WELCOME TO

NEW INSIGHTS ON THE U.S. COMMERCIAL TRUCK FLEET
Allen Schaeffer
Executive Director, Diesel Technology Forum
Meet the Leaders

In Clean Diesel Technologies
1. Overview of diesel, commercial vehicles, new technology diesel engines
2. What is the penetration of new technology diesel engines in the U.S. trucking fleet?
3. A deeper dive into new technology diesel trucks on the road in the MARAMA Region
4. What are the benefits from the operation of these trucks?
5. Q&A
6. Summary
7. Resources Available
One Out of Every Two Economic Sectors Relies on Heavy-Duty Vehicles, Equipment or Engines to Get the Job Done
What is a new technology diesel truck?

2010 and later model year

- Incorporates the most advanced emissions control systems – Selective Catalytic Reduction (SCR) and particulate filters.
- Achieves near zero emissions.

Diesel Emissions Control System

Exhaust gases leave engine

Reduced volume of emissions leaves tailpipe, PM and NOx near zero levels.

Particulates (PM) trapped in diesel particulate filter

DEF injected into exhaust

NOx reduction in SCR Catalyst

What is a new technology diesel truck?

CLEAN DIESEL PROGRESS
Heavy-Duty On-Highway

PM (g/br-hr)

NOx (g/br-hr)

98% PM Reduction
98% NOx Reduction

Source: U.S. EPA Office of Transportation and Air Quality (OITA2)

DieselForum.org/SCR
Diesel is the Technology of Choice for America’s Trucks

75% of ALL commercial vehicles in the U.S. are diesel-powered.

43% powered by newest generation of advanced diesel technology.

6.8% increase since last year.

Source – July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit.
Growth of New Technology Diesel Trucks on the Road Class 8, classes 3-8

97% of Class 8 big rig trucks are diesel-powered

44% powered by newest generation of advanced diesel technology

7.3% increase since last year

Source: July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit
Expanding Investments in New Technology
Diesel in School, Transit Buses

94% of school buses in the U.S. are diesel-powered

46% powered by newest generation of advanced diesel technology

6.5% increase since last year

Source - July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit

84% of transit buses in the U.S. are diesel-powered

40% powered by newest generation of advanced diesel technology

6.9% increase since last year

Source - July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit
Midwest Leads in Adoption of New Technology Diesel Trucks

Percentage of Newest Generation Heavy-Duty Trucks

<table>
<thead>
<tr>
<th>Ranking</th>
<th>State</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indiana</td>
<td>65%</td>
</tr>
<tr>
<td>2</td>
<td>Oklahoma</td>
<td>56%</td>
</tr>
<tr>
<td>3</td>
<td>Utah</td>
<td>55%</td>
</tr>
<tr>
<td>4</td>
<td>Texas</td>
<td>50%</td>
</tr>
<tr>
<td>5</td>
<td>Pennsylvania</td>
<td>48%</td>
</tr>
<tr>
<td>6</td>
<td>Tennessee</td>
<td>47%</td>
</tr>
<tr>
<td>7</td>
<td>Maryland</td>
<td>47%</td>
</tr>
<tr>
<td>8</td>
<td>Illinois</td>
<td>46%</td>
</tr>
<tr>
<td>9</td>
<td>D.C.</td>
<td>46%</td>
</tr>
<tr>
<td>10</td>
<td>Wyoming</td>
<td>45%</td>
</tr>
</tbody>
</table>

Indiana is #1 for 7 years in a row at 65% for MY 2010+ heavy-duty trucks

Source – July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit
## Share New Tech Diesel Trucks in MARAMA

### MARAMA Region

<table>
<thead>
<tr>
<th>Share of New Tech Diesel Trucks</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.2%</td>
<td>New Jersey</td>
</tr>
<tr>
<td>45.5%</td>
<td>D.C.</td>
</tr>
<tr>
<td>39.4%</td>
<td>Delaware</td>
</tr>
<tr>
<td>35.1%</td>
<td>West Virginia</td>
</tr>
<tr>
<td>46.6%</td>
<td>Maryland</td>
</tr>
<tr>
<td>34.3%</td>
<td>Virginia</td>
</tr>
<tr>
<td>47.6%</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>38.6%</td>
<td>North Carolina</td>
</tr>
<tr>
<td>41.9%</td>
<td>MARAMA Region</td>
</tr>
</tbody>
</table>

### Bottom States for Adoption of New Diesel Trucks

<table>
<thead>
<tr>
<th>State Ranking</th>
<th>Share of New Tech Diesel Trucks</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>#40</td>
<td>36.3%</td>
<td>CALIFORNIA</td>
</tr>
<tr>
<td>#47</td>
<td>32.3%</td>
<td>SOUTH DAKOTA</td>
</tr>
<tr>
<td>#48</td>
<td>32.0%</td>
<td>HAWAII</td>
</tr>
<tr>
<td>#49</td>
<td>31.8%</td>
<td>ARIZONA</td>
</tr>
<tr>
<td>#50</td>
<td>31.0%</td>
<td>ALASKA</td>
</tr>
<tr>
<td>#51</td>
<td>30.6%</td>
<td>KENTUCKY</td>
</tr>
</tbody>
</table>

National Average = 43%
These new generation diesels are delivering significant clean air, and GHG benefits to society and fuel savings to truckers -- **TODAY.**

**New Technology Diesel Trucks Deliver Big Benefits for Climate and Clean Air**

- **Fewer Emissions**
  - 126M Tonnes of CO₂
  - 18M Tonnes of NOx

- **Saved Fuel**
  - 12.4B Gallons of Diesel Fuel
  - 296M Barrels of Crude Oil

*Source – July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit*
DIESEL’S ROADMAP TO THE FUTURE

- Hybridization Where it Makes Sense
- Expanded Use of Renewable Fuels
- Increasing Energy Efficiency
- Emissions Closer to Zero

(NOx, PM, CO₂)
Nationwide Benefits

Phase 1&2 Rules will be Implemented....and Diesel Will Continue to Deliver Significant Benefits.

Between 2011 and 2030, Diesel Class 3-8 Trucks Will Have Saved....

130 billion gallons of fuel
1.3B tonnes CO2 = Emissions from the electricity used in 227M homes for 1 year
73 Million tonnes of NOx = Emissions from all light-duty vehicles for 26 years
4 Million tonnes of PM = Emissions from all light-duty vehicles for 130 years
Anticipated Benefits to the Northeast

What are the benefits that more efficient commercial vehicles will bring to the region between 2010 and 2030?

- 12.9 billion gallons of fuel saved
- 307 million barrels of crude oil
- 131 million tonnes CO₂

Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont
Resources for You

Find all this and more at https://www.dieselforum.org/news-and-resources/

Percentage of Newest Generation Heavy-Duty Trucks by U.S. EPA Region

New Technology Diesel Trucks Deliver Big Benefits for Climate and Clean Air

- Fewer Emissions: 126 M Tons of CO₂
- Saved Fuel: 12.4 B Gallons of Diesel fuel
- Saved Oil: 296 M Barrels of Crude Oil

Source – July 2019 U.S. Vehicles in Operation Data (Class 3-8 vehicles, Model Year 2010 and newer) provided by IHS Markit
Thank You

More information may be found at https://www.dieselforum.org

Contact Us: dtf@dieselforum.org
Twitter: #cleandiesel
Facebook: https://www.facebook.com/dieseltechforum/