Agenda Topics

• Background
• CARB Advanced Clean Trucks rule
• CARB Low NOx Omnibus rule
• Next steps
Diesel Background – Impacts

- Diesel PM causes cancer and other health effects
- Diesel trucks are a major contributor to smog-forming pollution
- Diesel engine exhaust disproportionately impacts communities of color
- Transportation, including freight, is the largest source of GHG emissions in Oregon
Diesel Background – Strategy

- Replace and retire the oldest diesel engines
- Adopt new and cleaner technologies
- Support owners and operators transition their fleets
Oregon’s Strategy to Address GHG Emissions from Transportation

Governor’s Executive Order 20-04

Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Reduction

Multi-Agency Implementation Work Plan
June 2020 - June 2022

Oregon Department of Transportation, Oregon Department of Land Conservation and Development, Oregon Department of Energy, Oregon Department of Environmental Quality

Every Mile Counts
Adopt by reference – California’s Advanced Clean Trucks Rule

<table>
<thead>
<tr>
<th>Class 2b-3</th>
<th>Class 4-8</th>
<th>Class 7-8 Tractors</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Class 2b-3 Image]</td>
<td>![Class 4-8 Image]</td>
<td>![Class 7-8 Tractors Image]</td>
</tr>
</tbody>
</table>

**Class 2b-3**
- ![Class 2b-3 Image 1]
- ![Class 2b-3 Image 2]
- ![Class 2b-3 Image 3]
- ![Class 2b-3 Image 4]
- ![Class 2b-3 Image 5]

**Class 4-8**
- ![Class 4-8 Image 1]
- ![Class 4-8 Image 2]
- ![Class 4-8 Image 3]
- ![Class 4-8 Image 4]
- ![Class 4-8 Image 5]

**Class 7-8 Tractors**
- ![Class 7-8 Tractors Image 1]
- ![Class 7-8 Tractors Image 2]
- ![Class 7-8 Tractors Image 3]
- ![Class 7-8 Tractors Image 4]
- ![Class 7-8 Tractors Image 5]
Electric trucking commitments

Kenworth produces up to 100 Class 6 MD electric trucks
IKEA – 100% ZEV for delivers and through suppliers
Unilever – 100% Fleet electrification
Amazon – 100,000 electric delivery vans
FedEx – parcel pick-up/delivery 100% ZEV
Daimler, Ford Volvo to phase out diesel trucks sale in EU
Walmart – ZEV fleet including long haul; 6,000 trucks

2020
2025
2030
2040

Corporate Fleets
Manufacturers

Adopt by reference – California’s Advanced Clean Trucks Rule

Figure 1: Zero-emission sales percentage schedule by vehicle group and model year.

Fleet Reporting Requirement

• One-time reporting requirement on existing fleet operations. Affects:
  – Fleet owners, with 50 or more trucks with a facility in Oregon
  – Large employers (gross annual revenue above $50M)
  – State, local and federal government agencies
  – Brokers that dispatch 50 or more vehicles that operate in Oregon

• Collect vehicle usage information to:
  – Support future ZEV fleet rules
  – Better assess infrastructure needs
Adopt by reference – CARB’s Heavy-Duty Low NOx Omnibus Rule

• Heavy-Duty Low NOx Program Elements
  – Lower NOx and PM$_{2.5}$ standards for new truck engines
  – Useful Life and Warranty Periods
  – Testing
  – Other Elements
Adopt by reference – Low NOx Rule Oxides of Nitrogen Standards

<table>
<thead>
<tr>
<th>Model Years</th>
<th>MDDE/LHDD/MHDD/HHDD&lt;sup&gt;a&lt;/sup&gt;</th>
<th>MDOE/HDO&lt;sup&gt;a&lt;/sup&gt;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>FTP&lt;sup&gt;b&lt;/sup&gt;</td>
<td>RMC-SET&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Current</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>2024 - 2026</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>2027 and later&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.02</td>
<td>0.02</td>
</tr>
</tbody>
</table>

<sup>a</sup> MDDE: Medium-duty diesel engines 10,001-14,000 lbs. GVWR,
LHDD: Light-heavy duty diesel engines 14,001-19,500 lbs. GVWR,
MHDD: Medium-heavy duty diesel engines 19,501-33,000 lbs. GVWR,
HHDD: Heavy-heavy duty diesel engines >33,000 lbs. GVWR,
MDOE: Medium-duty Otto-cycle engines 10,001-14,000 lbs. GVWR, and
HDO: Heavy-duty Otto-cycle engines >10,000 lbs. GVWR.

<sup>b</sup> Units are in g/bhp-hr

<sup>c</sup> For HHDD standards beyond 2027 are higher at full useful life to allow for deterioration.
## Table 4. Current and Proposed Warranty Periods

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Warranty (miles)</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>LHDD</td>
<td>MHDD</td>
<td>HHDD</td>
<td>HDO</td>
</tr>
<tr>
<td>June 2018 Step 1 Warranty 2022-2026</td>
<td>110,000, 5 years</td>
<td>150,000, 5 years</td>
<td>350,000, 5 years</td>
<td>50,000*, 5 years</td>
</tr>
<tr>
<td>2027-2030</td>
<td>150,000, 7 years/7,000 hours</td>
<td>220,000, 7 years/11,000 hours</td>
<td>450,000, 7 years/22,000 hours</td>
<td>110,000, 7 years/6,000 hours</td>
</tr>
<tr>
<td>2031 and Subsequent</td>
<td>210,000, 10 years/10,000 hours</td>
<td>280,000, 10 years/14,000 hours</td>
<td>600,000, 10 years/30,000 hours</td>
<td>160,000, 10 years/8,000 hours</td>
</tr>
</tbody>
</table>

*Not included under Step 1 Warranty, but current periods are shown here for completeness.*
Estimated Pollutant Reductions

M/HD Diesel Truck Emissions - Low NOx Rule

-14%

M/HD Diesel Truck Emissions - ACT Rule

-16%

-14%
Actions and next steps

- **Stakeholder meetings**
  - *December 2020 - June 2021*

- **Public comment**
  - *August/September 2021*

- **July 2020**
  - Oregon signs multi-state Medium and Heavy-Duty ZEV MOU

- **July/August 2021**
  - Rule Advisory Committee meetings

- **November 2021**
  - EQC consideration
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