State of Oregon Department of Environmental Quality

Draft Fiscal Impact Statement

2025 Updates to Oregon's Clean Truck Rules Advisory Committee Meeting #3

Summary

DEQ is proposing rule changes to two regulations: the Advanced Clean Trucks Rule in OAR Chapter 340, Division 257 and the Emission Standards for New Heavy-Duty Trucks in OAR Chapter 340, Division 261. These changes would:

- Adopt by reference recent California amendments to the Advanced Clean Trucks Rule and Heavy-Duty Engine and Vehicle Omnibus Rules
- Delay the start of the Heavy-Duty Engine and Vehicle Omnibus Rules implementation from engine model year 2025 to engine model year 2026

On Nov. 17, 2021, the Oregon Environmental Quality Commission acted to reduce emissions from new medium- and heavy-duty trucks sold in the state by adopting the Clean Truck Rules.[1] Under Section 177 of the federal Clean Air Act, states that choose to adopt vehicle standards that are more stringent than the federal standards for new vehicles may only adopt California's vehicle emission standards (if California has adopted more stringent standards). The California Air Resources Board Advanced Clean Trucks Rules and Heavy-Duty Engine and Vehicle Omnibus Rules were two of the rules adopted under that 2021 rulemaking.

Advanced Clean Trucks Rule

The Advanced Clean Trucks Rule is being revised to incorporate commitments made between CARB and the truck manufacturers in the Clean Truck Partnership.[2] The changes include:

- Increased Deficit Makeup Period – Manufacturers now have three years instead of one year to balance their ZEV deficits.
- New definition for how credits are generated – Manufacturers can now generate a credit based on a vehicle delivered for sale, rather than to the ultimate purchaser in Oregon.
- Certification options for Medium-Duty Trucks - Complete MD trucks can now certify as ZEVs under the Zero-Emission Powertrain Certification Program.
- Additional flexibility in 2026 for the cleanest Heavy Heavy-Duty Engines - Specific HD Omnibus certified engines would not generate deficits in 2026 under the ACT Rule, easing compliance for manufacturers of the subject heavy heavy-duty internal combustion engine trucks.

Oregon Optional Credit Program

Oregon is considering the following additional proposal to support effective implementation of the Advanced Clean Trucks Rule:

- **Oregon Optional Credit Program Segment 1**
  DEQ would provide additional credits to truck manufacturers, to satisfy 100% of their Class 7-8 deficit

[1] 417th Meeting of the Oregon Environmental Quality Commission. Clean Truck Rules DEQ Staff Report, accessed on 3/4/2025.
[2] CARB and the Truck and Engine Manufacturers Association Agreement (Clean Truck Partnership), July 2023, accessed on 3/4/2025.

obligation in 2025 and 2026. These credits would be available to manufacturers who agree to allow the unrestricted sale of internal combustion engines without first requiring a ZEV sale.

- **Optional Credit Program Segment 2**
  In addition to providing additional credits for Class 7-8 tractor compliance, DEQ would provide optional credits to satisfy 50% of a manufacturer's Class 4-8 deficit obligation in 2025 and 2026.
- **Optional Credit Program Segment 3**
  DEQ provides 100% of the credits for Class 7-8 tractor compliance, and up to 50% of needed credits for Class 4-8 truck compliance and provides additional credits to manufacturers who have sold Class 4-8 trucks but not incurred any deficits. These credits are allocated based on 50% of that manufacturer's deficits generated through the total sale of Class 4-8 trucks.

DEQ will also evaluate market conditions and program goals to potentially extend these optional credits into 2027 and beyond.

Background: Advanced Clean Trucks Rule

The rule requires medium- and heavy-duty vehicle manufacturers to sell zero emission vehicles (ZEVs) as a certain percentage of total sales, beginning with the 2025 vehicle model year. Manufacturers must increase their ZEV truck sales depending upon the class size of the truck.

Model year	Class 2b-3	Class 4-8	Class 7-8 Tractor
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035	55%	75%	40%

The sales numbers are based on vehicles produced and delivered for sale in Oregon. It establishes a credit and deficit system, similar to the existing framework for light- and medium-duty passenger vehicle ZEV requirements. The requirements also provide flexibility for manufacturers to build ZEVs in one weight class or across all weight classes.

Heavy-Duty Low NOx Omnibus Rule

The HD Omnibus Rules were originally intended to be implemented beginning with engine model year 2024. A one-year delay was adopted by the EQC in November 2023. An additional year delay was temporarily adopted by the EQC in November 2024. The rule requires manufacturers to deliver lower emitting conventionally fueled engines for sale in Oregon. During the transition period (2024-2026) certified compliant engines would be required to reduce oxides of nitrogen, or NOx, emissions by 75% and to reduce particulate matter emissions by 50%. The HD Omnibus rules require further reductions in emissions from new medium- and heavy-duty engines starting in 2027.

DEQ is proposing to replace the expiring temporary rules adopted by the EQC in November 2024 with permanent rules. If the proposed delay is adopted the temporary rule would become permanent and the Omnibus rules would go into effect with engine model year 2026. Even though DEQ is proposing to delay the HD Omnibus rule until 2026, DEQ is also proposing to incorporate other minor changes including additional zero emission powertrain flexibilities that CARB recently updated which directly connect to the ACT rule.

Further changes would eliminate rule provisions related to trailers that were previously overturned in a court challenge.

Background: Heavy-duty engine and vehicle omnibus rules

Adopted by the EQC in 2021, the HD Omnibus rules apply to on-highway heavy-duty engines and vehicles sold in Oregon. The rules require:

1. Lower NOx and $PM_{2.5}$ standards for new truck engines (both diesel and non-diesel engines)
    a. NOx standard is 75% and 90% below the current federal standards respectively in 2026 and 2027
    b. $PM_{2.5}$ standard is reduced by 50%, primarily to prevent backsliding
2. A new, low load cycle standard to address emissions associated with low speeds, light payloads and other situations when emissions temperatures are not high enough to ensure proper catalyst operation
3. A lower NOx idling emission standard reduced by 67% and 83% below the current standard respectively in 2026 and 2027
4. Between 70% and 220% longer useful life and warranty periods depending on vehicle size and fuel type
5. Updated emissions warranty information and reporting requirements
6. Updated testing procedures to demonstrate engine and aftertreatment durability and in-use performance
7. A state-level credit averaging, banking and trading system that manufacturers of heavy-duty engines would need to implement in addition to the current federal system

The ACT and HD Omnibus Rules are anticipated to provide air quality benefits, reduce exposure to harmful air quality pollutants and provide overall greenhouse gas reductions to achieve the state's goals to address global warming. Proposed amendments will lessen these benefits due to increased delivery of internal combustion engines, potentially fewer ZEVs deployed, and delayed delivery of HD Omnibus compliant engines in the early years of the program.

Affected parties

The parties likely affected by these rules are:

- Public and private fleets that need to acquire new medium- and/or heavy-duty vehicles in 2025
- Vehicle dealerships that sell new medium- and heavy-duty vehicles powered by internal combustion engines or zero emission technology
- Vehicle manufacturers that sell medium- and heavy-duty vehicles powered by internal combustion engines or zero emission technology
- Engine manufacturers that sell internal combustion engines that are included in medium- and heavy-duty vehicles
- Electric vehicle infrastructure equipment companies who sell charging equipment and electricians and installers who are responsible for maintaining or installing EV chargers
- The general public who relies on trucks for goods and services and live in areas in or near traffic corridors.

Fiscal and economic impact

General assumptions

ACT amendments

The proposed amendments to the Advanced Clean Trucks rule introduce key flexibilities designed to reduce compliance burdens on vehicle manufacturers and ensure a smoother transition to zero-emission vehicles in Oregon.

The amendments providing additional flexibilities could lead to lower costs for manufacturers, fleets, and dealers. Manufacturers could experience a reduction in short-term financial pressures by having additional time to comply with the rules. That extended time could lead to fewer financial penalties for noncompliance, reduced administrative costs through only needing to track sales based on delivery, rather than final purchase, and additional options to certify complete medium duty trucks. With a longer deficit makeup period, truck manufacturers can distribute compliance costs more evenly over three years rather than making steep, immediate price increases on ZEVs. Manufacturers may also experience financial relief by not having HHD Omnibus certified engines count toward their deficits in 2026, easing compliance concerns. Fleets and dealers could see reduced costs and additional availability of trucks due to manufacturers not having to make price adjustments or restrictions in the conventional vehicle market to offset deficits.

Oregon Optional Credits

The proposed amendments create an Oregon optional credit program where manufacturers are gifted half of the credits they need to meet their deficits for Class 4-8 trucks and all of the credits they need for Class 7-8 tractor trucks in 2025 and 2026. This provides manufacturers many of the credits they need to meet their compliance obligations in the early years of the program. It also includes provisions for ZEV-only OEMs to receive optional credits and for DEQ to evaluate extending the program in 2027 and beyond.

These new Optional Credits may lead to lower costs for fleets, manufacturers, and dealers. Manufacturers may not have to purchase credits to satisfy any compliance obligation and could pass these costs savings to dealers and fleets. Fleets purchasing new medium- and heavy-duty trucks in 2025 may face less volatility in pricing, as manufacturers can better manage their credit balances without artificially restricting availability of diesel vehicles in Oregon. Increased credit availability also benefits dealers as it allows manufacturers to continue the sale of diesel-powered trucks without the risk of temporary market disruptions. Overall, these amendments ease compliance burdens, prevent abrupt cost increases, and ensure Oregon fleets have access to a stable, diverse truck market while transitioning to zero-emission technology. Quantifying the specific aspects of these optional credits is difficult to assess because it depends upon how many manufacturers choose to opt in to the optional credit program.

HD Omnibus Amendments

DEQ anticipates that the proposed rulemaking will have a fiscal and economic impact. Under the proposed HD Omnibus amendments medium- and heavy-duty vehicle and engine manufacturers and dealers would continue to be able to sell federally certified engine model year 2025 vehicles through the end of 2025. Vehicle and engine purchasers should see lower costs for new vehicles and engines compared to the status quo. Manufacturers and dealers should experience increased revenue compared to the status quo. Quantifying the specific fiscal impacts of delayed implementation on the affected parties was not possible given uncertainties about the extent of medium- and heavy-duty vehicle supply constraints.

The fiscal and economic impact of providing additional manufacturer flexibility to certify complete medium-duty zero emission vehicles using the Zero-Emission Powertrain Certification Program is considered to be zero since the certification pathway remains optional for complete medium-duty ZEVs. Non-quantifiable manufacturer cost savings could be realized if manufacturers decide to utilize the additional certification pathway.

Impacts of greenhouse gas emissions

The overwhelming scientific consensus is that global warming is primarily caused by human activity, and that major reductions in GHG emissions are urgently needed across all sectors in order to avert the worst effects of climate change. In Oregon, the transportation sector accounts for 35% of GHG emissions.

Higher temperatures, changing precipitation patterns, reduced snowpack, drier summers, and more frequent and damaging fires are being experienced in Oregon. Increased GHG emissions exacerbates drought, tree mortality and the frequency and magnitude of wildfire events. In 2019 alone, Oregon experienced 2,000 wildfires that burned roughly 665,000 acres of forest and rangeland. It cost the state nearly half a billion dollars to suppress these fires. Depending on the extent of GHG emissions released, average temperatures in Oregon are expected to increase by 4˚F to 9˚F (2.2°C to 5°C) over the course of the century. Within the next three decades, most locations in Oregon are likely to have more frequent heatwaves, often measured as consecutive days above a particular high temperature threshold. (OGWC Biennial Report, 2020). With the higher temperatures, it can result in reduced snowpack thereby limiting the amount of hydropower available when demand for electricity is high in the summertime and causing reduced streamflow that could threaten commercial and tribal fisheries. Without actions to mitigate these effects, human health and safety, infrastructure, economic growth, crop production, water supplies, and fish and wildlife populations will continue to be at risk.

Impacts of truck and vehicle engine emissions

Gasoline- and diesel-powered vehicles harm human health and the environment via emissions of pollutants such as fine particulate matter, air toxics, sulfur oxides and oxides of nitrogen, a precursor to the formation of ground level ozone. These emissions disproportionately impact low-income communities and communities of color. Communities across Oregon, including the Portland-metropolitan area and the Rogue Valley have experienced increasing levels of ozone in recent years. Increasing levels of ozone – or smog – leads to a wide variety of health effects including aggravated asthma, decreased lung function and chronic obstruction pulmonary disease. Exposure to diesel engine exhaust is associated with a variety of effects, including increased risk of certain cancers, including lung and bladder cancers, cardiovascular effects including an increased risk of heart attacks, and pulmonary effects, such as upper respiratory system irritation and decreased lung functions. DEQ estimates 176 premature deaths, 24,910 lost workdays, and annual costs from exposure to diesel engine exhaust costs Oregonians $3.5 billion every year.[3] The ACT and HD Omnibus Rules reduce NOx and PM emission associated with diesel emissions. As a result of these reductions, a 2021 analysis done by MJ Bradley estimates Oregon can expect to see fewer premature deaths, reduced mortality, fewer hospital and emergency room visits and fewer missed days of work and school, resulting in over $1.8 billion in reduced health costs by 2050.[4] Proposed amendments to delay HD Omnibus Rule implementation and provide additional flexibility under the ACT Rule will negatively impact this estimate in the early years of the program.

Overall, and for the reasons described above, the fiscal impact of Oregon adopting these proposed amendments to the ACT, the Oregon Optional Credits, and HD Omnibus Rules is expected to have a direct impact on truck manufacturers, fleet owners, dealers and the public.

Statement of cost of compliance

State agencies

ACT amendments

The ACT rule requires vehicle manufacturers to deliver ZEV trucks for sale in Oregon, including flexibilities for how they meet their ZEV sales requirements. There is no direct impact on State agencies associated with these rules or proposed amendments.

[3] The Concerns about Diesel Engine Exhaust, Oregon DEQ, 2015
[4] Oregon Clean Trucks Program, MJ Bradley and Associates, 2021

Oregon optional credits

Currently, State agencies may experience indirect impacts of the rule, through the reduced ability to purchase available trucks. To date, vehicle manufacturers are not providing adequate supply of medium- and heavy-duty vehicles, either internal combustion engine or zero emissions, to the Oregon market. This may result in Oregon state agencies with these vehicle types in their fleets to need to hold onto older vehicles longer than their planned retirement schedule. The proposed amendments and optional credit program will alleviate this situation by opening up more vehicle availability in the Oregon market, lessening any potential indirect impact. Under the Oregon Optional Crediting program, state agencies could experience positive impacts due to potentially increased volumes of available trucks to purchase.

HD omnibus amendments

DEQ anticipates that the impact to state agencies that purchase new medium- and heavy-duty vehicles will be similar to other local governments and businesses that purchase new medium- and heavy-duty vehicles. The proposed amendments will result in the elimination of any concerns over new vehicle supply associated with the HD Omnibus rules through the remainder of 2025. There are also indirect benefits that will likely be realized as cost savings on the purchase of each new medium- and heavy-duty vehicle in 2025 due to lower lifecycle DEF usage, lower warranty costs, reduced likelihood of vehicle surcharges and avoided 2025 market disruptions such as temporary sales stoppages of medium- and heavy-duty vehicles.

Local governments

ACT amendments and Oregon Optional Credits

Impacts on local governments are expected to be the same as the impacts on state agencies.

HD omnibus amendments

There are no direct costs of compliance for local governments, however, local governments that purchase new medium- and heavy-duty vehicles, may experience indirect cost savings as described for non-DEQ state agencies on a per-vehicle basis.

Public

Benefits of the regulations

ACT amendments

The ACT regulation will result in more medium- and heavy-duty ZEVs in use in Oregon. With more ZEVs on the road replacing conventional trucks, it will reduce emissions of greenhouse gases and other air quality pollutants. Overall, the increased ZEV availability and use furthers Oregon’s goals to reduce greenhouse gas emissions to 45 percent below 1990 levels in 2035 and to an 80 percent reduction below 1990 levels in 2050.

The benefits of the proposed ACT amendments through providing more options for manufacturers to meet compliance could reduce the overall cost of ZEV adoption, leading to lower prices for businesses and, ultimately, consumers.

The Oregon Optional Credits could provide benefits for the public by increasing the availability of diesel trucks for Oregon freight haulers and fleets to maintain their operations. This may result in reduced or limited changes in the costs for businesses and consumers. Other benefits for the public are likely to include reduced disruption in local economies that include medium and heavy-duty diesel vehicle dealers facing the damaging practice of ratioed sales.

Sales ratios, where manufacturers do not make diesel vehicles available for sale unless dealers first buy zero emissions vehicles, are not required in the ACT rules. DEQ is proposing this new program to support effective implementation of the Advanced Clean Trucks Rule in Oregon, in part due to the assertion from vehicle dealers that their livelihoods are at stake if they cannot sell diesel trucks.

HD omnibus amendments

The proposed amendments ensure the stability of the new medium- and heavy-duty vehicle market in 2025 by permanently adopting a one-year delayed implementation of the HD Omnibus rule. The amendments would reduce the risk of temporary sales stoppages and additional market disruptions that may have broader economic impacts.

CO2 emissions reductions

One of the key benefits to these rules is the anticipated reduction in CO_2 emissions. As discussed earlier, impacts as a result of greenhouse gas emissions are significant and these rules will address some of the threats posed by increased GHG emissions. Overall, the estimated cumulative emissions reductions in Oregon as a result of the ACT rule is expected to be between 1.8 million metric tons and 2.4 MMT by 2040. This is based on CARB's analysis and other studies looking at the effects of the ACT rule in Oregon.[5] DEQ estimates the cumulative CO2 reductions from 2024 through 2040 to be 2.4 MMT. An International Council on Clean Transportation study looked at modeling results for Oregon and determined it would result in avoided CO2 emissions of 1.8 million tons total for the period of 2020-2040. This analysis also applied Oregon specific numbers on the anticipated sales of ZEV trucks in Oregon and the resulting benefits.

A study by MJ Bradley and Associates looked at the combined effects of adopting the ACT and HD Omnibus in Oregon. It estimated Oregon's reduction of GHG emissions would be 49.7 MMT amounting to a monetized value of $8.1 billion over the next 30 years.[6] While these assumptions are higher than other analyses included in this fiscal analysis, the differences are likely due to the models used to run the assumptions including the how Oregon's electric grid mix was characterized and whether it factored in Oregon's decarbonization efforts as a result of HB 2021(2021).

Proposed amendments to provide increased flexibilities under the ACT rule and delay of the HD Omnibus rule until 2026 will result in deployment of fewer of the cleanest diesel engines in 2025 and potentially fewer deployed ZEVs due to the increased deficit makeup period. This will erode the emissions benefits of the Clean Truck Rules in total, with the largest impact during the early years of the program. Indirect impacts associated with the adoption of the ACT amendments that increase the certification pathways for medium-duty zero emission vehicles are expected to be emissions neutral based on the CARB analysis.

With Oregon Optional Credits, ZEV deployment for Class 7-8 tractors may not reach 7% or 9% of overall truck sales per manufacturer in 2025 and 2026, depending upon who opts into the program. In fact, some manufacturers may not deliver any ZEV vehicles in Oregon leading to additional decrease in emissions benefits. The Optional Credit Program will also likely result in a reduction in ZEV deployment for Class 4-8 trucks and additional reduced emission benefits. As discussed above, the ACT rule phases in slowly over time, allowing manufacturers, dealers, and fleets time to adjust to the transition. With early ZEV deployment targets ranging between 7% and 13% during this time frame, DEQ estimates an equivalent decrease in emissions benefits.

Criteria air pollutant emissions reductions

For these rules, DEQ utilized CARB's analysis and methodology to estimate the emissions reductions and scaled them to fit Oregon's demographics and vehicle usage. Analyzing the impacts of the ACT rule only, DEQ estimates the NOx reductions in 2040 to be 3.9 tpd and 0.12 tpd in $PM_{2.5}$ reductions. Based on Clean Fuels Program scenario modeling on the effects of the ACT rule, DEQ estimates the reduction from 2025 to 2035 is a PM reduction of 180 metric tons, reduction in NOx of 699 metric tons, based on the Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies model tailpipe emission factors. ICCT study estimates the reduction in NOx emissions from 2020-2040 is 12,506 tons per year and for $PM_{2.5}$ is 130 tons per year.

[5] DEQ utilized CARB's extensive analysis, research and methodology to estimate emissions reductions when the rules were originally adopted in 2021. While CARB's information is California specific, DEQ determined a scaled approach to fit Oregon's demographics and vehicle usage was appropriate in characterizing the potential impacts in Oregon. Additional studies that evaluated Oregon-specific scenarios were used in combination with the CARB analysis to provide a range of potential anticipated reductions.

[6] Oregon Clean Trucks Program, MJ Bradley and Associates, 2021

The HD Omnibus regulation could result in a 17.5% reduction (2,570 tons/year) of on-highway NOx emissions and a 4% reduction (29 tons/year) in on-highway PM2.5 by 2035 in Oregon according to a report from the Manufacturers of Emission Controls Association. One model (Alpine Geophysics) predicted ozone in the Portland metropolitan area would be reduced by as much 3 parts per billion in 2028 if these rules were implemented.

The MJ Bradley and Associates study looked at the combined effects of adopting the ACT and HD Omnibus in Oregon. The study estimated it would reduce NOx emission by 223,200 metric tons and PM2.5 by 1,290 metric tons. It could result in potentially avoiding 156 premature deaths, 118 hospital visits, and 83,579 minor health complications, such as acute bronchitis and exacerbated asthma, by 2050.

As described in the CO2 emissions reductions section above, the proposed amendments will erode the criteria pollutant reductions and public health benefits associated with ACT and HD Omnibus by the degree to which vehicle manufactures fail to hit ZEV deployment targets in 2025 and 2026 and to not deliver Omnibus-compliant engines in 2025. These reductions in benefits are likely to occur and will hinge on the scope of vehicle manufacturers utilization of expanded flexibilities.

With Oregon Optional Credits, ZEV deployment for Class 7-8 tractors may not reach 7% or 9% of overall truck sales per manufacturer in 2025 and 2026, depending upon who opts into the program. In fact, those manufacturers who opt in may not deliver any ZEV vehicles in Oregon leading to an additional decrease in emissions benefits. This will also likely result in a reduction in ZEV deployment for Class 4-8 trucks and additional reduced emission benefits. As discussed above, the ACT rule phases in slowly over time, allowing manufacturers, dealers, and fleets time to adjust to the transition. With early ZEV deployment targets ranging between 7% and 13% during this time frame, DEQ estimates some potential decrease in emissions benefits associated with lower ZEV deployment rates if OEMs do not achieve these goals.

Environmental justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. DEQ is committed to incorporating environmental justice best practices into its programs and decision-making, to ensure all people in Oregon have equitable environmental and public health protections.

If adopted, the proposal to delay implementation of the HD Omnibus rules mean that new, conventionally fueled trucks sold in Oregon in 2025, will not be 75% lower NOx emitting as originally intended in the rules. Instead, the requirements for lower emitting medium- and heavy-duty vehicles would be delayed until engine model year 2026. DEQ recognizes that emissions from medium- and heavy-duty vehicles disproportionately impact some communities more than others. Those communities are typically lower income and have more people that identify as black, indigenous and people of color. However, due to manufacturer delays in delivering HD Omnibus compliant engines available for sale in both 2024 and 2025, Omnibus rule implementation in either of those years would not have brought significant tailpipe emission reductions.

DEQ also determined that delaying the HD Omnibus Rule and the risk of losing an additional year of implementation was preferable to having little to no new engines available for purchase and instead forcing fleets to retain older, dirtier engines for longer. DEQ determined that the pollution reduction benefits to be gained from the implementation of the rules starting with model year 2026 and beyond outweighed the loss of the 2025 engine model year alone. The risk of losing the emissions benefit to environmental justice communities and the public as a whole beginning in 2026 and beyond was not a preferred outcome. DEQ determined that these proposed rule amendments represent the option that posed the least harm to communities suffering from disproportionate impacts associated with medium- and heavy-duty vehicle pollution.

The Advanced Clean Trucks Rule is designed to increase the penetration of lower emitting, zero emission heavy-duty technology and achieve NOx and GHG emissions reductions through advanced clean technology. The proposed amendments would still preserve these goals while also providing manufacturers additional flexibility in offsetting incurred deficits for a given model year as well as other proposed changes that would assist with credit availability, reporting, and rule implementation. DEQ determined that failing to act to

incorporate the Advanced Clean Truck amendments put these rules at risk of not meeting the identicality requirements described in Section 177 of the Federal Clean Air Act.

Based on proposed Oregon Optional Credits DEQ anticipates fewer ZEV deployments in the early years of the program, reducing the environmental justice benefits of the program initially. These early-year impacts are cumulative and ongoing due to the urgency of reducing climate and criteria emissions as soon as possible to realize the most benefits. This provision, which is designed to support effective implementation of ACT, will help secure the long-term delivery of ZEV trucks in future years and provide emissions and public health benefits for impacted communities.

DEQ sought input from representatives of environmental justice and clean air advocacy groups as participants on the rulemaking advisory committee as it developed these proposed amendments.

Other considerations

The ACT rule is expected to result in more ZEV trucks in Oregon. Because ZEV trucks require less maintenance than their diesel counterparts, there may be some associated job losses as diesel engine mechanics are less in demand over the long term, 10+ year time horizon. However, these job changes will be mitigated by the significant increase in new job opportunities in the clean technology sector. This includes the need for electric charging infrastructure providers and ZEV maintenance electricians.

Anticipated costs of the regulation

ACT amendments

Under the ACT rule, there are no direct costs to the public, since the requirement is only on medium- and heavy-duty vehicle manufacturers to sell ZEV vehicles. However, there may be indirect costs on purchasers, dealers, and the public. Manufacturers could pass on the costs to truck purchasers who could pass those costs on to customers and costs of goods being transported. There may be some manufacturers who choose not to sell in Oregon as a result of the regulations. For truck purchasers the upfront purchase costs of ZEVs are higher than those of conventional vehicles due to the higher battery costs and the need to install charging infrastructure. These costs are described in more detail in the “Large businesses” section below. It is anticipated that the initial purchase price of medium- and heavy-duty ZEVs will fall over time as technology advances, battery costs decline, and an economy of scale is achieved. While the ACT regulation will result in more medium- and heavy-duty ZEVs in use in Oregon, these amendments incorporating additional compliance flexibilities and the potential optional credit program may result in fewer ZEVs deployed in Oregon. These proposed amendments may result in a smaller reduction of air quality pollutants and greenhouse gas emissions than anticipated at the time DEQ implemented the original rule.

Oregon’s Optional Credit were designed to limit the manufacturer ratioing of new medium- and heavy-duty vehicle sales in Oregon, opening up the market. The anticipated costs associated with proposed ACT amendments are primarily associated with decreased emissions benefits in the early years of the program, in 2025 and 2026, to the extent that vehicle manufacturers utilize increased flexibilities and compliance options being proposed.

HD Omnibus amendments

There are no direct costs to the public associated with the proposed amendments because they are focused on new medium- and heavy-duty engine and vehicle manufacturers. However, there may be indirect costs associated with the one-year delayed implementation as described in the environmental justice section above. It is possible that adoption of these proposed amendments could lead to increased tailpipe emissions compared to the status quo. Any increase in tailpipe emissions would be directly connected to the volume of HD Omnibus compliant engines that are made available for sale in 2025. With a limited volume of HD Omnibus compliant engines available for sale on the market in 2025, manufacturers would have only been able to comply with the rules in Oregon in 2025 by limiting their sales of new conventionally fueled medium- and heavy-duty vehicles and engines. Because of the limited number of available HD Omnibus compliant engines,

any increased emissions associated with the proposed amendments would not necessarily be expected to occur along vehicle travel routes.

Large businesses - businesses with more than 50 employees

ACT amendments

Large businesses, specifically truck manufacturers and truck dealers selling new vehicles, are affected by ACT rules. Per CARB's analysis on the effect of the ACT rules on large businesses, it is anticipated Oregon's rules would affect the same entities. CARB estimates ten large truck manufacturers sell vehicles affected by the rules, and DEQ concludes that is also true for Oregon. Other businesses that could be affected include electric utilities, vehicle dealers, and fleets. Under the ACT rule there will be more electric vehicle deployment resulting in an increased demand for electricity and ultimately increased revenue for electric utilities.

Medium and heavy-duty vehicle manufacturers

The impacts outlined below reflect the costs of complying in Oregon as a result of adopting proposed ACT amendments and Oregon's Optional Credits. The proposed amendments providing additional flexibilities for manufacturers allow for additional compliance options, potentially resulting in an increase in credit availability, and will improve overall market conditions in the short term. The Oregon Optional Credits are expected to reduce or eliminate new medium- and heavy-duty vehicle manufacturers sales restrictions in Oregon. Manufacturers are currently misinterpreting the rules to require that they not sell diesel vehicles until dealers sell an equivalent zero emissions vehicle. This is artificially restricting the truck market in Oregon by impacting the ability of Oregon vehicle dealers and fleets to purchase new vehicles.

For medium and heavy-duty vehicle manufacturers the proposed amendments and Oregon Optional Credits will reduce costs of compliance with the Advanced Clean Trucks rule in at least 2025 and 2026, with a potential to reduce costs in 2027 and beyond. Manufacturers will still be required to deliver zero emission vehicles over time. While they will bear the cost of developing the technology, supporting the market, and changing their business model to help Oregon move towards a zero-carbon transportation future, manufacturers will have significantly more time for this transition. Additionally, manufacturers will be able to earn more credits from ZEV sales if they choose to opt in to the Oregon Optional Credits in 2025 and 2026, and this may translate into financial benefits for them later on during the program.

There is some risk to vehicle manufacturers in the event that they have to sell vehicles below cost to purchasers to meet the requirements of the regulation. Those costs could be passed on to conventional diesel or gasoline powered trucks in their manufacturing line and in effect result in higher costs to purchasers of those vehicles. Alternatively, manufacturers may not be able to pass on the costs to other vehicles or choose to absorb the costs themselves.

Medium and heavy-duty vehicle dealers

Oregon Medium and Heavy-Duty Vehicle Dealers could see immediate relief from the practice of manufacturers limiting the sale of diesel vehicles in Oregon. This means that the amendments and new program will reduce costs associated with lost or delayed sales right away. Longer term, dealers should not face additional costs associated with the increasing zero emissions vehicle delivery requirements that manufacturers face because the marketing, sale, and service of ZEVs can be a profitable business model. Incorporating ZEV sales alongside sales of traditional diesel vehicles will allow for a long and stable transition period, made longer and more gradual by amendments and optional credits, for Oregon vehicle dealers to participate and profit from the zero-emissions vehicle industry in the future.

Businesses with medium and heavy-duty vehicle fleets

Oregon businesses with fleets of medium and heavy-duty vehicles will not face increased costs as a result of proposed amendments and optional credits. The ACT rule requires vehicle manufacturers to deliver ZEV

trucks for sale in Oregon, including flexibilities for how they meet their ZEV sales requirements. There is no direct impact associated with these rules or proposed amendments on large businesses with fleets.

Fleets can purchase the vehicles that best suit their business needs which may or may not include ZEVs. However, the ACT regulation will result in an increased number of ZEVs for purchase and provide additional options for purchasers and fleets. Additionally, businesses that can transition to ZEV fleets more easily may want to take advantage of savings through the lower total cost of ownership for ZEVs or accumulating credits under Oregon's Clean Fuels Program as mentioned above.

Currently, medium- and heavy-duty ZEVs are more expensive to purchase than gasoline or diesel trucks, however, the overall total cost of ownership is less than conventional trucks due to reduced fuel and maintenance costs. According to CARB's analysis, model year 2024 ZEV trucks are approximately twice the price of a conventional vehicle.[7] There are a number of costs included besides the vehicle and battery costs, but also costs to build out and install the infrastructure necessary to charge the vehicles, upgrade existing charging infrastructure to ensure it can meet charging capacity needs, fueling, workforce training, and maintenance.

The proposed amendments and the Oregon Optional Credits provide increased flexibilities, compliance options, credit availability, and other provisions easing the transition to zero emissions vehicles. Currently, vehicle manufacturers are not providing adequate supply of medium- and heavy-duty vehicles, either internal combustion engine or zero emissions, to the Oregon market. This may result in Oregon businesses with these vehicle types in their fleets to need to hold onto older vehicles longer than their useful life or planned retirement schedule. The proposed amendments and optional credit program will alleviate this situation by opening up more vehicle availability in the Oregon market, lessening any potential indirect impact. Under the Oregon Optional Credits, Oregon businesses could experience positive impacts due to potentially increased volumes of available trucks to purchase.

HD Omnibus Amendments

Under the proposed rules, large businesses that manufacture medium- and heavy-duty engines are expected to experience increased sales compared to status quo. The predicted increase in sales would be due to avoided 2025 market disruptions such as potential temporary sales stoppages of medium- and heavy-duty engines.

There are no direct costs of compliance for large businesses who are exclusively purchasers of new medium- and heavy-duty vehicles. However, these businesses may experience the indirect benefit of reduced costs under the proposed rules identical to those described for non-DEQ state agencies on a per-vehicle basis.

For large businesses that sell new medium- and heavy-duty vehicles, indirect benefits are primarily associated with increased sales compared to the status quo directly related to avoided 2025 market disruptions. That is because adoption of the proposed rule amendments reduces the risks of potential temporary manufacturer sales stoppages of medium- and heavy-duty vehicles associated with the HD Omnibus rules in 2025.

There are no direct costs of compliance for large businesses who are involved in carrying out warranty repairs on medium- and heavy-duty vehicles. However, if the proposed amendments are adopted, there could be indirect costs on these businesses associated with the increased number of federally certified engine sales that manufacturers would be permitted to sell in 2025. An increase in federally certified engine sales would likely decrease the demand for warranty repairs over time since federally certified 2025 engines would have shorter warranties.

[7] Zero-Emission Class 8 Truck Pricing Comparisons – EU & US, CARB, 2024, accessed on 3/15/2025.

Small businesses – businesses with 50 or fewer employees

ORS 183.336 - Cost of Compliance for Small Businesses

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

ACT Amendments
Under the proposed ACT rules, no small businesses would incur compliance costs to sell MHD ZEV trucks because they are exempt from the requirements if they sell fewer than 500 vehicles in a year. Small businesses may see indirect impacts as a result of the rule if they choose to purchase ZEV trucks. DEQ estimates the same impacts as described for large businesses related to Oregon vehicle dealers and Oregon businesses with fleets. These impacts are described in the large businesses section above.

HD Omnibus Amendments
Under the proposed HD Omnibus rule amendments, there are no small businesses directly affected; therefore no estimated number is provided. All the vehicle manufacturers subject to the requirements have more than 50 employees. However, small businesses that purchase new medium- and heavy-duty vehicles and vehicle dealers who sell these new vehicles may experience indirect cost savings if the proposed amendments are adopted.

For small businesses who purchase new medium- and heavy-duty vehicles, indirect costs are identical to costs described for non-DEQ state agencies on a per-vehicle basis.

For small businesses that sell new medium- and heavy-duty vehicles, indirect costs are primarily associated with 1) cost savings related to avoided 2025 market disruptions such as potential temporary manufacturer sales stoppages of medium- and heavy-duty vehicles and 2) increase in expected sales due to increased number of vehicles available to be sold in 2025 and 2026.

For small businesses that are involved in warranty repairs for new medium- and heavy-duty vehicles the indirect costs would be similar to those described for large businesses engaged in similar warranty repair work.

b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

Under the proposed ACT rules, no activities are required of small businesses to comply with the proposed rules, unless they are a manufacturer with more than 500 sales per year.

Under the HD Omnibus proposed rule amendments there are no anticipated direct increased costs to small businesses associated with reporting, recordkeeping and other administrative activities.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.

ACT Amendments
Under the proposed ACT rules, no additional activities are required of small businesses to comply with the proposed rules unless they are a manufacturer with more than 500 sales per year.

HD Omnibus Amendments
Under the HD Omnibus proposed rule amendments there are no anticipated direct increased costs to small businesses associated with equipment, supplies, labor and increased administration.

d. Describe how DEQ involved small businesses in developing this proposed rule.

DEQ included organizations that represented small businesses on the Clean Truck Rules 2025 Updates Advisory Committee. The committee advised DEQ on the cost of compliance for small businesses.

Documents relied on for fiscal and economic impact

Document title	Document location
2020 OGWC Biennial Report to Legislature	https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5fe137fac70e3835b6e8f58e/1608595458463/2020-OGWC-Biennial-Report-Legislature.pdf
Energy Innovation and UC Berkley's 2035 Report: Transportation	Download The 2035 2.0 Report from UC Berkeley | 2035 The Report (2035report.com)
CARB Heavy-Duty Engine and Vehicle Omnibus Rule Staff Report: Initial Statement of Reasons (ISOR), Appendix C-3: Further Detail on Costs and Economic Analysis	https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/appc3.pdf
CARB Initial Statement of Reasons for the Advanced Clean Trucks rule	https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/act2019/isor.pdf
Updated Costs and Benefits Analysis for the Proposed Advanced Clean Trucks Regulation	https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/act2019/30dayattc.pdf
Clean Trucks Analysis, Costs & Benefits of State-Level Policies to Require No- and Low-Emission Trucks (MJ Bradley & Associates study), 2021	https://www.erm.com/globalassets/documents/mjba-archive/reports/2021/clean-trucks-technical-report-final-09jun21.pdf
California's Advanced Clean Trucks regulation: Sales requirements for zero-emission heavy-duty trucks (ICCT study)	https://theicct.org/sites/default/files/publications/CA-HDV-EV-policy-update-jul212020.pdf
Zero-Emission Class 8 Truck Pricing Comparisons – EU & US, CARB 2024	https://ww2.arb.ca.gov/sites/default/files/2024-12/Zero%20Emission%20Class%208%20Tractor%20Pricing%20Comparisons_ADA.pdf
Analysis of Heavy-Duty Vehicle Sales Impacts Due to New Regulation (EPA 2021)	https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P101246N.pdf
The Concerns about Diesel Engine Exhaust, Oregon DEQ, 2015	Report - The Concerns About Diesel Engine Exhaust, Oregon DEQ
Portland Air Toxics Solutions Committee Report and Recommendations, Oregon DEQ, 2012	https://www.oregon.gov/deq/FilterDocs/PATS2012.pdf
California State Motor Vehicle and Engine and Nonroad Engine Pollution Control Standards; The "Omnibus" Low NOx Regulation; Waiver of Preemption, Decision Document (EPA 2024)	https://www.govinfo.gov/content/pkg/FR-2025-01-06/pdf/2024-31125.pdf
A Report on Actions for Medium- and Heavy-Duty Vehicle Energy and Emissions Innovation, (EPA & DOE 2024)	https://www.energy.gov/sites/default/files/2025-01/MHDV-Report-Actions-2024-12-19.pdf
Clean Truck Rules - Staff Report to Oregon's Environmental Quality Commission, Nov 2021	https://www.oregon.gov/deq/EQCdocs/111721_C_CleanTrucks.pdf
CARB Initial Statement of Reasons (ISOR) for Proposed Amendments to the Heavy-Duty Engine and Vehicle Omnibus Regulation	https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2023/hdomnibus2023/isor.pdf

Document title	Document location
California's Heavy-duty omnibus regulation: Updates to emission standards, testing requirements, and compliance procedures, International Council on Clean Transportation (ICCT), 2022	https://theicct.org/wp-content/uploads/2022/01/california-us-hdv-omnibus-reg-jan22.pdf
CARB Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments: Final Statement of Reasons (FSOR)	https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/hdomnibuslownox/fsor.pdf
Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards – Final Rule, December, 2022	https://www.epa.gov/system/files/documents/2023-01/new-motor-veh-air-poll-control-hd-eng-veh-stnd-frm-2022-12-20.pdf
U.S. heavy-duty vehicle NOx standards: Updates to emission limits, testing requirements, and compliance procedures, ICCT, July 2023	https://theicct.org/wp-content/uploads/2023/07/us-nox-standards-update-jul23.pdf
CARB and the Truck and Engine Manufacturers Association Agreement (Clean Truck Partnership), July 2023	https://ww2.arb.ca.gov/sites/default/files/2023-07/Final%20Agreement%20between%20CARB%20and%20EMA%202023_06_27.pdf
Clean Truck Partnership Commitments – Status and Outcome	https://ww2.arb.ca.gov/clean-truck-partnership
Advanced Clean Trucks Memo to Board Re: California Truck Availability Analysis, CARB Executive Officer Steven Cliff (September 2024)	https://ww2.arb.ca.gov/sites/default/files/2024-09/240925_actmemo_ADA_0.pdf
In-use NOx and black carbon emissions from heavy-duty freight diesel vehicles and near-zero emissions natural gas vehicles in California's San Joaquin Air Basin	https://doi.org/10.1016/j.scitotenv.2023.168188
Ecommerce and environmental justice in metro Seattle	https://www.sciencedirect.com/science/article/pii/S0739885923001221

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