

Clean Trucks Rule 2021

Advisory Committee Meeting #1 July 12, 2021

Facilitator:

Karen Williams
Air Quality Planner

DEQ Staff Leads:

Rachel Sakata, Air Quality Planner
Eric Feeley, Air Quality Planner

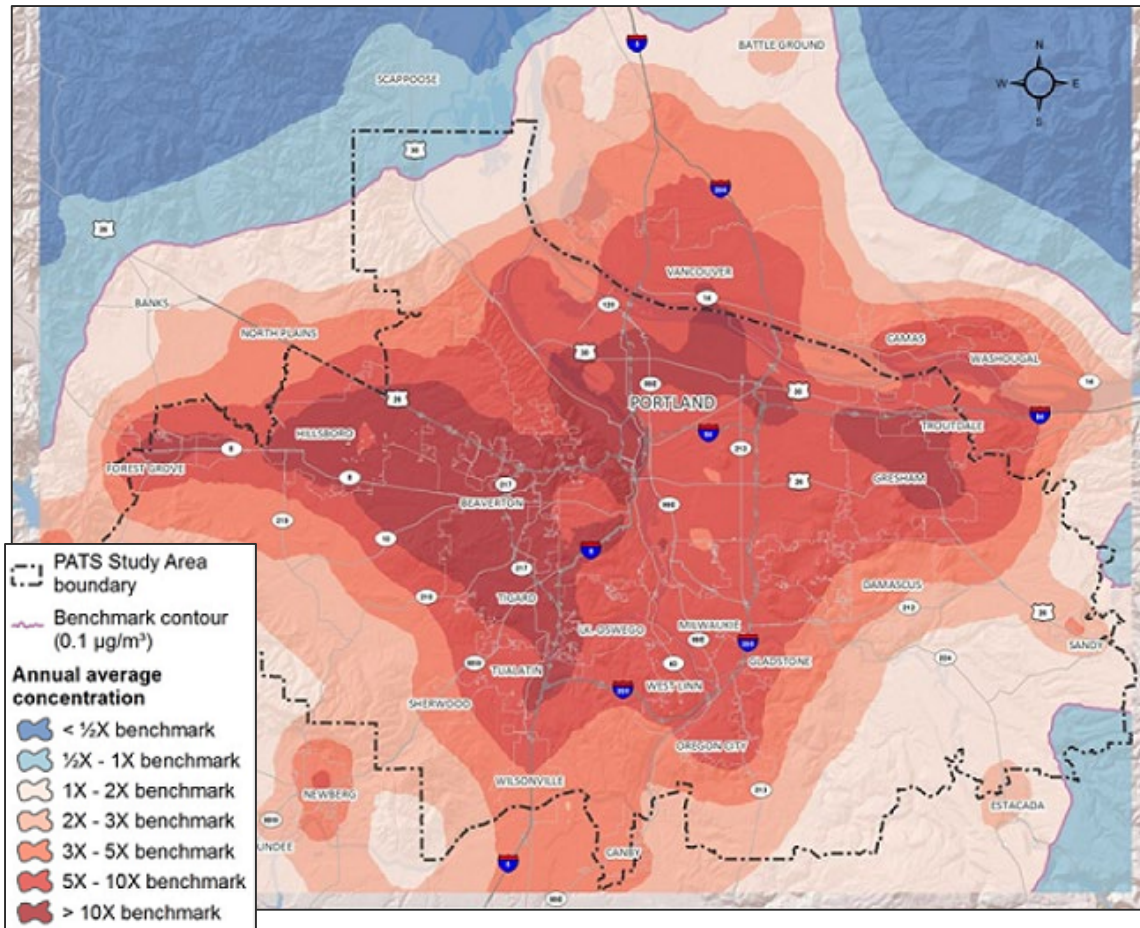
Clean Trucks Rule Advisory Committee Charter

- Committee Objectives
 - Provide input on DEQ's rule development of the Advanced Clean Trucks Rule and Heavy-duty Low NOx Omnibus rules
- Roles
 - Committee members:
 - Attendance at all meetings; if cannot attend appoint an alternate
 - Facilitator:
 - Encourages open, candid and robust dialogue
 - DEQ:
 - Provide materials in advance of the meetings
- Decision making
 - Looking for input - not seeking consensus or vote casting

Clean Trucks Rule – Background

Why are we here?

Clean Trucks Rule – Background



- 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

GHG Emissions from Transportation - Strategy



MULTI-STATE MEDIUM- AND HEAVY-DUTY ZERO EMISSION VEHICLE

MEMORANDUM OF UNDERSTANDING

WHEREAS, the Signatory States and the District of Columbia¹ recognize the importance of state leadership and coordinated state action to ensure national progress in the effort to reduce greenhouse gas (GHG) emissions and stabilize global warming;

WHEREAS, the Signatory States have statutory obligations or otherwise seek to significantly reduce statewide GHG emissions by 2050, consistent with science-based targets;

WHEREAS, transportation is now the nation's largest source of GHG emissions, and, after light-duty vehicles, medium- and heavy-duty trucks are the next largest source of transportation sector GHG emissions;

WHEREAS, the Signatory States have a statutory obligation to provide their citizens with air quality that complies with national health-based air quality standards, which are required to be protective of health and the environment with an adequate margin of safety;

WHEREAS, fossil fuel related emissions from medium- and heavy-duty vehicles (MHDVs) are a major source of nitrogen oxides (NOx), particulate matter, and toxic air emissions, which are preventing many densely populated areas from achieving compliance with federal ambient air quality standards;

WHEREAS, emissions from MHDVs are a widely acknowledged, but unaddressed, environmental justice problem that directly and disproportionately impacts disadvantaged communities located near freight corridors, ports and distribution centers;



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

Governor's Executive Order 20-04

Legal authorities – Section 177 state

- Clean Air Act allows California to set separate motor vehicle emission standards
- If states opt-in to California standards, must adopt them identically
- Oregon has been a Section 177 state since 2005, when it opted-in to the light-duty vehicle Low Emission Vehicle rules



Advanced Clean Trucks (ACT) Rule




- Background
- Specific rules, applicability and ZEV sales requirements
- Compliance
 - Credit program
- Questions for RAC
 - Early credits
 - Fleet reporting

Rules to adopt by reference

- 13 CCR 1963 – ACT purpose, applicability, definitions, general requirements
- 13 CCR 1963.1 - Deficits
- 13 CCR 1963.2 – Credit Generation, Banking, Trading
- 13 CCR 1963.3 – Compliance determination
- 13 CCR 1963.4 – Reporting and Recordkeeping
- 13 CCR 1963.5 - Enforcement

Applicability (vehicle classes subject to requirements)

Adopt By
Reference

Class 2b-3	Class 4-8	Class 7-8 Tractors
		

ZEV Sales Percentage Requirements

Adopt By
Reference

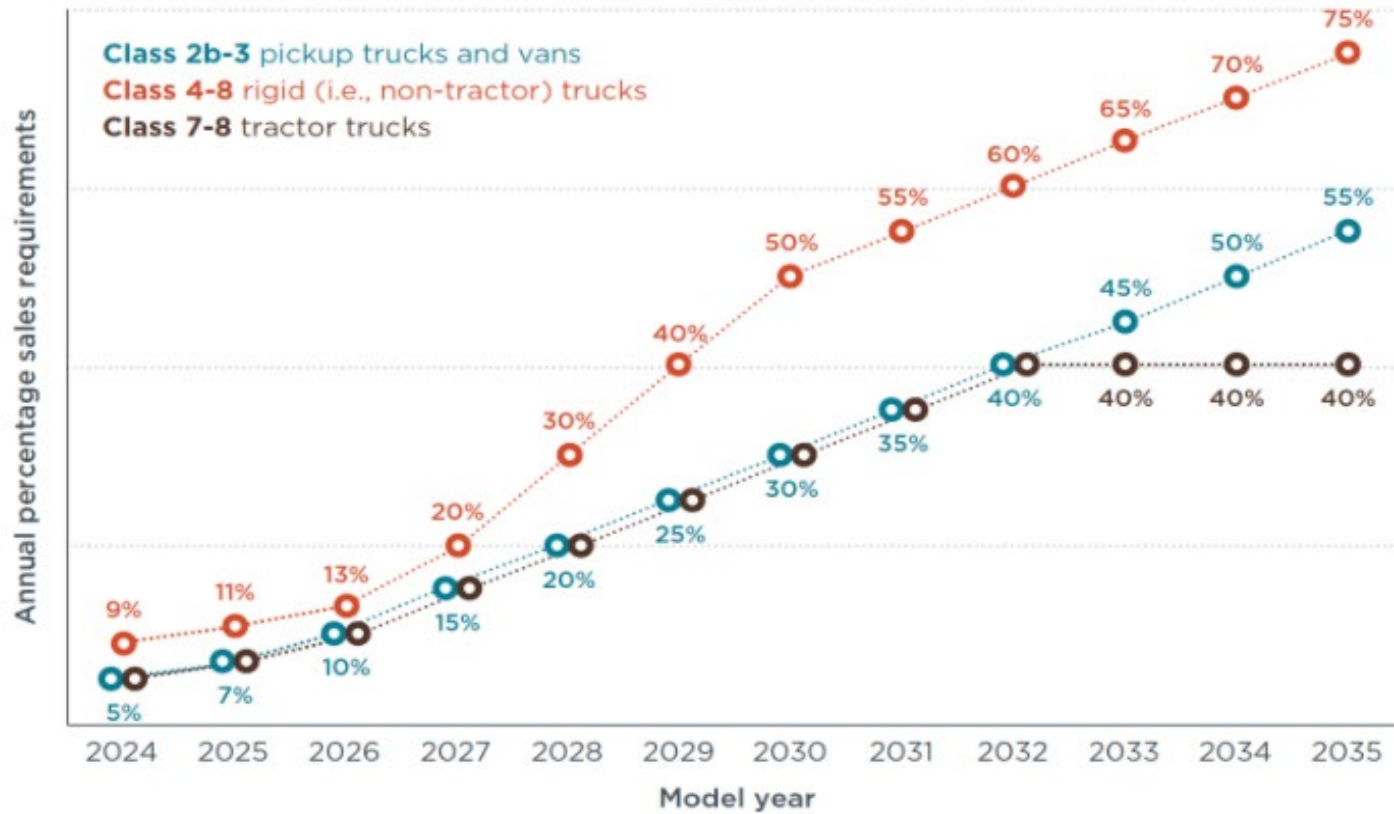


Figure 1: Zero-emission sales percentage schedule by vehicle group and model year.

Source: <https://theicct.org/sites/default/files/publications/CA-HDV-EV-policy-update-jul212020.pdf>

ACT Compliance

- Credit/deficit program

- Manufacturers generate a deficit for each ICE vehicle it sells
- Manufacturer must generate enough credits to offset deficits within the same truck type
- Heavier vehicles generate more deficits and credits

Weight class modifier

	Vehicles in the Class 2b-3	Class 4-5 Vehicles in the Class 4-8 Group	Class 6-7 Vehicles in the Class 4-8 Group	Class 8 Vehicles in the Class 4-8 Group	Vehicles in the Class 7 and 8 Tractor Group
Weight Class Modifier	0.8	1	1.5	2	2.5

ACT Compliance – Example calculation

Adopt By
Reference

Deficit Calculation

	Total OR sales in 2025		2025 MY ZEV sales requirement		Weight class modifier		Deficits	Total deficits
Class 2b-3 trucks	100	x	7%	x	0.8	=	5.6	5.6 Class 2b-3 trucks
Class 4-5 rigid trucks	100	x	11%	x	1	=	11	27.5 Class 4-8 rigid trucks
Class 6-7 rigid trucks	100	x	11%	x	1.5	=	16.5	

Credit Calculation and Compliance Determination

	Weight class modifier		ZEV sales		Credits	Total Credits	Total Deficits	Compliance (credits minus deficits)	Overall compliance
Class 2b-3 trucks	0.8	x	15	=	12	12	5.6	6.4 credits (can be banked or used for other weight classes)	Credits from Class 2b-3 can be utilized to cover the Class 4-8 deficits
Class 4-5 rigid trucks	1.0	x	10	=	10	25	27.5	-2.5 deficits (manufacturer needs to cover the deficits)	
Class 6-7 rigid trucks	1.5	x	10	=	15				

Question for RAC

- Early credits - Allow manufacturers to begin earning credits prior to 2025 model year requirements?
 - DEQ is considering allowing credits to be banked starting with 2024 model year



Fleet Reporting Requirement - Applicability

- 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, 2021 tax year)
 - Includes profit and non-profit
 - State, local and federal government agencies
 - Brokers that dispatch 50 or more vehicles that operate in Oregon

Fleet Reporting Requirement – Reporting Information

- General entity information
 - Company or government entity information
 - Name, address, contact information
 - Identification and permit numbers
 - Contracted trucks
 - How many companies contracted to deliver items or perform work in OR for the reporting entity
 - Number of subhaulers, vehicles operated by subhaulers and number of vehicles operated by subhaulers that operated under the reporting entity's motor carrier authority
 - # of vehicles owned and operated in OR but are not based in OR

Fleet Reporting Requirement – Reporting Information

- Vehicle's home base information
 - Address
 - Facility type
 - Owned or leased by entity
 - Fueling infrastructure at home base
 - Types of trailers present at facilities being used as home base for a tractor

Fleet Reporting Requirement – Reporting Information

- Information on vehicles operated from the home base
 - Body type, weight class bin, and fuel type
 - Percent of vehicles in each vehicle group, including daily and annual mileage, usage patterns, on-site refueling, trailer towing, hours on-site, and age of vehicles
 - Vehicle retention
 - Ownership of vehicles (fleet owner or brokerage)

Fleet Reporting Requirement

- Collect data from 2021
- Submission date is April 2022
- Report via fillable PDF available online and submitted via email

Fleet Reporting – Questions for RAC

- All entities are subject to reporting
 - CARB exempts schools, school districts, and transit agencies



Heavy-Duty Low NOx Omnibus Rule

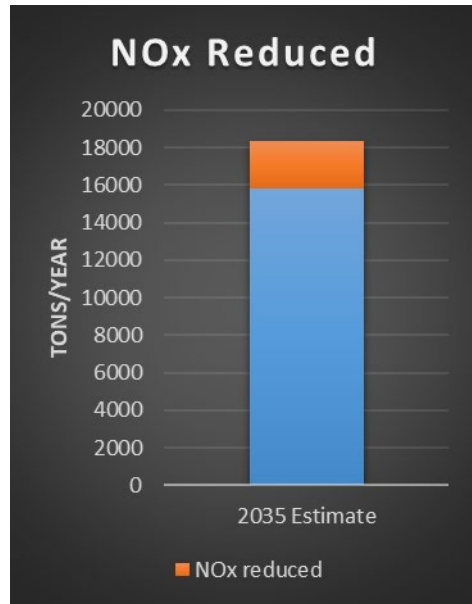
- Description of major rule elements
- Estimated pollution reduction
- Discussion topics
 - Diesel-fueled transit bus and engine exemption
 - High horsepower engine exemption (>525 hp)

Major Low NOx rule categories

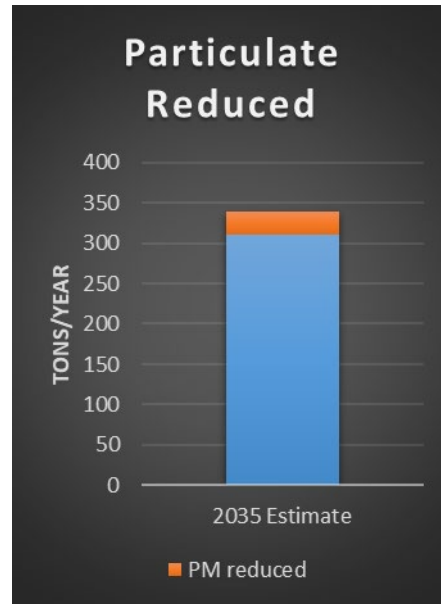
- Lower NOx and PM Certification Standards
 - NOx reduced by 75% in 2024; 90% in 2027
 - PM reduced by 50% in 2024
- Improved In-Use Testing Methods
- Durability Demonstration
- Longer Useful Life and Warranty Requirements
- Warranty Reporting Requirements
- Improved Credit Banking System
- Phase 2 greenhouse gas rules for trucks and trailers

Estimated Pollutant Reductions

M/HD Diesel Truck Emissions - Low NOx Rule



-14%



-8%

Modeled Ozone Reductions – Select Oregon sites

County	Modeled Ozone in 2028 (ppb)	Ozone reduction (ppb)
Clackamas	61.2	3.0
Multnomah	53.2	0.9
Washington	49.5	0.6
Washington	55.5	0.6

Source: http://www.meca.org/resources/Alphine_Modeling_Report_Part_1-2_Final_0620rev.pdf

Heavy-Duty Low NOx Omnibus Rule

- Description of major rule categories
- Estimated pollution reduction
- **Discussion topics**
 - **Diesel-fueled transit bus and engine exemption**
 - **High horsepower engine exemption (>525 hp)**

Transit Bus and Engine Exemption

- Current CARB proposal
 - Exempts diesel-fueled transit bus and engines
 - Tied to the CA Innovative Clean Transit Rule
 - Exemption waivers for Transit Agencies
 - Enables continued diesel engine purchases
 - Approval letter allows manufacturers to sell buses to Transit Agency
 - Agencies with CNG buses would have to provide explanation when buying new diesels

Transit Bus and Engine Exemption

- Questions for consideration:
 - Should Oregon exempt transit agencies or manufacturers/dealerships?
 - Should the exemption be permanent or should it have to be renewed after a certain period (annually or after 3, 5 or 10 years)?
 - DEQ is considering a yearly reporting requirement. What would be important to include in those requirements?
 - Number of exempt new diesel engines and buses delivered to all transit agencies in Oregon?
 - Bus type, make, model, engine serial number, VIN, etc.?

High Horsepower Engine Exemption

- Manufacturers are not planning to design or sell high-hp (>525 hp) compliant products under the new standards
- Current CARB proposal
 - Tied to 2018 or 2019 sales
 - Exempts up to 110% of 2018 or 2019 sales
- DEQ plans to propose adoption of the same exemption (based on the percentage of total Oregon high-hp sales in 2018 and/or 2019)
- Question for RAC
 - Should Oregon adopt the same exemption? Why or why not?
 - Erratic or unique sales in 2018 or 2019; not reflective of long-term trends?
 - Effect of low sales volumes; set a minimum number of allowable engines?

Clean Trucks Rule 2021

Low Emission Vehicle (LEV) Rule Updates for LDV

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CARB's Low Emission Vehicle (LEV) Rule

- Updates to maintain existing identicality with LEV rules
 - On-Board Diagnostic (OBD II) requirements for light-duty vehicles



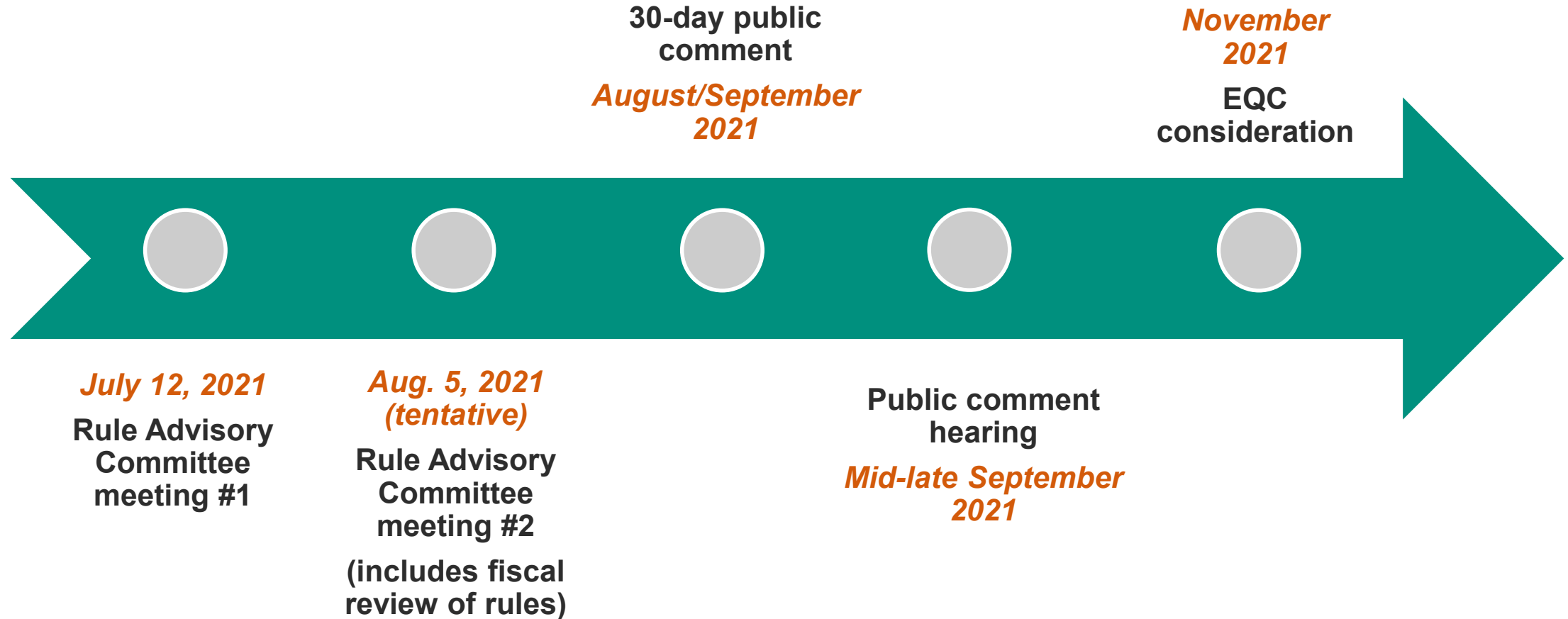
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Next Steps

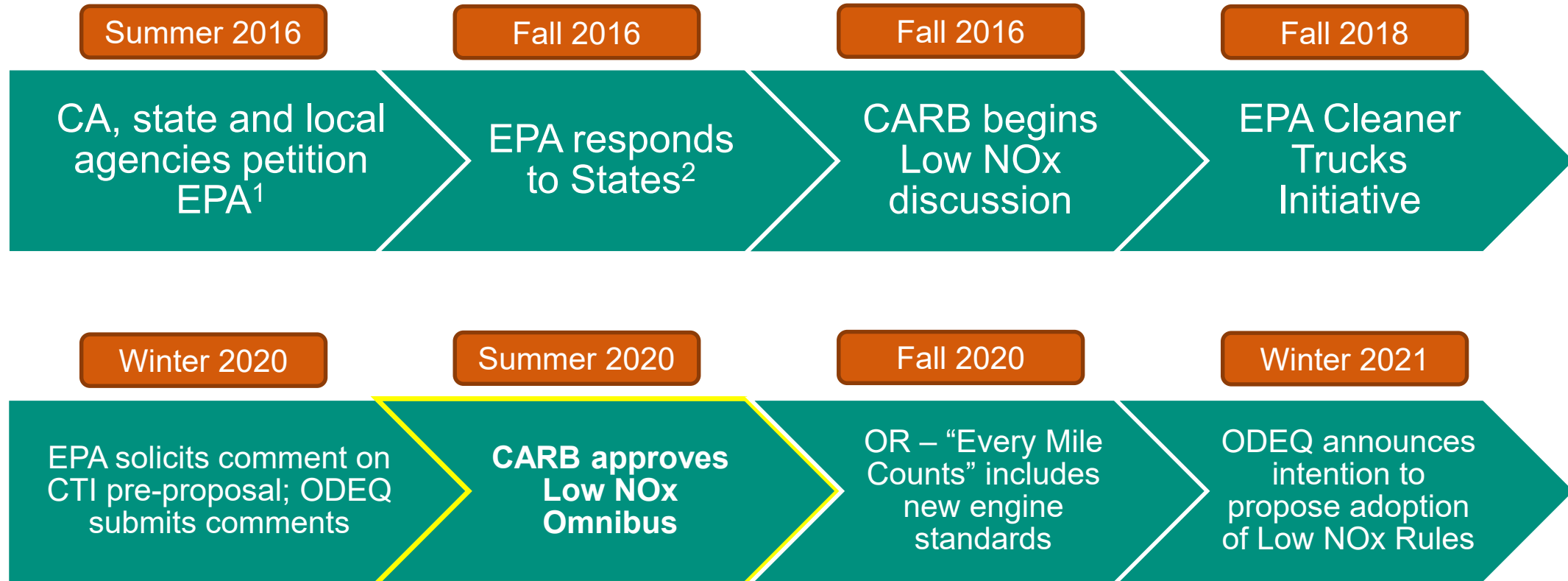
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Next steps



Overview of Low NOx Actions



¹https://www.epa.gov/sites/production/files/2016-09/documents/petition_to_epa_ultra_low_nox_hd_trucks_and_engines.pdf

²<https://www.epa.gov/sites/production/files/2016-12/documents/nox-memorandum-nox-petition-response-2016-12-20.pdf>

NOx standards - Details

Model Years	MDDE/LHDD/MHDD/HHDD ^a				MDOE/HDO ^a
	FTP ^b	RMC-SET ^b	LLC ^b	Idling (g/hr)	FTP ^b
Current	0.2	0.2	n/a	30	0.2
2024 - 2026	0.05	0.05	0.2	10	0.05
2027 and later ^c	0.02	0.02	0.05	10	0.02

^a 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.

^b Units are in g/bhp-hr

^c For HHDD standards beyond 2027 are higher at full useful life to allow for deterioration

Warranty Requirements – Details

Table 4. Current and Proposed Warranty Periods

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

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