

**REVENUE IMPACT OF
PROPOSED LEGISLATION**
80th Oregon Legislative Assembly
2019 Regular Session
Legislative Revenue Office

Bill Number: HB 2020 - B
Revenue Area: Emission Revenues
Economist: Mazen Malik
Date: 06-12-2019

*Only Impacts on Original or Engrossed
Versions are Considered Official*

Measure Description:

Establishes Climate Policy Office within Oregon Department of Administrative Services and directs office to adopt Oregon Climate Action Program by rule.

Revenue Impact:

Fuds available for expenditures			
Millions	2021-2023	2023-2025	2025-2027
Climate Investment Fund	\$376.4	\$448.1	\$528.8
Operation Fund (Admin)			
Eligible Indian Tribes @10%	\$37.64	\$44.81	\$52.88
Impacted Communities @ 40%	\$150.57	\$179.25	\$211.53
Natural Working Lands @20	\$75.28	\$89.63	\$105.76
Tech Assistance @1%	\$3.76	\$4.48	\$5.29
Just Transition (HECC)	\$10.00	\$10.00	\$10.00
Available for other uses	\$99.16	\$119.96	\$143.36
Transportation Decarbonization Fund	\$941.20	\$1,190.76	\$1,488.40
Operation Fund (Admin)			
Projects @ 50%	\$470.60	\$595.38	\$744.20
Local Grants @49%	\$461.19	\$583.47	\$729.32
Grant Assistance @1%	\$9.41	\$11.91	\$14.88
Operating Fund Total @			
Reserve Funds @ 6%	\$84.10	\$104.61	\$128.76
Total Allowance Revenue	\$1,317.62	\$1,638.88	\$2,017.22
Highway Fund Impacts			
Millions	2021-2023	2023-2025	2025-2027
Fuel Tax	(\$56.19)	(\$114.65)	(\$152.14)
Registration Fees	\$2.34	\$4.70	\$9.08
Weight Mile Tax	(\$2.46)	(\$29.53)	(\$48.91)
Total Highway Revenue	(\$56.31)	(\$139.47)	(\$191.97)
Total Revenue Impact	\$1,261.30	\$1,499.41	\$1,825.25
Non State expenditure funds			
Natural Gas Utility Customers' Proceeds	\$148.6	\$177.4	\$210.1

State Capitol Building
900 Court St NE
Salem, Oregon 97301-1347

Phone (503) 986-1266
Fax (503) 986-1770
<https://www.oregonlegislature.gov/lro>

Impact Explanation:

The Cap and Trade program (in HB 2020) states two distinct but connected goals. The first is to reduce CO2 emissions in the state to 45% (below 1990 levels) by the 2035. The second is to extend that reduction to 80% (below 1990 levels) by the year 2050. It facilitates this through a global cap on the statewide allowable emissions, and subsequently creating an annual set of sellable and tradeable allowances which emitters operating in various industries must turn in, or retire, when they pollute. Some of these allowances created will be provided, without charge, allocated to the energy industry. The remainder of the statewide allowances, based on current emissions, are posted for auction by the state. It is by this mechanism that the measure generates revenue. Each year the annual amount of allowances shrinks in accordance with the 2050 goal. This is a 30-year program that reconfigures much of the energy sector and the state economy. Naturally, any long-term program of this nature carries with it many uncertainties. The state of Oregon contracted Berkeley Economic Advising and Research (BEAR) to model and assess the program. BEAR issued a report¹ in November of 2018. The BEAR report made few simplifying assumptions to reduce some of the uncertainties. Chief among those assumptions, is that the program will be successful in accomplishing its goals of reducing emissions in 2035 and 2050. The BEAR report modeled a path by which the conditions will be right for the policy to become a reality. A necessary condition for the success of the program is predicated upon the full electrification of Oregon's light fleet by the year 2050. This analysis relies on the assumptions and the different scenarios intrinsic in the BEAR report. The electrification was examined using four different scenarios, however, this analysis used the Moderate electrification profile as the main scenario corresponding with the Med WCI price for estimating the most likely revenue impact as shown in the revenue impact section tables. In other words, we estimate revenue based on the future vision of the economy modeled by the BEAR report. To acknowledge the inherent uncertainties, however, this revenue analysis focuses on the first few biennia.

Revenue from selling allowance come mainly from highway fuels (74.5%), fuel other uses (14.5%), and natural gas and other uses (10.5%). The natural gas utilities get about 15% free allowances for their low-income customers, and pay for 60%, the revenue of which is deposited into an account where the PUC will manage for their efficiency improvements in the benefit of the customers. That leaves the natural gas utilities paying to the state on about 25% of the allowances they otherwise owe.

Electric utilities are allocated free allowances until 2029, then they get free allowances with the goal of reductions to 20% from current levels (average 5 current years). However, current levels of the last five years before 2021 seem high enough that the utilities will still get many free allowances for the remainder of the program implementation horizon (2050). Trade exposed industries (EITE) are also not forecasted to need to purchase many allowances beyond the 5% reductions from current levels.

The Transportation Decarbonization Fund gets the revenue coming to the state from the sale of allowances for fuel consumption used on the road by both gasoline and diesel engines. The revenue generated from the sale of allowances and credited to the Transportation Decarbonization Fund could reach \$14 billion through 2035 and extend to \$32 billion through 2050.

¹ The BEAR report: Oregon's Cap-and-Trade Program (HB 2020): An Economic Assessment. Roland-Holst, Evans, Heft-Neal, and Behnke.

Revenues from all other sources that are not constitutionally dedicated go to the Climate Investment Fund. That revenue is estimated to reach \$4.9 billion through 2035 and be \$11.8 for the full implementation of the program through 2050.

The distributions of the Climate Investment Fund (CIF) are specified in Sections (46-48), however, the Operation (Administration) Fund is not specified to receive a percentage of revenue.

Several interim steps occur along the way, such as in 2027 where distributions from the Climate Investment Fund to most uses stop, except for the 10% going to the Eligible Indian Tribes. This primarily turns most of the revenue in the fund into a discretionary allocation amount. In 2030 the allowance budgets for the electric utilities are reassessed and reestablished under a different criterion and a reduction profile.

Other Price and Revenue Scenarios

The Cap and Trade program in (HB 2020) is assumed to join the Western Climate Initiative (WCI). Based on the size on the joint market, Oregon will most likely be a price taker. The BEAR report provides three price forecasts: Low (slightly above floor), Med (most likely), and High (hard cap). The allowance price forecast in this analysis is assumed to be the WCI-Med (as suggested by the BEAR report). The table below shows the three projections.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Low	\$19.3	\$20.8	\$22.3	\$23.9	\$25.6	\$27.5	\$29.5	\$31.6	\$33.9	\$36.4	\$39.0	\$41.9	\$44.9	\$48.2	\$51.7
Med	\$22.9	\$26.0	\$29.6	\$33.6	\$38.2	\$43.4	\$49.4	\$56.1	\$63.7	\$72.5	\$77.7	\$83.4	\$89.5	\$96.1	\$103.1
High	\$72.2	\$77.5	\$83.1	\$89.2	\$95.7	\$102.6	\$110.0	\$118.0	\$126.6	\$135.8	\$145.7	\$156.3	\$167.7	\$180.0	\$193.2
Year	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Low	\$55.5	\$59.6	\$64.0	\$68.7	\$73.8	\$79.3	\$85.1	\$91.4	\$98.2	\$105.5	\$113.4	\$121.8	\$130.9	\$140.7	\$151.2
Med	\$110.7	\$118.8	\$127.5	\$136.9	\$147.0	\$157.9	\$169.6	\$182.1	\$195.6	\$210.2	\$225.8	\$242.6	\$260.7	\$280.2	\$301.2
High	\$207.4	\$222.6	\$239.0	\$256.6	\$275.5	\$295.9	\$317.8	\$341.4	\$366.7	\$393.9	\$423.2	\$454.7	\$488.7	\$525.1	\$564.4

Although the price on the WCI exchange has been hovering around the floor in the last few years, most experts expect the price to be somewhere in a narrow band around the Med price.² The high price is a hard ceiling that is not expected to be reached except under extreme conditions. If prices start to rise to that point, there are triggers where more allowances are released into the market. However, for additional context, the revenues for the low and high allowance price scenarios are shown in the table below.

² After several years of prices hovering near the floor, most recent auctions have seen the price increase above that level.

Millions @ Low Price	2021-2023	2023-2025	2025-2027	Millions @ High Price	2021-2023	2023-2025	2025-2027
Climate Investment Fund	\$299.9	\$317.9	\$333.9	Climate Investment Fund	\$1,119.8	\$1,187.0	\$1,246.6
Transportation Decarbonization Fund	\$749.26	\$844.01	\$938.99	Transportation Decarbonization Fund	\$2,797.51	\$3,151.22	\$3,505.89
Operating Fund @ Reserve Funds @ 6%	\$66.97	\$74.17	\$81.25	Operating Fund @ Reserve Funds @ 6%	\$250.04	\$276.91	\$303.35
Total Allowance Revenue	\$1,049.18	\$1,161.92	\$1,272.87	Total Allowance Revenue	\$3,917.32	\$4,338.19	\$4,752.50
Highway Fund Impacts				Highway Fund Impacts			
Millions	2021-2023	2023-2025	2025-2027	Millions	2021-2023	2023-2025	2025-2027
Total Highway Revenue	(\$61.26)	(\$146.82)	(\$200.23)	Total Highway Revenue	(\$7.88)	(\$97.35)	(\$160.94)
Total Revenue Impact	\$987.92	\$1,015.10	\$1,072.64	Total Revenue Impact	\$3,909.44	\$4,240.84	\$4,591.56

Impacts on the Highway Fund:

For the transportation sector the goals to reduce CO² emissions to 45% (below 1990 levels) by the 2035 and to 80% (below 1990 levels) by the year 2050, translate to a reduction in the combustion of fuel equivalent to all the fuel amounts currently used by Oregon’s light fleet. According to the BEAR report, achieving that reduction in transportation fuel emissions requires complete electrification of Oregon’s light fleet by 2050. Naturally that transformation occurs gradually over the coming thirty years. As we approach that landmark, the gas tax that has been the staple of highway funding since 1919, will gradually become quaint until it no longer exists by 2051. Much of the highway funding system is dependent on the gas tax, and in the absence of an alternative funding mechanism, the Highway Fund is likely to experience significant reductions.

The reduction to the Highway Fund results from the assumptions proposed by the BEAR report. Moreover, the HCAS and the Carbon Tax study of 2015 were also used. Those assumptions are:

- The moderate scenario profile for the full electrification of the light fleet, with the Plug-in-Hybrids Electric Vehicles (PHEV) playing a gateway role to full electrification before they fade away by 2048. However, this analysis assumes a transitional period of about 3 years before the vehicle fleet mix achieves the levels suggested by the BEAR Moderate scenario.
- The Heavy fleet to continue the current path of (Diesel) fuel use that follows the general reduction path in fuel use resulting from the general improvement of fuel efficiency.
- The higher EV registration fees instituted by HB 2017 will allow for some recovery of lost funds. The EV registration fee of \$115, is parsed into \$25 to match the general registration increases and \$90 to compensate for some fuel revenue loss. At the time of HB 2017, the registration fee was estimated based on an annual 4500 miles per Electric Vehicle (the current range of the EV fleet). However, for PHEV that difference is only \$10. As the BEV’s improve their range increased registration fees are needed. To allow for the registration fees to fully compensate for the losses caused by the reduction in fuel use, EV fees would need to have been double the current law amounts, while the PHEV registration fees needed to be up by tenfold.
- The Price Elasticity of Demand works to change fuel consumption in a similar way as electrification. In other words, faced with the higher prices of fuel, consumers will either use less fuel (by modifying driving behaviors) or move away from the Internal Combustion Engines (ICE) to Plugin Hybrid Electric

Vehicles (PHEV), or full Battery Electric Vehicles (BEV) as an alternative for their transportation needs. Relying on an alternative model, the estimates based on the electrification assumption under HB 2020 are roughly equivalent to the price effects imposed by the allowance prices. It is likely however, that higher price allowances will push electrification faster, and lower prices will make electrification proceed according to the late profile. However, in all cases the fleet reaches 100% electrification from less than 0.5% today (PHEV & BEV combined are about 0.58%). Although this is slightly higher than the baseline of the BEAR report, an increase in the intercept will apply to all scenarios. This could possibly mean the electrification can happen faster, and consequently a faster weaning of the fleet from fuel consumption. Furthermore, this analysis assumes a transitional period of about 3 years before the vehicle fleet mix achieves the levels suggested by the BEAR Moderate scenario.

One of the notable risks to such a long-term scenario is the possibility that the program goals will not be met. But then the question becomes one of how close the state would come to those goals. Making such assumptions creates an inherent conflict with respect to an evaluation. For example, the state does not currently have a baseline forecast of EV adoption that covers the next 30 years. For the sake of transparency, this analysis relies on the baseline assumption included in the BEAR report. Another source of uncertainty is the extent to which this baseline deviates from what Oregon's experience would have been otherwise. Further research is needed to explore these risks and other uncertainties peculiar to Oregon. New models and studies might shed a better light on all the unsettled issues and pave a clearer way in dealing with some uncertainties and plan for contingences and future choices.

Highway Cost Allocation:

Naturally with highway funding, the constitutional Cost Responsibility effects need to be balanced between heavy vehicles and light vehicles. Adjustments would be needed for the heavy vehicle payments to balance two separate revenue reduction effects caused by the lower light fleet payments.

First Cost Responsibility adjustment: The electrification of the light fleet causes reduced fuel use; Thus, the light fleet would contribute less to the Highway Fund. The Heavy payments would have to be reduced (through a reduction in Weight-Mile Taxes) commensurate to the cost responsibility requirements. (An alternate approach would be to increase light vehicle payments, but that would likely entail a new tax and a 3/5 legislative vote.)

Second Cost Responsibility adjustment: HB 2020 charges allowance prices to fuel use based on emissions equivalency of fuel used. Revenues from the sale of allowances are directed to a subaccount of the Highway Fund (Transportation Decarbonization Fund TDCF) which is restricted in its uses to mitigation and adaptation. While the fuel consumption is going down for the light fleet, the Heavy fleet continues the profile of general decline in fuel as assumed by the BEAR report. The result is that the light fleet will approach lower levels of tax payments as the program advances with time. This dichotomy in fuel emissions of the two fleets, could result by 2041 in virtually flipping the level of payment contributions between the light and heavy fleets. This change in pattern of contributions changes the amounts that needs to be recovered from the Cost Responsibility proportions. TDCF projects carry a different cost responsibility (28% for Heavy) than the general highway project mix (34%). It is not clear what mix of projects would be funded by the revenue from HB 2020, but assuming the same project mix and the cost responsibility of 28%, then adjustments to the heavy payments would need to be performed.

The total results of all these adjustments to the highway fund could reach reductions of about \$3 billion in 2035, and \$18.55 billion in 2050, if all assumptions hold.

Finally: HB 2020 could potentially reduce the revenue stream to the Highway Fund by as much as \$18.5 billion over the life of the program. The State (ODOT) share of that reduction is about 55% of the totals. The rest of the reductions impact the revenues of Cities and Counties. ODOT uses its share to service the outstanding debt of the agency. Current outstanding bonds are about \$3.2 Billion. Those bonds are expected to be fully paid by 2042. As the current debt is paid, it opens more capacity for the state and allows for the lower amounts of revenue to finance a bigger debt amount. HB 2017 authorized two sets of bonds. \$483 million for the projects specified in the bill, and another \$450 for the Rose Quarter project. A third amount of bonds (not specified but) assumed to be approximately \$250 million to finance the I-205 projects. According to the Division of Debt Management, the debt service for current outstanding bonds seem not to be jeopardized by the reduction to the highway Fund (as it gets slowly paid off by 2042). Moreover, the two sets of bonds specified in HB 2017 will also be secured and not likely to push the capacity below the (critical) 3 times coverage except for one year (2035). However, the reductions to the Highway Fund would push the capacity snugly against that ceiling, and consequently limit the ability of issuing more Highway user bonds, future bonding could also be curtailed until a replacement of the lost revenues are found. This could be new revenue in the form of higher registration fees, Road Use Charge (RUC) (per mile charge), or some other policy. Until that replacement is found and acted upon by future legislatures, it is difficult to see how future bonding prospects will not be significantly impacted.

The measure also opens the question of a court challenge to the allowance revenues not being restricted by article IX of the constitution. If the determination is made in that direction, then the second Cost Responsibility adjustment described earlier will not be required. In that case the highway fund total impact would be reduced to only \$2.7 Billion through the year 2035, extending to \$10.1 billion through 2050.

Creates, Extends, or Expands Tax Expenditure: Yes No