

Retrofit Compliance 2021 Rulemaking

Summary

Rulemaking Advisory Committee Meeting #1

Sept. 18, 2020, 9 a.m. to 12 p.m.
Online Webinar



State of Oregon
Department of
Environmental
Quality

Committee Members in Attendance

Committee Member	Affiliation	Representing
Audrey Lawson	Commerce & Compliance Division (Oregon Department of Transportation)	State of Oregon HB 2007 Partner Agency
Corky Collier	Columbia Corridor Association	Small Fleets
Cory Hansen	Oregon Refuse & Recycling Association	Solid Waste Management Industry
Dave Scarfe	Elite Emission Products	Retrofit Technology Installation and Service
David Breen	Port of Portland	Intermodal Freight, Ports and Drayage
Jana Jarvis	Oregon Trucking Association	Private Heavy-Duty Fleets
Jason Novak	United Parcel Service Fleet Services	Fleets regulated by HB 2007
Kevin Brown	Manufacturers of Emission Controls Association	Emission Control Industry
Mary Peveto	Neighbors for Clean Air	Clean Air Community-Based Organization
Morgan Gratz-Weiser	Oregon Environmental Council	Environmental Community-Based Organization
Rich Angstrom	Oregon Concrete & Aggregate Producers Association	Concrete & Aggregate Business
Steve Hoke	Diesel Emission Service	Retrofit Technology Installation and Service
Tom Keyser	Washington County Fleet Services	County regulated by HB 2007
Tommy Moreno	Franz Bakery Corporate Fleet	Fleets regulated by HB 2007
Tracy Olander	Policy and Operations, Driver and Motor Vehicle Services (Oregon Department of Transportation)	State of Oregon HB 2007 Partner Agency

Vehicle Inspection Program

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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Committee Members Not in Attendance

Committee Member	Affiliation	Representing
Allen Schaeffer	Diesel Technology Forum	Diesel Equipment and Technology
Amy Aguilar	Clackamas County Fleet Services	County regulated by HB 2007
David Silva	Multnomah County Fleet Services	County regulated by HB 2007
Larry Gescher	Association of General Contractors	Construction Companies

Kenechi Onyeagusi	Professional Business Development	Disadvantaged, minority-, women- and service-disabled veteran-owners
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Staff Present

Staff Member	Affiliation
Rick Reznic	DEQ
Gerik Kransky	DEQ
Michael Orman	DEQ
Ali Mirzakhali	DEQ
Monty Grubbs	DEQ
Michael Skorupka	DEQ
Penny Mabie	EnviroIssues
Marilee Jolin	EnviroIssues
Max Farbman	EnviroIssues

Community Members Present

Community Member	Affiliation
Scott Bohl	Oregon Department of Education
Jocelyn Blake	Association of Oregon Counties
Wayne Cochrane	Diesel Emission Service
Logan Cook	Lewis and Clark College
Dan Cornell	Roseburg Forest Products Company
Jon Dressel	None listed
Al Elkins	None listed
Fernando Fernandes Pereira	None listed
Keith Hormann	City of Forest Grove
Jennifer Joly	Oregon Municipal Electric Utilities Association
Dan Lyon	CDTi Advanced Materials, Inc.
Judy Marsh	Tualatin Soil and Water Conservation District
Karl Pepple	U.S. Environmental Protection Agency
Scott Thorsgard	Allweather Wood
Floyd Veragara	National Biodiesel Board

Meeting Commencement

Meeting Objective

Rick Reznic, Oregon Department of Environmental Quality (DEQ), opened the meeting by welcoming the participants and introducing himself as the Implementation and Operations Analyst for the HB 2007 Retrofit Compliance Rulemaking Process. He then introduced Ali Mirzakhali, DEQ's Air Quality Administrator, to share some opening remarks.

Mirzakhilili welcomed the committee members and thanked them for their participation on the Rulemaking Advisory Committee for the HB 2007 Retrofit Compliance Rulemaking. He noted that Oregon's fleet of medium- and heavy-duty trucks is vital to the state's infrastructure and the needs of many Oregonians. He also stated that diesel engines are long-lasting, and many have been on the road for decades. Because of this, Oregon is still seeing significant pollution from older diesel engines, even as diesel emission reducing technology has improved. He noted that the ability to equip trucks with aftermarket retrofit technology can be vital in reducing diesel pollution while keeping most older fleets on the road. He told stakeholders that the goal of today's meeting is to get committee members' input on:

- How DEQ can craft rules that are technically sound and realistic
- The acceptable retrofit criteria for the program
- What administrative requirements should be included in the program

Committee Charter and Ground Rules

Penny Mabie, EnviroIssues facilitator, asked stakeholders to introduce themselves and their affiliations. Their responses are reflected in the attendee tables above. Mabie then reviewed the charter with committee members. She noted that all committee members were asked to review the charter before the meeting so she would only highlight the following key elements:

- The charter states that committee members should attend each meeting. They can send an alternate if they are not able to attend, but it is the committee member's responsibility to brief their alternate so they can participate fully. If both the alternate and committee member attend, only one can participate. If a committee member must miss a meeting and cannot find provide an alternate, they should inform Rick Reznic so he can brief the committee member after the meeting if possible.
- The charter has several ground rules and Mabie specifically noted the following:
 - Treat everyone and his or her opinions with respect.
 - Allow one person to speak at a time.
 - Be courteous by not engaging in sidebar discussions.
 - Avoid representing to the public or media the views of any other committee member or the committee as a whole.

Mabie asked if any committee members had any questions or concerns on the charter. None did and the committee approved the charter.

Mabie then gave an overview of the meeting. She described the following three-part structure of the meeting:

- Part 1: Reznic will give an overview of the HB 2007 Retrofit Compliance pathway and pose some questions to the committee.
- Part 2: Committee members will be asked to share their input on the fundamental elements of the program.
- Part 3: Public comment period.

Presentation: HB 2007 Bill Language and Program Design

DEQ Elements of HB 2007

Rick Reznic explained that HB 2007 was adopted during the 2019 legislative session and has several provisions for reducing air pollution from diesel vehicles and equipment. He noted that this rulemaking will focus on specific provisions of the titling and registration requirements of certain vehicles along with diesel engine requirements. He stated that he would go over the details and the requirements of the bill language,

focusing on subject vehicles and DEQ's responsibilities in Section 7 as they pertain to the approved retrofit compliance pathway for medium- and heavy-duty vehicles. Reznic stated that DEQ is working with its partners in the Oregon Department of Transportation to develop a retrofit certification process that will work with the existing vehicle registration process. He noted that DEQ's retrofit compliance program will ensure that only proven diesel pollution reduction technology will satisfy the requirements of the retrofit compliance pathway outlined in HB 2007. He explained that this will advance DEQ's goal to improve the air quality for some of Oregon's most vulnerable populations, since these neighborhoods often overlap with areas that have the highest concentration of diesel pollution.

Definitions

Reznic noted that Section 4 of HB 2007 contains criteria for the Oregon Department of Transportation related to "Titling and registration of certain vehicles; diesel engine requirements." He also noted that it includes terms defined in the Oregon Revised Statute, which are used to describe the regulated entities. Three of these terms appear throughout HB 2007, including in DEQ's obligations in Section 7. He explained that the terms and definitions found in ORS 468A.795 are:

- **Diesel engine:** "means a compression ignition engine"
- **Heavy-duty truck:** "means a motor vehicle or combination of vehicles operated as a unit that has a gross vehicle weight rating that is greater than 26,000 pounds."
- **Medium-duty truck:** "means a motor vehicle or combination of vehicles operated as a unit that has a gross vehicle weight rating that is greater than 14,000 pounds but less than or equal to 26,000 pounds."

Reznic explained that the retrofit compliance rules will be placed in a new section of "Chapter 340 Division 256 Motor Vehicles." He also explained that DEQ will amend the current definitions and rules to add the new rule language.

HB 2007 Medium- and Heavy-Duty Diesel Compliance Option

Reznic explained that Section 4 of HB 2007 establishes deadlines after which older-model diesel engines cannot be registered or titled in Clackamas, Multnomah and Washington counties, unless the engine is equipped with approved retrofit technology established by Oregon's Environmental Quality Commission. He noted that HB 2007 indicates that the Oregon Department of Transportation (ODOT), "may issue a certificate of title, issue registration or issue renewal of registration under the following conditions:

- "The diesel engine that powers the motor vehicle has been retrofitted with approved retrofit technology..."
- "Proof of certification of the retrofit has been issued..."

Reznic explained that there are two sections that provide registration and titling, among other services, for ODOT. The Driver and Motor Vehicles section provides the services for medium-duty vehicles and the Commerce and Compliance Division provides the services for heavy-duty vehicles.

Reznic then laid out the bill's the timeline for HB 2007 subject vehicles. He emphasized that the bill refers to the year a vehicle's engine is manufactured and not the year the vehicle itself was manufactured. This is referred to as the engine model year (EMY). He explained that engines are manufactured separately from the vehicle chassis and are typically one year older than the vehicle model year (VMY).

- **Beginning Jan. 1, 2023** – A medium-duty or heavy-duty truck powered by a model year 1996 or older diesel engine cannot be registered.
- **Beginning Jan. 1, 2025** – A medium-duty truck powered by a model year 2009 or older diesel engine cannot be titled. A heavy-duty truck powered by a model year 2006 or older diesel engine cannot be titled.

- **Beginning Jan. 1, 2029** – A medium-duty truck powered by a model year 2009 or older diesel engine cannot be registered. A publicly owned heavy-duty truck powered by a model year 2009 or older diesel engine cannot be registered. A privately owned heavy-duty truck powered by a model year 2006 or older cannot be registered.

Environmental Protection Agency (EPA) and California Air Resources Board (CARB) On-Road Diesel Emissions Standards

Reznic explained that there have been significant particulate matter and NOx reductions in diesel engine standards over the years due to engine design improvements and additional pollution control technology. He noted that Oregon's phased approach for vehicle registration and compliance options subject to HB 2007 will reduce emissions from older medium- and heavy-duty diesel vehicles. He stated that the retrofit compliance pathway will provide the option for those who choose to keep older trucks registered in the subject areas (Clackamas, Multnomah, and Washington counties).

Diesel Retrofit Technology

Reznic explained that diesel retrofit technologies are aftermarket components installed on a vehicle that are designed to reduce emissions. He noted that the availability, effectiveness, and cost of retrofit technologies varies by application and he cautioned that some vehicles may not be good candidates for retrofit options due to poor engine condition or the age of the vehicle.

Retrofit Technology and Pollution Reductions

Reznic provided an overview of four different retrofit technologies. He noted that these examples are not meant to be a comprehensive list and that most components can work together in different retrofit applications.

Closed Crankcase Ventilation (CCV)

Reznic explained the following details about CCVs:

- **System description:** Not all particulate matter emissions escape from the tailpipe of vehicles. In some cases, 25% of total emissions can escape from the vehicle's crankcase. CCVs are filter devices fitted to the crankcase filter vent to reduce particulate matter (PM) emissions.
- **Emissions reduction potential:** CCVs can reduce up to 100% of PM emissions from the crankcase.
- **Maintenance considerations:** Filter elements must be replaced at normal oil change intervals.
- **Typical cost:** \$450 – \$700.

Diesel Oxidation Catalyst (DOC)

- **System description:** DOCs are catalytic converters designed specifically for use with diesel engines. DOCs are suitable and available for most types of engines, although they do require a minimum exhaust temperature for optimum function, which is not achieved in all duty cycles. DOCs are sometimes paired with other retrofit components including CCVs. Problems with fuel control or oil consumption can affect the life and performance of a DOC.
- **Emissions reduction potential:** Pollution reductions vary based on the application.
- **Maintenance considerations:** Problems with fuel control or oil consumption can affect the life and performance of a DOC.
- **Typical Cost:** \$2,000 – \$5,000 dollars.

Diesel Particulate Filter (DPF)

- **System description:** DPFs use a filter to capture PM from diesel exhaust. DPFs regenerate by reaching a temperature around 1,100 degrees Fahrenheit which reduces the captured PM to ash. There

are two types of DPF systems available: active and passive systems. Regeneration can occur passively in some duty cycles or is actively induced through other sources of fuel or heat.

- **Emissions reduction potential:** DPFs can reduce carbon monoxide, PM, and hydrocarbons by up to 90%. There is one DPF on the market that is verified to reduce NOx by 25% using a lean NOx catalyst. Another system uses exhaust gas recirculation to reduce NOx by up to 40% but is no longer available on the market.
- **Maintenance considerations:** DPF filters must be cleaned every 6 to 12 months to remove noncombustible materials and ash. Maintenance schedules vary based on engine maintenance and performance.
- **Typical cost:** A passive system typically costs \$10,000 – \$16,000. There are two categories of active systems: fuel-base active regeneration systems and electric or plug-in systems. Fuel-based systems typically cost \$8,000 – \$16,000. Electric or plug-in systems typically cost \$10,000 – \$16,000.

Selective Catalytic Reduction (SCR)

- **System description:** SCRs chemically reduce NOx molecules into molecular nitrogen and water vapor using a nitrogen-based reagent like ammonia or urea. Diesel exhaust is routed through injection ductwork where the reagent reacts with NOx at a specified temperature range. In diesel vehicles with engine model years of 2010 and newer, SCRs are combined with DPFs to achieve broad PM and NOx reductions. DOCs are also used as an auxiliary catalyst in some DPF/SCR systems, although their function is different than a standalone DOC.
- **Emissions reduction potential:** SCRs can reduce NOx emissions by over 90% and hydrocarbon emissions by 80%.
- **Typical cost:** There are no current SCR retrofit systems available on the market so cost data is not readily available.

Criteria HB 2007 Obligates DEQ to Consider

Reznic explained that Section 7 of HB 2007 obligates the Environmental Quality Commission (EQC) to consider the following when determining the criteria and approved retrofit technologies for this program:

- California's regulations for reducing diesel emissions.
- The technologies approved as qualifying retrofits established by the EQC under ORS 468A.799.

Reznic went on to explain California's regulation and ORS 468A.799.

California On-Road Diesel Retrofit Technology

Reznic explained that California's statewide Truck and Bus Regulation was developed in 2008 and that for over a decade, the California Air Resource Board (CARB) has evaluated verification data provided by manufacturers of diesel retrofit technologies. He noted that CARB maintains a current list of approved DPF technologies by executive order. He stated that all DPF retrofits on the list must reduce particulate matter emissions by at least 85%. These retrofits are classified as Level 3 diesel reduction strategies.

Reznic went on to explain that, similar to Oregon's bill, older medium- and heavy-duty vehicles need to be replaced or repowered with a 2010 or newer engine following California's engine model year (EMY) schedule. Heavy-duty vehicles can comply with CARB-approved DPF retrofit requirements until 2023 when they are required to all be EMY 2010 or newer.

Reznic also explained that there are areas within the state labeled as NOx exempt areas. Medium- and heavy-duty vehicles operating exclusively in the NOx exempt areas can comply with approved Level 3 DPF retrofit technology requirements. Any vehicle with a DPF and designated in the NOx exempt area remains exempt

from the requirements of the EMY schedule. Reznic stated that California is using DMV registration renewal denial to enforce DPF and EMY regulation.

Reznic also noted that CARB maintains a list of certified retrofit installers on their website. These installers receive certification by the retrofit manufacturers. He explained that the retrofit installers perform a pre-inspection compatibility assessment on all vehicles and data logging is measured and recorded for specific operational duty cycles to ensure that correct temperatures and conditions are met.

ORS 468A.799 – Standards for Qualifying Replacements, Repowers, and Retrofits

Reznic explained that ORS 468A.799 establishes standards for determining what DEQ can support with incentive funds. It states that “the standards adopted by the commission under this section must require, at a minimum: Reduction of diesel particulate matter emissions by at least 85 percent.” And that “technologies approved as qualifying repowers or retrofits that have been verified by the United States Environmental Protection Agency or the California Air Resources Board is included in the standards.” Reznic pointed out that the particulate matter reduction target of at least 85% in ORS 468A.799 aligns with the CARB standards of Level 3 verified DPF technologies.

Reznic also noted that the EPA maintains a list of verified retrofit technologies for use in its retrofit programs. He explained that EPA’s list includes technologies designed and evaluated to reduce particulate matter emissions from certified engine configurations. Reznic also stated that EPA certifications are based on technology specifications of the devices, emission reduction criteria, and verification letters based on test data and technical information.

Question: In addition to current CARB and EPA verified diesel particulate filter devices, what else does the committee believe that DEQ should consider when developing its approved list?

Reznic asked committee members to respond to the above question. Their responses included:

- A committee member stated that her members who have tried to utilize retrofit technologies have told her that the technologies do not work well for them for a variety of reasons. She stated that she will provide more details on their complaints by the next meeting.
 - Reznic responded that anything that the committee can be provided regarding real world applications of these technologies is helpful.
- A committee member asked if DEQ will create its own list independent of the California or EPA list and monitor new retrofit technology to potentially include on the list. He noted that that seems like an appropriate option and would ensure that people who want to do a retrofit in Oregon would have access to the latest technology.
 - Reznic responded that DEQ does not have the resources to develop a system to evaluate the latest retrofit technologies like CARB and EPA do. He noted that any new technologies are evaluated by both CARB and EPA. He said that DEQ understands that there may be newer retrofit technology that will become available depending on the incentives for providing those technologies. The agency wants to ensure that people who are looking to comply with the regulation know exactly what technology is approved and the CARB and EPA lists are an established way of doing that.
 - The committee member responded that he thought this policy would discourage early adoption of technology because someone who wants to retrofit their vehicle needs to wait for CARB and EPA to go through their verification processes. He suggested building some flexibility into the rule to allow for early adoptions of emerging technologies when this may achieve greater emissions reductions.

- Another committee member followed up to say that companies are not allowed to sell emissions reductions products unless they are verified by CARB or EPA. He thought it would be above scope to have DEQ do something different than CARB or EPA.
 - A third committee member agreed.
- A committee member noted that if a product is verified by CARB, then no matter where in the world it is sold, the seller must report its sales along with any warranty claims or device issues to CARB. He stated that if more than a certain percentage of devices experience failures, the manufacturer must recall those devices. This provides quality assurance of the retrofit technologies. For this reason, he thought there was no reason for DEQ to allow anything other than CARB and EPA verified devices.
- A committee member cautioned that DEQ needs to make sure there is always a competitive market for retrofit technologies and that any specific group of trucks should not be subject to a monopoly of supply.
- A committee member asked if there are enough devices on the EPA and CARB list to cover the range of uses across medium- and heavy-duty trucks.
 - A second committee member responded that there are. He noted that if more were needed, those would be brought to market.
 - A third committee member asked the second committee member if he had any information from CARB on what retrofit programs and systems work best.
 - The second committee member noted that CARB does not keep that data and cannot legally say that one manufacturer of retrofit technologies has more issues than another. He noted that a retrofit technology must match the application and the vehicle's duty cycle to be effective. He stated that in the early days of California's program there was a lot of misapplication of devices. He also noted that retrofits work best for municipalities and small fleets looking for quick particulate matter reductions. They are not as good of an option for long haul carriers who would be better off investing in new technology.
 - The third committee member responded that the misapplication of technology in the early days of California's program has led to a negative perception of retrofit technology in the industry.
- A committee member noted that the price Reznick listed for Level 3 DPFs (\$10,000 – \$16,000) seemed low to him and that he's heard the range is closer to \$15,000 – \$35,000.
 - Another committee member noted that Reznick's pricing was for medium- or heavy-duty trucks. He pointed out that the smaller the engine, the cheaper the DPF.
- A committee member also pointed out that Reznick stated DPFs could reduce 85-90% of particulate matter emissions, but that he had heard DPFs reduce 98-99% of particulate matter emissions.
 - Another committee member explained that by law, California can only certify that a device reduces particulate matter by 85%. The EPA can certify a higher percentage but then a manufacturer will be held accountable to that claim. Most manufacturers will not guarantee a particulate matter reduction above 90% because there are other factors that could reduce the efficacy of the filter.
 - A third committee member added that a DPF in good health should reduce particulate matter emissions by 99%.

Vehicles Subject to HB 2007

Reznick presented the committee with a chart showing how many vehicles will be subject to HB 2007 based on ODOT data. He stated that, as of May 2020, there are around 527 medium-duty and 465 heavy-duty vehicles that will need to provide approved retrofit compliance in order to renew their registration in Multnomah, Washington or Clackamas County effective January 1, 2023. He noted that medium-duty diesel vehicles

renew their registration on a quarterly basis (although they also have the option to renew annually) and heavy-duty diesel vehicles have a registration expiration date of December 31.

Reznic also explained that the ODOT data can give an idea of how many vehicles may be subject to regulation in 2029, based on the current number of vehicles. He stated that, as of May 2020, around 4,666 medium-duty and 2,031 heavy-duty diesel vehicles would be subject to the regulation. However, this number will decrease by 2029 because of the 2025 titling restriction and because of fleet turnover. He showed an estimate that 2,822 medium-duty and 1,570 heavy-duty vehicles could be subject to the regulation in 2029 (assuming a useful engine life of 25 years).

Question: Should DEQ approve retrofit technology to satisfy engine model year 2010 requirements and if so, what should DEQ consider?

Reznic asked committee members to respond to the above question. Their responses included:

- A committee member noted that as of today there is no selective catalytic reduction (SCR) retrofit technology that could reduce NOx emissions from a pre-2010 diesel engine to the level required of 2010 engines.
 - Reznic explained that he is asking whether the approved retrofit technology list that is established by DEQ should fulfill EMY 2010 requirements.
 - The committee member responded that if there was an SCR system for 2007-2009 engines, that could fulfill the requirements (since those engines also have a DPF that reduces particulate matter emissions to the level required of 2010 engines) but there is no such technology on the market.
- A committee member stated that a retrofit should not satisfy EMY 2010 requirements because a lot more went into 2010 engine certification than just reducing emissions. He did suggest that DEQ could allow a vehicle repowered with a 2010 or newer engine to qualify.
- The same committee member also noted that there are some engines from 2007-2010 that do not have DPFs because of an exception in the CARB regulation. He stated that CARB has a list of which engines met this exception.
- The same committee member also cautioned DEQ that there are trucks called “glider kits” which consist of a truck chassis and cab without a drivetrain. They were initially meant to repair trucks that were involved in rollovers. He stated that the agency should make sure that people do not install a pre-2010 engine in a glider kit and try to pass it off as a vehicle with an EMY of 2010 or newer.

Reznic followed up to ask another question: Once a verified retrofit is approved for a vehicle subject to the first phase of HB 2007, should that vehicle meet the registration requirements of 2029?

- A committee member thought HB 2007 was designed so that a vehicle like this would meet the 2029 registration requirements.
- A second committee member asked if there was a limit on how long the retrofits were good for. He noted that if someone made the investment to retrofit their vehicle, they should be allowed to run the vehicle for a while.
 - The first committee member stated that the committee could look back at the legislative history, but in discussions on the bill, they talked about it as if it would still meet the 2029 registration requirements.

What Oregon’s Program will Need to Certify Approved Retrofits

Reznic explained that to support approved retrofit certification, Oregon’s program will require technology enhancements. The technology will include a data sharing service providing the transfer of medium-and

heavy-duty registration information to DEQ from ODOT's Driver and Motor Vehicle Services (DMV) and its Commerce and Compliance Division (CCD). DEQ's approved retrofit compliance certification will be transmitted to DMV and CCD.

Reznic noted that DEQ will also need two positions to support retrofit compliance program service delivery, technical support and customer service support. He said that DEQ will be requesting a technology and position authority package at the 2021 legislative session.

Reznic also explained that DEQ maintains a list of "Recognized Clean Diesel Service Providers." He noted that the list is not a recommendation or guarantee of work but a guide to facilities that meet minimum experience and maintenance requirements. He explained that the agency surveyed nine of the existing facilities that provide diesel retrofit services and heard back from two local facilities that are representing installers on the committee. Reznic said that both facilities have the capability to install retrofit components from the CARB and EPA approved lists and they also provide warranty and maintenance work on retrofit installations.

Question: Should DEQ require maintenance or cleaning records to maintain approved certification?

Reznic asked committee members to respond to the above question. Their responses included:

- A committee member thought that DEQ does not need to monitor maintenance or cleaning records. He did think, however, that the state would need to act as a "referee" in instances where a retrofit system fails and the installer says it was because the customer did not properly maintain the system while the customer says the installer made a mistake in the installation. The committee member noted that this is the role that CARB plays in their program.
 - A second committee member agreed that DEQ does not need to monitor maintenance saying that if an operator does not maintain their truck (including its retrofit system), then the truck will not run, and the operator will not make money. Thus, she thought DEQ could count on operators to maintain their retrofit systems.
 - A third committee member agreed that DEQ should not monitor maintenance because it would be too difficult and DEQ likely does not have the capacity.
- A committee member stated that the answer to this question is predicated on the answer to the previous question – whether a vehicle with a retrofit remains eligible for registration in 2029. She noted that if someone can retrofit their truck and have it remain compliant indefinitely, then the State should make sure it is functioning with the level of emissions reductions that the State expects it to. She also compared this to DEQ's vehicle emissions inspection program which she said demonstrates that there is a lot of need for ongoing maintenance to maintain emissions controls in engines.
- A committee member suggested revisiting the question in the future. She noted that, on the one hand, she saw the potential difficulty in creating a new inspection program. But on the other, she thought that if people are getting these retrofits to comply with a stricter emissions standard, then it is important to ensure the retrofits are working to maintain that standard into the future.
- A committee member noted that California does require all fleets (including retrofit vehicles) to undergo periodic smoke testing. This helps track efficacy of emissions reductions technology.
- Reznic clarified that these maintenance records would be to continue the approved retrofit component and thus would be part of the retrofit compliance program, not another program.
 - A committee member followed up to ask what this verification would look like if DEQ did not create a whole new program.
 - Reznic explained that trucks renew their registration quarterly or annually. Once the retrofit is installed, they will continue to renew their vehicles. To ensure that a system is operating as it

should, DEQ could request documentation or an attestation that the equipment is still installed and working correctly.

- The committee member noted that another committee member had mentioned that the retrofit systems record data on emissions and suggested that DEQ use that data to verify compliance rather than doing actual tests.
- A committee member noted that the audit procedures for her members require maintenance records. She offered to do research on how DEQ could easily verify maintenance of retrofit systems and bring that information back to the next meeting.

Discussion: Program Considerations

Reznic explained that for this part of the meeting he would pose discussion questions related to the program along with information on what DEQ is considering for the program. He asked that committee members let him know if there is anything else DEQ should consider for program implementation on each topic.

Pre-Implementation – Outreach

Reznic asked the following question: What type of outreach should DEQ perform regarding approved retrofit compliance and on what timeline?

He listed the following outreach methods DEQ is already considering implementing in the third quarter of 2021:

- Update agency website information to include approved retrofit information, technical assistance, Volkswagen grant program information and FAQs.
- Provide information to counties, cities and municipalities subject to HB 2007.
- Mail letters to inform registered owners and businesses subject to regulation.
- Work with retrofit manufacturers to provide installer information and resources.
- Provide information presentations and webinars.

Committee members made the following comments:

- A committee member thought this list of outreach activities was comprehensive. She suggested that DEQ focus initial outreach on people who will be subject to the 2023 deadline.
- A committee member asked when implementation would begin
 - Reznic clarified that it would begin on January 1, 2023, for medium- and heavy-duty trucks with an EMY 1996 or older.
- A committee member noted that he does not believe there is a competitive retrofit market for most trucks with an EMY before 1994.
- A committee member noted that DEQ has exemptions from the regulations for people who own five or fewer trucks or drive less than 5,000 miles. She suggested that DEQ should ensure to address those exemptions in their outreach and not confuse people who are exempt by sending them communications meant for people who are not exempt.
 - Reznic noted that DMV and CCD would consider those exemption provisions as they determine which vehicles need to comply with the retrofit compliance pathway to register or renew.
- A committee member noted that he thought working with retrofit manufacturers to provide installer information and resources is a good idea but he worries that the information would go out of date quickly and it would be hard for DEQ to keep updating it. He suggested pointing people to the CARB and EPA lists with links to manufacturers instead of duplicating those efforts.

- Another committee member noted that EPA does not specify installers. Instead they would send the customer to the manufacturer who would suggest an installer. He also noted that the CARB list is outdated. He said that Oregon has a certified installer list that needs to be updated.
- The first committee member responded and suggested that DEQ include a disclaimer telling people to check with the original engine manufacturer to make sure they are getting the most current information.
- Reznic noted that DEQ does plan to reach out to retrofit manufacturers and provide their updated information to people regulated by HB 2007.

Implementation - Customer Service

Reznic asked the following question: What customer service areas should DEQ focus on?

He listed the following areas of customer service DEQ is already considering:

- Evaluation of retrofit criteria and customer service support over the phone and online.
- Technical information for compliance and procedural assistance.
- Information and direction to appropriate Volkswagen grant application and processes for approved retrofit compliance.
- Analysis and evaluation of customer inquiries and compliance requirements.
- Auditing of compliance certification records.

Committee members made the following comments:

- A committee member suggested that DEQ include information on engine labeling. He noted that it is important for people to understand what an engine label looks like, what information it contains, and what to do if they do not have one. He stated that this information will help people know what engine they have, its EMY and what devices are available for it.

Resources for Owners, Operators, and Fleet Managers

Reznic asked the following question: What resources should DEQ consider for those subject to HB 2007 regulation?

He listed the following resources DEQ is already considering providing:

- Updated Clean Diesel Service Provider list for retrofit compliance and installation.
- Technology system to securely share information and compliance approval in real-time.
- Technical and procedural information regarding retrofit compliance, record keeping and grant programs.
- Owner/operator notification for submissions and approval.

Committee members made the following comments:

- A committee member thought providers should have to re-apply annually to the Clean Diesel Service Provider list to keep it up to date.

Implementation – Compliance Requirements

Reznic asked the following question: What record keeping requirements should DEQ consider from the owner/operator?

He listed the following requirements DEQ is already considering:

- Proof of approved retrofit installation.
- Engine model year or engine family label/manufacturer documentation.
- Approved retrofit service records.
- Approved retrofit warranty or maintenance work.

Committee members made the following comments:

- A committee member asked if these requirements are for when the owner/operator installs a retrofit system or afterwards.
 - Reznic clarified that they are for both. He said that in order to approve the retrofit, DEQ needs proof of the installation. He noted that EMY documentation is something that will help DEQ determine that the vehicle and its retrofit meets the criteria and is also for documentation purposes.
 - The committee member suggested that DEQ have the retrofit installer collect that information.
 - Reznic asked if the committee member had suggestions for what DEQ should consider for compliance requirements.
 - The committee member suggested that DEQ require electronic copies of records that summarize the installation of the retrofit system (e.g. invoices or installation records) as well as before and after photos of the vehicle.
- A committee member noted that she would like to discuss the requirements of approved retrofit service records, warranty or maintenance work at a future meeting. She wanted to ensure that DEQ does not take on more than it can handle and wanted the agency to explore other ways of ensuring compliance.
- A committee member asked if DEQ is already building an electronic data gathering system for this program.
 - Reznic clarified that DEQ is not building an electronic data gathering system for this program. He noted that this would be separate from the build out of the program and is just what the agency is looking for to approve compliance.
- A committee member noted that many cities do not track their service records very well. For example, a small city with an in-house mechanic will just do the maintenance and record it in an Excel spreadsheet, if at all. He thought that it would be difficult for DEQ to get compliance records from all the different entities throughout the state.
 - Another committee member agreed. She noted that the companies that will be applying for the retrofit technology (mainly smaller trucking companies) often do not have that sophisticated of a maintenance operation so the quality of their information may not be great.
- A committee member asked what happens to a retrofitted truck if it is not maintained.
 - A second committee member said she has heard that it will not run.
 - A third committee member responded that eventually the system would fail. He said this would likely cause the filter to crack or deteriorate and not filter the emissions while the vehicle could still run. The committee member suggested that rather than requiring maintenance records DEQ should require inspections of the systems. He noted that if there is going to be an inspection or maintenance requirement, it should include vehicles with 2007 and 2010 EMYs to ensure those vehicles still have their filters and that they are functioning adequately.
 - A fourth committee member agreed that the filter would not work correctly if not properly maintained but the truck would continue to run.

- A fifth committee member stated that a big concern is that newer trucks can have their emissions controls deleted. He suggested developing a broader program in which all trucks are inspected.
- A committee member suggested that since all retrofit manufacturers must report to CARB, DEQ could work with CARB to see how many of those retrofit systems are sold in Oregon. He noted that EPA does not have this reporting requirement.
- This committee member also noted that when the Bay Area Air Quality Management District in California offered grants to fund retrofits, they required a package with basic data on the retrofit including an invoice, before and after pictures of the vehicle, pre-assessment records and data logging data. He stated that DEQ could do something similar.

Public Comment

Penny Mabie opened the floor for public comment. No observers shared a public comment. Mabie read the following comment from an observer that had been submitted into the meeting chat:

- CARB did a nice job of providing fact sheets to help provide information on their rules and program highlights.

Mabie noted that the deadline for written comments is Oct. 2, 2020.

Next Steps

Reznick described the next steps for the committee. He explained that the committee would have two more meetings. The next meeting would be spent reviewing draft rules and the following meeting would review final proposed rules and the fiscal impact of the rules. He noted that DEQ is aiming to hold a public hearing on the rules in March 2021 and present them to the Environmental Quality Commission for adoption in the summer of 2021.

Reznick thanked the committee members and the meeting adjourned.

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.