

Medium and Heavy Duty Zero Emission Vehicle Incentives Report



January 25, 2023



Report Overview



2021 Legislature (HB5202)

- Requested study of existing incentives in OR and other states, and recommendations to support businesses in transition to MHD ZEV
- Joint effort by DEQ/ODOT
 - DEQ led, ODOT support
 - Industry and stakeholder engagement
- Report includes:
 - Background
 - Primer on MHD vehicles and refueling
 - Existing conditions in Oregon
 - National models/best practices
 - Stakeholder feedback
 - Recommendations



Findings



Agencies encourage incentive programs that:

- Can be established **quickly** and are **flexible** to reflect the changing ZEV ecosystem now and in the future
- Include **dedicated funding** to support short- and long-term fleet and charging conversion
- Can be **stacked** with other incentives as funding levels change over time
- Emphasize outreach to **all of Oregon's fleets** in ways that are accessible to them
- Promote opportunities that are **equitable** to all parts of the state and fleet owners



Greenhouse Gas Impacts



MHD vehicles in Oregon

- Represent small proportion of vehicles on road
- Account for 64% PM and 70% NOx of on-road emissions
- Contribute 25% of on-road GHG emissions



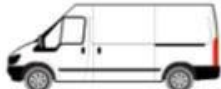





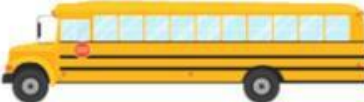



(US EPA; MJ Bradley, 2021)





Medium and Heavy Duty Vehicle Classifications



| Weight Class | Class 2b | Class 3 | Class 4 | Class 5 | Class 6 | Class 7 | Class 8 |
|------------------|---|---|---|---|---|--|----------------------------|
| Example Vehicles |    |    |    |    | | | |
| GVWR | 8,500 – 10,000 lb 3,856 – 4,536 kg | 10,001 – 14,000 lb 4,536 – 6,350 kg | 14,001 – 16,000 lb 6,351 – 7,257 kg | 16,001 – 19,500 lb 7,258 – 8,845 kg | 19,501 – 26,000 lb 8,846 – 11,793 kg | 26,001 – 33,000 lb 11,794 – 14,969 kg | > 33,000 lb > 14,969 kg |



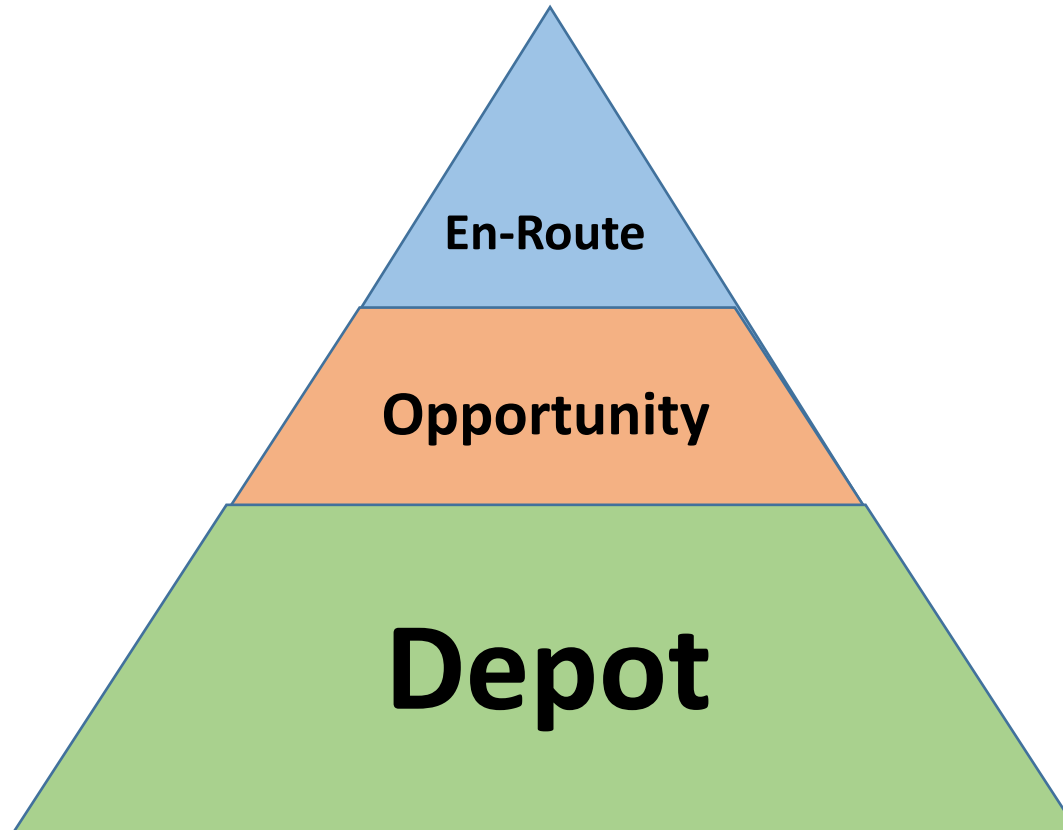
Truck initial Purchase Price Assumptions in 2019 \$



| | Diesel | Electric | Natural Gas ⁶ | Hydrogen |
|----------------------|-----------|---------------------|--------------------------|-----------|
| Class 2b | \$27,500 | \$75,000 (75 kWh) | \$37,500 | N/A |
| Class 3 | \$39,000 | \$100,000 (100kWh) | \$54,000 | N/A |
| Class 4/5 Short-Haul | \$48,000 | \$100,000 (100kWh) | \$68,000 | N/A |
| Class 4/5 Long-Haul | \$48,000 | \$150,000 (150 kWh) | \$68,000 | N/A |
| Class 6/7 Short-Haul | \$63,000 | \$167,000 (150 kWh) | \$95,000 | N/A |
| Class 6/7 Long-Haul | \$63,000 | \$250,000 (250 kWh) | \$95,000 | N/A |
| Class 8 Short-Haul | \$110,000 | \$250,000 (250 kWh) | \$140,000 | \$400,000 |
| Class 8 Long-Haul | \$160,000 | \$375,000 (500 kWh) | \$190,000 | \$480,000 |
| Refuse ⁷ | \$150,000 | \$352,500 | \$180,000 | N/A |

https://caletc.com/assets/files/ICF-Truck-Report_Final_December-2019.pdf

MHD ZEV Charging Infrastructure



Existing Conditions in Oregon



- Some funding for zero emission vehicles and infrastructure, with vast majority on light-duty
- Existing MHD Programs include:
 - ODEQ MHD Charging Pilot
 - ODEQ Clean Fuels Program
 - Investor Owned Utility Fleet Programs
 - ODOT NEVI & charging site opportunities
 - Competitive federal opportunities: e.g. Diesel Emissions Reduction Act (DERA), Low/No Transit Bus, IIJA Sect. 11401
- Available Oregon MHD incentives limited

Partner listening sessions: What we heard



Incentives needed to support transition



Support infrastructure, with and without vehicle purchase



Design should incorporate learnings from other states

Recommendations



DEQ and ODOT recommend any new incentive programs should be:



Adaptable – respond to changing market and regulatory conditions

Sustainable – provide dedicated revenue and support short and long timeframes

Stackable – leverage federal and other funding opportunities

Flexible – allow incentive options: vehicle and infrastructure together, vehicle only, infrastructure only, and funding for public infrastructure

Accessible – support diverse fleet owners with outreach and assistance

Equitable – dedicate funding to BIPOC fleets and EJ communities

Next Steps



- Recommends MHD vehicle and infrastructure incentive programs, including suggestions on program design
- DEQ and ODOT working with partner agencies, industry and local governments to support ZEV adoption



Daimler & PGE's Electric Island in Portland, OR



Questions?