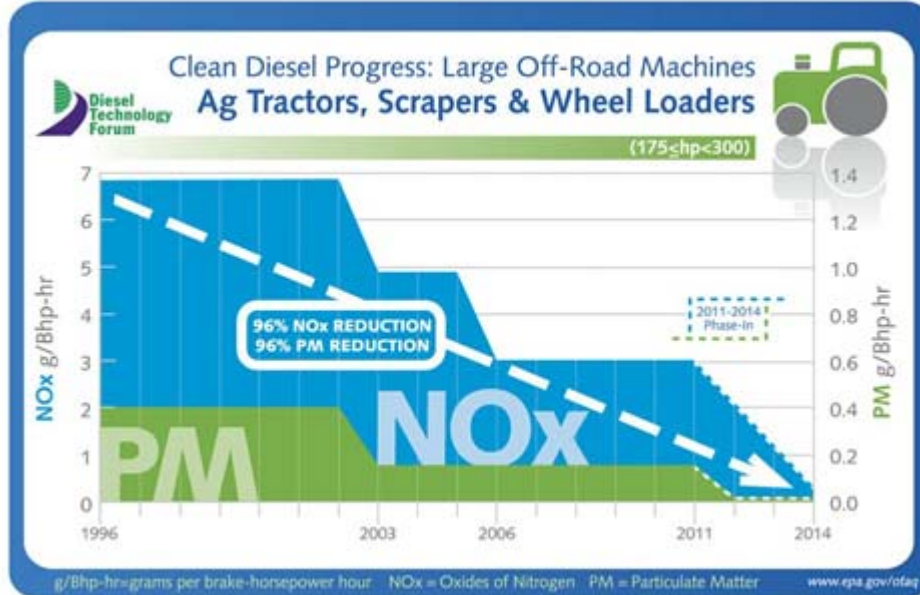
National Experience: Clean Diesel Trucks Support Emissions Reduction

New clean diesel engines have reduced NOx and PM emissions by more than 95% over the last 25 years.



Emissions Reduction for Off-Road Equipment

A similar regulatory approach applies to off-road equipment.



Beginning in 2011, engines must meet Tier 4 requirements according to a graduated implementation schedule based on horsepower rating



The Benefits of the new generation Clean Diesel Heavy Duty Trucks are ... striking

The 1.9M heavy-duty diesels introduced from 2007 through 2012 have saved the American consumer:

5.7M tonnes of CO ₂ of crude oil	1M tonnes of NOx	560M gallons of diesel	13.3M barrels
		27,000 tonnes of PM	

These reductions are equivalent to:

- **NOx emissions from 105 coal power plants**
- Removing the CO₂ emissions from 1.2M light-duty vehicles from the road for one year
- Removing NOx emissions from 87M and PM from 225M light-duty vehicles for one year
- Carbon sequestration from 4.6M acres of forests or a forest half the size of Maryland
- Removing the annual CO₂ of 24,000 railcars of coal stretching continuously from New York City to Washington, DC
- Roughly 5% of the Strategic Petroleum Reserve for sweet crude.



The Journey Continues . . .

Emissions

Safety
energy efficiency

More economical
than Gasoline

The fuel of work

Europeans
embrace diesel
cars to reduce CO₂



Meet Clean Diesel

Ultra low sulfur
diesel

Global demand for
diesel changes
economics

Resurgence in US
passenger cars



Energy Efficiency A key strategy for GHG/CO₂

Fuel Diversity
Biodiesel
& Renewable
Low-carbon fuels

Diesel #1 Global
Transport Fuel

Diesel cars 10 % all
vehicles

Hybridization

Enhancing Efficiency and Sustainability of Diesel Power: hybridization and fuel diversity



Parallel Pathway to Clean Diesel

Public education, advocacy and partnership drive change alongside regulatory approach



NATURAL RESOURCES DEFENSE COUNCIL
THE EARTH'S BEST DEFENSE

Clean Air Council



U.S. PIRG



COALITION FOR
CLEAN AIR



SUCCESS OF ADVOCACY AND OUTREACH

From this....



....to This



Thank you

Contact information

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Ezra Finkin

efinkin@dieselforum.org