

Date: Jan. 9, 2019

To: Environmental Quality Commission

From: Richard Whitman, Director

Subject: Agenda item H, Informational item: Greenhouse gas reduction programs at DEQ Jan. 24-25, 2019, EQC meeting

Why this is important Greenhouse gas emissions and climate change will be a major focus of the 2019 Oregon Legislature. DEQ implements some of Oregon’s most significant state climate policies, so understanding how these may interact with a new climate program is important for the agency and for the EQC.

Background In 2007, the Oregon Legislature adopted short- and long-term goals for reducing greenhouse gas emissions in Oregon. These emission reduction goals were aligned with what science at that time indicated was needed globally to avert the most catastrophic effects of climate change. The goals were designed so that Oregon would do its “share” of reductions in the global scale:

- By 2010, to arrest the growth of emissions
- By 2020, to reduce emissions to 10 percent below 1990 levels
- By 2050, to reduce emissions to 75 percent below 1990 levels

Since the Legislature established the state goals, Oregon has implemented many successful programs that reduce GHG emissions, including robust energy efficiency programs, increasingly stringent requirements on utilities to procure electricity from non-emitting resources, and nationally recognized land use planning to facilitate compact urban areas and more efficient transportation options. As described in sections below, DEQ has also begun implementing a variety of programs that reduce Oregon’s contribution to global emissions of GHGs.

Emission inventories DEQ measures and tracks Oregon’s overall greenhouse gas emissions in two ways: The sector-based GHG inventory and consumption-based emissions inventory. The sector-based GHG inventory accounts for the emissions produced in Oregon from its transportation, residential, commercial, industrial and agricultural sectors, as well as electricity produced elsewhere but used in state. It is predominantly built from

emissions reported to DEQ through the Air Quality Division's Greenhouse Gas Reporting program. This program collects emissions data from large industrial facilities, fuel suppliers, and electric and natural gas utilities. These sources represent over 80 percent of Oregon's sector-based GHG emissions.

DEQ provides additional assessment of Oregon's influence on global emissions via a consumption-based emissions inventory. This inventory estimates the global emissions associated with satisfying Oregon's consumption of materials, services, and energy. While some of these emissions occur inside Oregon's borders, about two-thirds do not.

Both GHG inventories indicate that Oregon is not on track to achieve the state's GHG reduction goals. The upcoming state reduction goal calls for Oregon to be 10 percent below the 1990 emissions level by 2020. However, for the past several years, annual emissions in the sector-based inventory have been around 15 percent higher than 1990 levels. Oregon's consumption-based emissions are consistently higher than the sector-based emissions, and have grown 42 percent since 1990.

There is nothing to suggest Oregon's emissions will make the dramatic drop required to achieve the 2020 target. This has spurred increasing interest at the state level in adopting additional measures to decrease Oregon's GHG emissions and reach the long-term goals of being at least 75 percent below 1990 levels by 2050.

Materials Management Program DEQ's Materials Management Program manages a number of programs designed to reduce greenhouse gas emissions associated with the materials that flow through Oregon's economy, from materials that are produced in Oregon to materials that are used in Oregon but produced elsewhere. This broad "life cycle" view aligns with *Materials Management in Oregon: 2050 Vision and Framework for Action*, which was adopted by the commission in December 2012 as the state's plan for sustainable materials management. The life cycle of materials includes supply chain, production, transportation, use and disposition at end of life. Many of the associated greenhouse gas emissions do not occur in Oregon and are not measured against Oregon's statewide greenhouse gas reduction goals. Nevertheless, these emissions, on a per-ton basis, have the same impact on Oregon's climate as emissions that originate in-state. And like in-state emissions, they can be reduced through a combination of policy measures, state and local government programs, business initiatives and the choices of Oregon consumers.

Materials, broadly defined, contribute 41 percent of Oregon's 2015 consumption-based greenhouse gas emissions. In the category of

materials, food and building materials are the two largest contributors, and are two areas of focus for DEQ's Materials Management Program.

DEQ's current efforts to reduce food-related greenhouse gas emissions focus on preventing the wasting of food. In 2016, Oregonians threw away more than 300,000 tons of edible food. Nationwide, 25 to 40 percent of all food grown or imported for human consumption is never eaten. There are significant climate impacts associated with producing food and, by extension, climate benefits from reducing its waste. In 2017, DEQ completed a *Strategic Plan for Preventing the Wasting of Food*. This plan aims to prevent waste at the source, through actions by businesses and households.

Under this plan, DEQ has taken actions to understand the root causes of wasted foods and advance solutions for preventing the wasting of food. DEQ has commissioned research on the quantities, types and causes of wasted food; formed partnerships to optimize the edible food rescue and redistribution system; performed industry outreach, including developing a partnership with the Oregon Restaurant and Lodging Association and a separate "shelf-ready" campaign against wasting food for local communities to use; and prioritized wasted food prevention projects through the Materials Management grants program. DEQ has also championed the formulation of a coordinated regional response. As a result, in September 2018, the states of Oregon, California and Washington, British Columbia, and five major west coast cities jointly registered three commitments to reduce food waste at the Global Climate Action Summit. These commitments involve a regional goal, local implementation and measurement, and support for voluntary industry commitments among food retailers and their suppliers.

A second area of focus is the greenhouse gas emissions resulting from the production of materials used in construction, including but not limited to cement. More than five percent of global greenhouse gas emissions are a result of the production of the cement used in concrete. Oregon is a state that produces cement and concrete, in addition to importing cement from other states and countries. DEQ has partnered with the Oregon Concrete and Aggregate Producers Association to help concrete producers measure and disclose the carbon footprint and other environmental impacts of their concrete mixes using environmental product declarations. To date, DEQ has helped concrete producers publish such declarations for more than 500 different concrete mixes in Oregon. These declarations allow purchasers to select low-carbon mixes.

DEQ has taken other steps to reduce the emissions from construction and building through research, partnerships and outreach. DEQ has assisted with changes to the Earth Advantage green building rating

system and the first carbon benchmarking study of buildings in North America; conducted outreach through the American Institute of Architects; financed infrastructure for building material reuse statewide and workforce development efforts for the emerging deconstruction industry in the Portland area; and advanced the supply and demand for more modest-sized and lower-carbon housing.

Other efforts to reduce the greenhouse gas emissions from materials include workforce development grants for Oregon's reuse and repair industries; projects focusing on public procurement; partnerships with, and the provision of technical assistance to, businesses; and ongoing support for advancing and strengthening Oregon's waste recycling programs, including producer responsibility models such as Oregon E-Cycles and Paint Product Stewardship Programs.

In response to recent statutory changes, DEQ is also working to quantify the impact of waste recovery programs in terms of energy savings and other environmental outcomes, such as greenhouse gases, as opposed to simply tons of materials. The resulting accounting framework, which is under development, is demonstrating that recycling and composting, while beneficial, are insufficient in order to achieve deep reductions in the greenhouse gas emissions associated with materials. Looking to the future, Oregon will need additional solutions that focus on producer and consumer decisions.

**Air Quality
Division**

DEQ's Air Quality Division implements several programs that directly or secondarily reduce greenhouse gas emissions from sources within the state. Most of these programs focus on emissions from the transportation sector, which is the largest contributor of emissions among the various sectors of Oregon's economy. Transportation is also the sector that has been increasing in recent years, contrasting it with other sectors that are either stagnant, such as agriculture, or those beginning to show steady reductions because of market trends and state policies, such as electricity.

The Clean Fuels Program is one of only a few regulatory programs in Oregon with a direct focus on reducing greenhouse gas emissions. This program requires that companies supplying transportation fuels reduce the greenhouse gas emissions, on average, from those fuels by 10 percent by 2025. The program accounts for emissions from fuels on a life-cycle basis, which includes the production of the fuel, transport of the fuel to the point of sale, and the tailpipe emissions from use of the fuel.

Since the inception of the Clean Fuels Program, over 2 million tonnes of greenhouse gas emissions have been avoided. Oregon's fuel suppliers

have increased the amount of biofuels being blended with conventional fuels, and those biofuels are increasingly lower-carbon. More alternative fuels such as electricity, natural gas and propane are being used and they too have converted from higher-carbon petroleum sources to lower-carbon renewable sources. Recently, the state has seen announcements about new projects to produce lower-carbon fuels used in Oregon such as renewable jet fuel made from forest biomass outside Lakeview, renewable diesel made from waste and plant-based oils near Clatskanie, and renewable natural gas made at Portland's Columbia Boulevard wastewater treatment plant and at the City of Salem's Willow Lake wastewater treatment plant..

Much of the growth in GHG emissions is from vehicles, and Oregon is also one of nine states to adopt California's Zero Emission Vehicle (ZEV) requirement. Eight of those states are in the Northeast, making Oregon the only Western state to adopt California's program. This program requires that auto manufacturers supply increasing numbers of ZEVs. Together, these nine states plus California represent over a quarter of all new vehicle registrations in the country. This large market has allowed the states to collectively influence the types of vehicles manufacturers design and market. Oregon's ZEV program provides increased availability of electric vehicles at Oregon dealers, and Oregon has shown a trend of early, and continued, adoption of ZEVs, second only to California amongst the ZEV states in the share of ZEV sales.

The commission recently adopted rules to further incentivize the purchase and lease of ZEVs with the Clean Vehicles Rebate Program. The rebates are funded through a privilege tax, established by the 2017 Oregon Legislature, levied on vehicle sales in the state and used to provide rebates to all people who purchase or lease an electric vehicle in Oregon, with additional rebates for low- and moderate-income purchasers through the Charge Ahead Program.

These three programs – Clean Fuels, the ZEV requirement and the EV rebates – provide complementary policy signals to the suppliers of fuels, vehicle manufactures, and purchasers to turn to cleaner transportation options. Together, these programs are helping increase adoption of low-carbon transportation options in Oregon and advance progress toward the Governor's goal of having 50,000 EVs registered in the state by 2020¹.

DEQ's Air Quality Division also includes the Mandatory Greenhouse Gas Reporting program. This program was established in 2009 and expanded in 2010 to require reporting by Oregon's fuel suppliers,

¹ Executive Order 17-21: https://www.oregon.gov/gov/Documents/executive_orders/eo_17-21.pdf

natural gas and electric utilities, and large industrial emitters. These sources represent over 80 percent of the emissions in Oregon that are used to track progress toward the statewide GHG reduction goals.

Receiving emissions data directly from these sources provides a significant improvement in the state's understanding of location, source types and magnitude of emission across Oregon's landscape and economy. This improved understanding about the state's GHG emissions allows Oregon's policy-makers to better consider and develop additional policies to reduce these emissions.

Finally, Oregon's Air Quality Division implements a variety of grant options to reduce diesel pollution. While these programs are primarily focused on criteria air pollutants, they nonetheless have secondary effects on GHGs. Incentives to replace aging diesel engines with new more efficient diesel engines can significantly reduce pollution that has localized health implications while also modestly reducing GHGs. However, these incentives extend to replacing old diesel engines with alternative fuel engines such as propane and natural gas, which offer greater reductions in GHG emissions.

DEQ is currently implementing the first phase of spending funds received by the state as a beneficiary of the VW partial consent decree. The Oregon Legislature authorized DEQ to invest in exhaust retrofits and bus replacement for 450 diesel school buses. Replacements are predominantly swapping older diesel buses for new more efficient engines. Future authorization from Legislature to spend the remaining funds from the VW settlement offer the possibility for DEQ to fund additional incentive programs to reduce pollution and GHGs in Oregon's transportation sector.

**Potential
climate
legislation in
2019**

The Oregon Legislature has considered new greenhouse gas reduction policies over the past several sessions, will again in the 2019 Legislative Session. The policy under consideration this session is a "cap-and-trade" program that would establish an increasingly stringent limit overall on emissions from Oregon's most significant sectors: transportation, electricity, natural gas use, and industry.

Many elements of this program will be considered during the session, and it is not clear yet what role, if any, EQC might have in implementing the program. The proposal in the Governor's budget that was submitted in November would have this program implemented in a new agency, the Oregon Climate Authority. This proposal is expected to be considered by the Legislature separately from the cap-and-trade proposal.

At the close of the 2018 Legislative session, the Oregon Legislature established a new Joint Committee on Carbon Reduction. During the intervening months between the 2018 and 2019 sessions, this committee was co-chaired by the House Speaker and Senate President. In addition to forming this joint committee, the 2018 Legislature provided funding to establish a Carbon Policy Office, within the Governor's office. The Carbon Policy Office supports the joint committee by conducting research and working with stakeholders to evaluate policy options. Last month, the Carbon Policy Office provided the joint committee with a comprehensive set of recommendations on how a cap-and-trade program could be designed for Oregon. The joint committee will consider these policy options as the 2019 Legislative Session continues.

EQC involvement There is no decision for the commission associated with this informational item. DEQ will keep the commissioners informed about policy discussions, proposed legislation and related matters throughout the 2019 Session and as otherwise requested.

*Report compiled by Materials Management Program
and Air Quality Division staff*