State of Oregon Department of Environmental Quality

Draft Fiscal Impact Statement

Clean Truck Rules 2021

Summary

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). Oregon has previously opted-in to several of California's vehicle emissions standards and, with this rulemaking, will opt-in to standards for medium- and heavy-duty trucks. DEQ proposes to adopt California's Advanced Clean Trucks (ACT) Rule and Heavy-Duty Engine and Vehicle Omnibus rules (HD Omnibus). In addition, DEQ proposes to update existing Low and Zero Emission Vehicle Program rules to match revisions adopted by California since 2019. If adopted, DEQ's ACT rules would be applicable to vehicles in the model year that commences two years after the date of adoption. If the Oregon Environmental Quality Commission (EQC) adopts these rules in 2021, then they would be applicable to model year 2025 vehicles, which under federal rules may begin being sold on January 1, 2024 for medium-duty vehicles. The HD Omnibus rules would primarily be applicable to new, compression-ignition and spark-ignition trucks that are sold in Oregon with an engine model year of 2024 and beyond.

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
2024	5%	9%	5%
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 sold and delivered to a purchaser 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.

The rule also includes one-time reporting requirements for (1) the owners and operators of facilities in Oregon that operate fleets of trucks with a certain number of trucks in Oregon, (2) state, local, and government agencies, and (3) businesses with a certain annual revenue. Those persons are required to report information on vehicle usage and location data.

Heavy-duty Engine and Vehicle Omnibus Rule
These rules are for medium- and heavy-duty trucks sold in Oregon beginning with engine model year 2024. The rules require:

1) Lower nitrogen oxide (NOx) and fine particular matter ($PM_{2.5}$) standards for new truck engines (both diesel and non-diesel engines)
    a. NOx standard would be 75% and 90% below the current federal standards respectively in 2024 and 2027. NOx reductions will also reduce secondary nitrate $PM_{2.5}$ formation.
    b. $PM_{2.5}$ standard would be reduced by 50% primarily to prevent backsliding with potentially less efficient particulate controls to accommodate the lower NOx standard.
2) New, low load cycle standard which addresses emissions associated with low speeds, light payloads and other situations when emissions temperatures are not high enough to ensure proper catalyst operation
3) Lower NOx idling emission standard would be reduced by 67% and 83% below the current standard respectively in 2024 and 2027
4) Longer Useful Life and Warranty periods
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
8) Phase 2 greenhouse gas updates for trucks and trailers

LEV/ZEV updates to Light Duty Vehicles
Updates to the LEV rules for light duty vehicles includes On-Board Diagnostic (OBD II) requirements for light-duty vehicles. These changes clarify both existing definitions and testing requirements, and also allow manufacturers to certify future vehicles that comply with the OBD II regulation.

Adopting California's ACT, HD Omnibus and LEV/ZEV updates, described above, would ensure that Oregon's rules for new trucks conform to California's rules. Additionally, the rules would result in greenhouse gas and tailpipe emissions reductions.

Affected parties

The parties likely affected by these rules are:

- Truck and car manufacturers. Under the rules, businesses that manufacture trucks must comply with the motor vehicle emissions standards, testing systems, reporting, and other requirements.
- Truck purchasers. Under the rules, manufacturers may pass on the costs of complying with the rules to purchasers.
- Truck dealerships that sell new vehicles and conduct warranty repairs. Under the rules, warranty requirements may cause the dealerships to incur some costs.
- Businesses that manufacture engines for use by truck manufacturers. Under the rules, truck manufacturers will have to build zero emission, near zero emission, or cleaner diesel engine technology needed to produce compliant vehicles, including changing the way engines are manufactured.
- Truck fleets. Under the rules, owners of truck fleets, businesses that operate fleets on behalf of an entity, and all government agencies with a fleet truck will be required to report information on their operations and fleets. There may be costs associated with gathering the information.
- The public. Under the rules, trucks will be emitting fewer greenhouse gas and diesel emissions resulting in reduced health and environmental exposure impacts. Additionally, purchasers of light duty vehicles will benefit from a OBD II certification process that makes it easier for manufacturers to certify for future vehicles.

Fiscal and Economic Impact

General Assumptions

The fiscal and economic impacts of this proposal in California were developed by the California Air Resources Board (CARB) for its rulemakings. CARB conducted an extensive analysis for its rulemakings. DEQ closely reviewed CARB's analysis and DEQ agrees with the analyses. Since the rules that DEQ is proposing are identical to those adopted and proposed in California, DEQ concludes that the fiscal and economic impacts described by CARB for California also describe the relative effect of the likely fiscal and economic impacts that will occur in Oregon if the EQC adopts identical regulations. DEQ also is relying on the analysis done by CARB to estimate emissions reductions that will be achieved in Oregon, adjusted to address the differing Oregon demographics and vehicle miles traveled.

Overall Impact of the Rules

DEQ anticipates the proposed rulemaking will have a positive fiscal impact. This rulemaking addresses the State's overall efforts to address both the effects of climate change by reducing greenhouse gases and improving air quality through the replacement or upgrade of diesel and gasoline engines with zero emission technology for medium- and heavy-duty vehicles or more stringent NOx emission requirements for heavy duty vehicles. While there are increased compliance costs by entities directly affected by the rules (medium and heavy-duty manufacturers, fleet owners and operators, government agencies), DEQ estimates the anticipated reductions in greenhouse gas and criteria air pollutant emissions and decreased fuel consumption will result in net savings overall.

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 almost 40% 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. The costs of all these actions are significant and growing as it affects human health and safety, infrastructure, economic growth, crop production, water supplies, and fish and wildlife populations.

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 nitrogen oxides, 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 work days, and annual costs from exposure to diesel engine exhaust costs $3.5 billion every year.[1] The ACT and Heavy-Duty Low NOx Omnibus rules reduce NOx and PM emission associated with diesel emissions. As a result of these reductions, Oregon can expect to see reduced mortality, fewer hospital and emergency room visits and fewer missed days of work and school.

Overall, and for the reasons described above, the fiscal impact of Oregon adopting these proposed rules is expected to have a direct impact on truck manufacturers, fleet owners, and the public. The proposed rules are also anticipated to provide air quality benefits, reduce exposure to

[1] The Concerns about Diesel Engine Exhaust, Oregon DEQ, 2015, Report Template - from HQ (oregon.gov)

harmful air quality pollutants and provide overall greenhouse gas reductions to achieve the state's goals to address global warming.

Statement of Cost of Compliance

Public

Benefits of the regulations
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 HD Omnibus regulation will result in relatively minor reductions in greenhouse gas emissions, primarily due to the reduction of carbon monoxide which would lead to corresponding decreases in more potent greenhouse gases like methane. The primary benefits of the HD Omnibus rules are significant reduction in criteria air pollutants.

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 MMT 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. DEQ utilized CARB's analysis and methodology to estimate the emissions reductions and scaled them to fit Oregon's demographics and vehicle usage. DEQ estimates the cumulative CO2 reductions from 2024 through 2040 to be 2.4 MMT. An International Council on Clean Transportation (ICCT) 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.

Criteria air pollutant emissions reductions

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 PM2.5 reductions. Based on CFP 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 (GREET) tailpipe emission factors. ICCT study estimates the reduction in NOx emissions from 2020-2040 is 12,506 tons per year and for PM2.5 is 130 tons per year.

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.

Environmental Justice
Medium- and heavy-duty trucks are often utilized near distribution centers, ports, warehouses, and major roadways. These facilities are often located in densely populated urban areas, particularly near or in low-income and disadvantaged communities. The ACT rule facilitates the adoption of ZEV trucks in these communities that are often burdened with high emissions from more polluting vehicles.

Anticipated costs of the regulation
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. 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.

The LEV OBD II rules are expected to have an impact on vehicle prices. Under the OBD II rules, auto manufacturers will have to conduct data reporting. CARB has calculated the anticipated costs of compliance with the requirements to be $0.34 per vehicle. These costs include the reporting required for Over-the-air (OTA) software reprogramming. It is expected that auto manufacturers will pass on this cost on to consumers. Thus, the public may experience a small increase in the cost of a new vehicle. DEQ is utilizing CARB's analysis of these costs, since CARB extensively researched the costs of implementing the modifications to the OBD program, and DEQ believes it accurately reflects the costs of compliance in Oregon. Overall, the rules are expected to provide benefits to the public, in that they will result in more durable engines and vehicles. While there may be some additional cost to build these improved engines and emissions controls that may be passed on to the consumer, the result may be an overall savings for vehicle owners due to the need for fewer repairs.

Large businesses - businesses with more than 50 employees

Large businesses, specifically truck manufacturers and truck dealers selling new vehicles, would be affected by the proposed 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.

The impacts outlined below reflect the costs of complying in Oregon as a result of adopting California's rules. These rules involve a number of different components:

Total cost of ownership for ZEV vehicles:

While truck owners and fleet operators are not required to purchase ZEVs, for those that choose to do so there is an initial higher upfront cost they will likely have to bear. Currently, medium- and heavy-duty ZEVs are more expensive than gasoline or diesel trucks. There are a number of costs included besides the vehicle and battery costs, but also costs for 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. Electrical costs may be higher for some fleets in locations with high demand charges, by as much as 10% than for other commercial customers.[2] In addition to these higher costs, potential purchasers would also need to pay taxes on the trucks, such as a Federal Excise Tax that adds 12% to the purchase price. These higher upfront costs may be a barrier for potential purchasers and create challenges for manufacturers trying to comply with the sales requirements in the ACT. However, over the lifetime of the vehicle and following CARB's analysis it is also estimated there are lower operating costs over time. For example, battery electric vehicles are assumed to have lower vehicle maintenance costs and fuel savings are expected to be higher with electricity versus diesel or gasoline. A study by MJ Bradley and Associates looked at the overall fuel costs and estimated gasoline and diesel fuel prices to continue to increase by almost a dollar each from 2020 to 2050. (Clean Trucks Analysis, MJ Bradley, 2021) Electrical costs for fleets may decrease over time, as utilities shift from demand charging rates to a subscription based charging rate the overall cost of charging down. Cost parity for electric HDTs will approach upfront price parity with diesel trucks in the mid- to late-2030s (UC Berkley 2035 Transportation study).

According to CARB's analysis, MY 2024 ZEV trucks are forecasted to be between $14,000 - $87,000 higher than that of a conventional vehicle. Infrastructure costs to install charging stations was cited at $355,000 to provide enough charging capacity for six heavy-duty trucks.[3] Costs to upgrade existing charging stations to meet the charging needs of the larger trucks may be less per vehicle depending upon the number of charging stations installed, the location, and capacity of existing electrical needs.

The costs of the purchase price of the truck are anticipated to decrease over time, as the battery cost will continue to fall due to economies of scale with existing technologies and development of new battery technologies. Overall, battery costs have dropped by 87 percent since 2010, and continue to drop (Henze 2019). Charging infrastructure costs could be mitigated by Oregon's Clean Fuels Program, where credits generated by charger owners, fleet operators, and transit agencies, could be sold to fund electric vehicle and future infrastructure investments. Additionally, the overall initial higher costs of the vehicle the purchasers would incur are expected to be offset over the lifetime of the vehicle due to the fuel savings and lower maintenance costs.

At the same time, the ACT regulation will result in increased number of ZEVs for purchase and provide additional options for purchasers and fleets to choose the types of vehicles that meet their needs. 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.

[2] Clean Trucks Analysis, MJ Bradley and Associates, 2021
[3] Memo from Keith Wilson, Titan Freight, dated July 27, 2021

There is additional 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.

Compliance reporting
Manufacturers will also bear some burden in having to report information regarding the sales of vehicles to determine compliance with the ACT. Because manufacturers are already having to report this information to CARB under existing Phase 2 GHG regulations and requirements for ACT will initiate with the 2025 MY, the costs to manufacturers should be small as they are familiar with the reporting format and will only have to compile Oregon specific data.

Fleet reporting requirement
Oregon estimates there could be up to 1,440 large entities (companies, trucking fleets, and public entities) operating in Oregon that could be subject to the one-time reporting requirement[4]. It is anticipated these entities will be using information already collected by the entity for normal vehicle operations. DEQ estimates the time expended by each entity will be similar to those calculated by CARB, estimated on average to be a total of four hours to retrieve and report both company-specific information and vehicle information.

Cost of HD Omnibus
Total cost of ownership is impacted in two ways with the HD Omnibus rules. Manufacturers are likely to pass the increased costs of improved engine and aftertreatment technology on to businesses who purchase new trucks which would likely increase the baseline purchase price. However, there is an opposite effect in that longer warranty periods are likely to decrease engine and aftertreatment technology repair costs because of the use of more durable parts or coverage under warranty. As described above, CARB's analysis suggests the net impact of these effects would range from a cost-per-vehicle increase of $433 to $8,841 depending on fuel type and weight class.

There would also be impacts on large businesses that manufacture trucks and engines in the state. It is anticipated that the majority of those impacts would be reflected with an increase in the baseline purchase prices of their products. Additional administrative costs associated with the state-specific credit averaging, banking and trading program are expected.

Cost as a result of LEV Regulations
For the LEV rule updates to the OBD II regulation, the changes add streamlining and flexibility features, and is anticipated to be a positive fiscal impact on large businesses, particularly manufacturers who manufacture and certify medium-duty diesel engines and vehicles that comply with the OBD II regulation. The rules do include costs associated with reporting required

[4] **These estimates are based on 2020 ODOT registrations of vehicles 14,000 lbs or greater & California's assessment of affected fleet entities and scaled to meet Oregon's demographics and vehicle usage. It only assumes fleet sizes of 50 or greater. The ODOT registrations do not account for fleet sizes for vehicles between 8,500 lbs – 14,000 lbs.**

with software reprogramming but CARB anticipates these costs will be passed through to consumers.

Small businesses – businesses with 50 or fewer employees

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

ACT Rule
Under the proposed ACT rules, small businesses would not incur any mandatory compliance costs as a result of the proposed rules because they are exempt from the requirements, with the exception of any small businesses operating as a broker (someone who for compensation, arranges or offers to arrange the transportation of property by a motor carrier) or entity that dispatches 50 or more MHD vehicles. DEQ estimates the number of brokers could be XX, based on industry information. A small manufacturer, such as one with fewer than 500 annual medium- and heavy-duty vehicle sales, chooses to opt in, then they can participate in the program to earn credits for vehicles sold in Oregon. As a result, these opt-in businesses would see a positive fiscal impact because of their ability to sell credits to other manufacturers who wish to offset their deficits.

Small businesses may see indirect impacts as a result of the rule if they choose to purchase ZEV trucks. These impacts are described in the impacts to large businesses section above.

HD Omnibus
A search of Oregon impacted business was conducted within the ReferenceUSA database using the North American Industrial Classification System (NAICS). Industry codes searched were truck transportation (484) and engine and vehicle manufacturers (3363 and 3361). A total of 1,335 business were identified with the vast majority being small businesses.

Additionally, businesses that repair truck engines and/or aftertreatment technology may be impacted due to increased number of repairs associated with longer warranty periods.

LEV Rule
Under the LEV rules, small businesses that manufacture, purchase or service medium-duty engines could be affected.

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 additional activities are required of small businesses to comply with the proposed rules. Only large businesses are regulated.

Under the HD Omnibus rule, projected administrative costs are likely limited for small business. Some businesses that repair truck engines or aftertreatment technology may see an increase in repair work that could lead to increased administrative costs.

Under the LEV rules, a small business could incur costs due to the collection of data required to report the information for medium-duty vehicles subject to OBD II certification. CARB estimates this could involve up to 8 hours per week to report.

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

ACT Rule
Under the proposed ACT rules, no additional activities are required of small businesses to comply with the proposed rules. Only large businesses are regulated. The ACT rules may result in benefits to small business as a result of more ZEVs being available. Infrastructure buildout, including the need for electricians, construction companies, EVSE suppliers, and maintenance companies could create a demand for jobs and services by small businesses.

HD Omnibus Rule
Under the HD Omnibus no anticipated increases are expected for small businesses under this rule other than those already described related to the increased purchase price of new medium- and heavy-duty trucks described under the large businesses section above.

LEV Rule
Under the LEV rules, a small business could incur costs due to administration required to report the information for medium-duty vehicles subject to OBD II certification. CARB estimates this could involve up to 8 hours per week to report.

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

DEQ consulted with small businesses and included organizations that represented small businesses on the Clean Trucks Rule Advisory Committee that advised DEQ on the cost of compliance for small businesses.

State agencies

DEQ will see a fiscal impact as a result of the rules. The ACT rule requires manufacturers to deliver ZEV trucks for sale in Oregon and submit annual information on its sales reporting, credit transfer information and credit declaration. DEQ will need to review and verify these reports to ensure compliance with the ZEV sales targets and pursue enforcement actions as needed. DEQ also anticipates it will need to conduct a variety of outreach activities to ensure all regulated entities are aware of the fleet reporting requirements and to provide support to these entities regarding what information they must provide. Additionally, the fleet reporting

requirement will require DEQ to collate this information or modify an existing reporting system to handle the reporting.

State agencies who own or operate a medium- or heavy-duty vehicle will also experience a fiscal impact as a result of the fleet reporting requirement in the ACT rule. Based on CARB's analysis of the reporting time required, which DEQ anticipates will be similar in Oregon, the amount of time and effort to report will vary based on the number of facility categories and vehicles owned. State agencies are likely to have this information already collected but the time needed to train individuals on the regulatory requirements, compile information from various offices within the agency, and submit the information will still be a burden on the agencies. Depending upon the size of the facilities and vehicle fleet, CARB estimates it could take a few hours or more to complete the reporting requirements.

To the extent that these rules are successful in increasing the number of ZEV vehicles and it decreases the amount of motor vehicle fuel purchased in Oregon, this could impact state fuel tax revenues and the state agencies and programs that rely on them.

The Heavy Duty Omnibus rules would require that new, conventionally-fueled medium- and heavy-duty trucks sold in Oregon meet lower engine emission standards. DEQ would need to conduct outreach to all dealerships in Oregon to inform them of the requirements and verify dealership compliance with the requirements over time with the assistance of other state agency partners, such as the Oregon Department of Transportation.

State agencies who continue to purchase conventionally-fueled medium- and heavy-duty trucks may experience a fiscal impact as a result of an increased cost of the newer, lower emission engine and aftertreatment technology that may be passed on to vehicle purchasers from the manufacturers. CARB's analysis indicates that the net cost impact of these rules on the purchase price of trucks with engine model 2031 or later may range from and increase of 5.2% to 9.5% ($5,557 to $8,841) for diesel trucks and 0.4% to 8.8% ($433 to $4,589) for trucks with spark ignition engines (2018 dollars). The 2031 model year was used since this would reflect the full implementation of the lengthened warranty. Net cost impact is expected to be lower than the 2031 estimates for engine model year 2024 through 2030.

Under the LEV OBD II rule impacts on state agencies are expected to be the same as the impacts on the public, described above.

Local governments

Impacts on local governments are expected to be the same as the impacts on state agencies with regards to the fleet reporting requirements in the ACT rule. The fuel tax revenue impacts could also affect local government revenues and programs that rely on that funding source.

Under the LEV OBD II rule impacts on local governments are expected to be the same as the public.

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
Air Quality Benefits of a Future National Heavy-Duty Truck Standard, Part1, Appendix A: National and State CTI Scenario 2035 Results Summary (Manufacturers of Emission Controls Association report)	http://www.meca.org/resources/Copy_of_Appendix_A_-_National__State_CTI_Scenario_Summary.xlsx
Air Quality Benefits of a Future National Heavy-Duty Truck Standard, Part 2, Air Quality Model Analysis of a Potential Cleaner Trucks Initiative Scenario (Alpine Geophysics report to Manufacturers of Emission Controls Association), June 2020	http://www.meca.org/resources/Alphine_Modeling_Report_Part_1-2_Final_0620rev.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
New Jersey Advanced Clean Trucks Program and Fleet Reporting Requirements Proposed Rules	https://www.nj.gov/dep/rules/proposals/20210419a.pdf
CARB Initial Statement of Reasons for the HD OBD and OBD II Regulation	https://ww2.arb.ca.gov/sites/default/files/classic/regact/2018/hdobd18/isor.pdf?_ga=2.268788210.2006016247.1626656263-967020819.1624571359

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)	https://www.mjbradley.com/sites/default/files/Clean%20Trucks%20Technical%20Report%20FINAL%2009jun21.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
Battery Pack Prices Fall As Market Ramps Up With Market Average At $156/kWh In 2019 (Henze article)	https://about.bnef.com/blog/battery-pack-prices-fall-as-market-ramps-up-with-market-average-at-156-kwh-in-2019/
The Concerns about Diesel Engine Exhaust, Oregon DEQ, 2015	Report Template - from HQ (oregon.gov)

Alternative formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

For questions about accessibility or to request an accommodation, please call 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696. Requests should be made at least 48 hours prior to the event. Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.