Light Duty Diesels in North America
A Huge Opportunity

Dr. Gerhard Schmidt – Vice President Ford Research and Advanced Engineering
Why Diesels?

Big Diesels at Work

Queen Elizabeth 2

Super Heavy Duty Trucks

Train Locomotives

Class 8
Why Diesels?

Ford North American Diesel Trucks

- F 250/350 Series
- E series RV
- Commercial E-450
- F-550
Why Diesels?

Ford European Diesel Light Duty Vehicles

- Transit Connect
- Range Rover Sport
- Jaguar S-Type
- C-Max
- Fiesta
Diesel can offer a balance of performance feel and fuel economy unmatched by other powertrain options.
Can Light Duty Succeed in North America?

CD-Car Diesel HP Growth
(Share in Europe)

High Performance solutions have moved more applications to Diesel in Europe.
DOE has a Key Role

Courtesy of Sandia National Laboratories
Urea SCR/DPF System for a Tier 2 LDT
with Urea Co-Fueling

Primary Contractor
Ford
Research and Advanced Engineering

Subcontractors
ExxonMobil
Research and Engineering
FEV

Catalyst Suppliers
BASF
The Chemical Company
Johnson Matthey
umicore

Diagram:
- Exhaust Flow
- NOx sensor
- Urea
- DOC
- SCR
- CDPF
Urea Information and Supply
DOE is working with the Auto Alliance and EMA

Education
- DOE Clean Cities Web Site
- PBS spots on AutoWeek

Locating Urea
- Urea retail locator
- 1-800 location service

Stakeholder meetings

Clean Cities Now
Your news is now only a click away
Challenges

U.S. Car

PM Emissions (g/mile)

NOx Emissions (g/mile)

Bin 10

Bin 8

NOx Aftertreatment

Particulate Filter

Yesterday

Engine Improvements

Today

Tomorrow
Consequences of the Emissions Task

- Emissions
- Packaging
- Weight
- Cost

Performance
Fuel Economy
NVH
Innovation Overcomes Challenges

- Emissions
- Packaging
- Performance
- Fuel Economy
- NVH

Innovation
Innovation Overcomes Challenges

PZEV

ABS

Communications
Future for Diesel

Diesel Engine

Today

Customer Concerns

• Smoke
• Odor
• Noise
• Cold Start

Future

Surprise & Delight

• Fuel Economy
• Range
• Performance feel
• Refinement

• Fuel Economy
• Range
• Performance feel
• Refinement
Future for Diesel

Work

Commute

Fun
Modern diesels offer a 25-35% fuel economy benefit versus gasoline. Modern diesels offer a 20-25% CO2 benefit versus gasoline.
Diesel Fuel Also Demands Innovation

Fossil Fuel Pathways

Petroleum
- Ultra Low Sulfur Diesel

Synthesis
- Gas to Liquids

Tar Sands

Oil Shale

Coal Liquids
Diesel Fuel Also Demands Innovation

Biofuel Pathways

Bio Diesel

Bio Refinery

Biomass to Liquids
Resolution of emissions challenges need to be achieved:
- without radical cost.
- without sacrificing fuel economy advantage.
Realizing the Opportunities

Deliver Attributes           Customer Value           Customer Delight

Opportunities for Light Duty Diesel in North America