

To: Jessica Spiegel

From: Kriss Sjoblom, Washington Research Council

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Subject: SSB 5126

Table 1 contains my current estimates of the cost of compliance under E2SSB 5126's cap and trade system for on-road use of gasoline and diesel fuel in Washington state, by class of vehicle. These are updates from the estimates provided in my March 9, 2021 memo to you. Those prior estimates are reproduced at the end of this memo. As noted below, these compliance costs are projected costs only, and the ultimate cost to vehicle owners will be determined by the dynamics of the competitive wholesale and retail transportation fuels markets.

Table 1: E2SSB 5126 Projected Costs of Compliance, Dollars in Millions

	2023	2024	2025	2026	2027	2028	2029	2030
Light Duty Vehicles								
Gasoline	\$431.1	\$468.8	\$508.1	\$550.0	\$594.9	\$643.3	\$695.7	\$752.1
Diesel	\$17.8	\$19.8	\$22.0	\$24.5	\$27.3	\$30.5	\$34.1	\$38.2
Total	\$448.9	\$488.6	\$530.1	\$574.4	\$622.2	\$673.8	\$729.8	\$790.2
Commercial/Freight Trucks								
Gasoline	\$35.2	\$38.4	\$41.9	\$45.6	\$49.7	\$54.2	\$59.4	\$65.1
Diesel	\$92.4	\$99.0	\$106.7	\$115.4	\$125.2	\$135.9	\$147.7	\$160.7
Total	\$127.7	\$137.3	\$148.6	\$161.0	\$174.8	\$190.2	\$207.1	\$225.8
Buses								
Gasoline	\$0.6	\$0.7	\$0.8	\$0.9	\$1.0	\$1.1	\$1.2	\$1.3
Diesel	\$44.2	\$49.9	\$55.6	\$61.7	\$68.3	\$75.4	\$82.9	\$91.1
Total	\$44.8	\$50.6	\$56.4	\$62.6	\$69.3	\$76.5	\$84.1	\$92.4
Total	\$621.4	\$676.6	\$735.1	\$798.1	\$866.4	\$940.5	\$1,021.0	\$1,108.5

Note: Detail may not sum to totals because of rounding

How these numbers were calculated:

The calculations begin with the state's November 2021 Transportation Revenue Forecast (OFM 2021), which provides forecasts of total consumption of gasoline and diesel fuel, in gallons, by fiscal year. I translate the fiscal year forecasts into calendar years by averaging overlapping fiscal years. I then allocate these fuel quantities across vehicle classes based on year-by-year national forecasts of fuel use by vehicle class from the U.S. Energy Information Administration's Annual Energy Outlook 2021 (EIA 2021), assuming that

each class's share in Washington is equal to its nationwide share. The three classes are light duty vehicles (e.g. cars, pickup trucks and motorcycles), commercial and freight trucks, and buses.

To calculate the costs shown in Table 1, I multiply the forecasted quantities by the fuel-specific projected per gallon compliance costs prices shown in Table 2.

Table 2: Projected Compliance Costs Per Gallon*

	2023	2024	2025	2026	2027	2028	2029	2030
Allowance Price per Metric Ton CO2	\$21.16	\$22.73	\$24.44	\$26.28	\$28.25	\$30.38	\$32.66	\$35.12
Compliance Cost Per Gallon of Gasoline	\$0.188	\$0.202	\$0.217	\$0.234	\$0.251	\$0.270	\$0.290	\$0.312
Compliance Cost Per Gallon of Diesel	\$0.215	\$0.231	\$0.249	\$0.267	\$0.288	\$0.309	\$0.332	\$0.358

The first line in Table 2 shows projected allowance prices per metric ton of CO2, by year, based on my forecast of annual auction reserve prices under the California Cap-and-Trade Program. Under California law, reserve prices increase annually by a percentage that is equal the percentage increase in the national Consumer Price Index (CPI) for the most recent 12-month period *plus* 5%. My forecast is based on the actual reserve price for 2022, \$19.70 per metric ton (CCTP 2021), and the Congressional Budget Office’s July 2021 forecast of CPI growth (CBO 2021). On the second and third lines, these metric-ton prices are translated into projected costs per gallon of gasoline and diesel using carbon dioxide emissions coefficients from the Energy Information Administration (EIA 2016). I assume that gasoline consumed in Washington includes 10 percent ethanol, and that diesel fuel includes 4 percent biodiesel.

The estimates do not include any of the costs that the cap and trade system may impose on refinery operations.

Previous estimates

Tables 1a and 2a on the following page reproduce the estimates from my March 9, 2021 memo, which were based on fuel consumption estimates from the November 2020 Transportation Revenue Forecasts (OFM 2021b) and allowance price estimates from the fiscal note for Senate Bill 5126 (OFM 2021a).

The November 2021 fuel consumption forecasts are somewhat lower than the November 2020 forecasts. By themselves, these reductions in the amounts of fuel consumed would reduce estimated allowance costs in Table 1 compared to Table 1a. However, the reductions in the quantities of fuels consumed are offset by increases in allowance prices: Forecasted allowance prices are higher in Table 2 than in Table 2a. This due to the recent high rates of CPI inflation, which were not anticipated in the fiscal note for 5126. Because of the spike in inflation, the actual increase in the California auction reserve price from 2021 to 2022 is 11.2%. (The fiscal note for SB 5126 assumed the increase would be about 7%.) The higher 2022 allowance reserve price rolls forward into higher forecasted reserve prices for each subsequent year via California’s statutory reserve price indexing formula.

*The data in this table shall not be construed as a forecast of fuel prices. The basic rules of supply and demand have an impact on the price of gasoline and diesel. Additionally, local taxes and fees also account for the cost of gasoline and diesel to consumers.

Table 1a: SSB 5126 Projected Costs of Compliance, Dollars in Millions (March 9, 2021 Memo)

	2023	2024	2025	2026	2027	2028	2029	2030
Light Duty Vehicles								
Gasoline	\$445.3	\$481.3	\$519.1	\$560.1	\$603.7	\$650.6	\$700.8	\$754.5
Diesel	\$17.2	\$19.0	\$21.1	\$23.5	\$26.1	\$29.1	\$32.4	\$36.0
Total	\$462.5	\$500.3	\$540.2	\$583.5	\$629.8	\$679.7	\$733.2	\$790.6
Commercial/Freight Trucks								
Gasoline	\$36.4	\$39.4	\$42.8	\$46.5	\$50.4	\$54.9	\$59.8	\$65.3
Diesel	\$89.1	\$95.3	\$102.6	\$110.7	\$119.7	\$129.6	\$140.2	\$151.8
Total	\$125.5	\$134.7	\$145.4	\$157.2	\$170.1	\$184.4	\$200.0	\$217.1
Buses								
Gasoline	\$0.6	\$0.7	\$0.8	\$0.9	\$1.0	\$1.1	\$1.2	\$1.3
Diesel	\$42.7	\$48.0	\$53.4	\$59.2	\$65.4	\$71.8	\$78.7	\$86.1
Total	\$43.3	\$48.8	\$54.2	\$60.1	\$66.4	\$72.9	\$79.9	\$87.4
Total	\$631.3	\$683.8	\$739.9	\$800.9	\$866.3	\$937.1	\$1,013.1	\$1,095.1

Note: Detail may not sum to totals because of rounding

Table 2a: Projected Compliance Costs Per Gallon* (March 9, 2021 Memo)

	2023	2024	2025	2026	2027	2028	2029	2030
Allowance Price Per Metric Ton CO2	\$20.60	\$22.09	\$23.68	\$25.41	\$27.27	\$29.28	\$31.43	\$33.73
Compliance Cost Per Gallon of Gasoline	\$0.183	\$0.196	\$0.210	\$0.226	\$0.242	\$0.260	\$0.279	\$0.300
Compliance Cost Per Gallon of Diesel	\$0.210	\$0.225	\$0.241	\$0.259	\$0.278	\$0.298	\$0.320	\$0.343

Sources

California Cap-and-Trade Program and Québec Cap-and-Trade System (CCTP). 2021. Annual Auction Reserve Price Notice Issued on December 1, 2021.

Congressional Budget Office (CBO). 2021. An Update to the Budget and Economic Outlook: 2021 to 2031.

Office of Financial Management (OFM). 2020. November 2020 Transportation Revenue Forecasts, Detailed Forecast Tables (Volume II).

———. 2021a Fiscal Note for SB 5126 2SSB PL.

———. 2021b. November 2021 Transportation Revenue Forecasts, Detailed Forecast Tables (Volume II).

U.S. Energy Information Agency (EIA). 2016. Carbon Dioxide Emissions Coefficients.

———. 2001. Annual Energy Outlook 2021, Table 36. Transportation Sector Energy Use by Fuel Type Within a Mode.

*The data in this table shall not be construed as a forecast of fuel prices. The basic rules of supply and demand have an impact on the price of gasoline and diesel. Additionally, local taxes and fees also account for the cost of gasoline and diesel to consumers.