

Carbon reduction value of Electric Vehicles incented by HB 2087

The sales tax exemption will put nearly 10,000 additional EVs on Washington's roads over 4 years.

Using OFM methology, this will reduce emissions with a value greater than the revenue cost of the exemption.

Inputs,	2134 Annual EV sales incented (Keybridge Economics estimate for Washington policy)
Assumptions,	21.95 lbs CO2 released per gallon of gasoline (19.6 + 12% average upstream emissions)
and	15 life of plug-in vehicle (in years)
Calculations	12,000 annual average miles driven
	25 mpg, EV replaces car with average gas mileage
	40 mpg, EV replaces car with good gas mileage
	0.221 lbs CO2 per kWh Washington electricity grid (Commerce report values)
	0.055 lbs CO2 per mile EV @ 4 mi/kWh
	4.9 Tons CO2 reduced annually EV vs average gas car
	3.0 Tons CO2 released annually EV vs. high mpg car

HB 2087 Fiscal Note

Year	State Revenue (thousands)	Local Revenue (thousands)	Total (thousands)	Additional EVs Purchased (Keybridge)*
FY 16	(\$5,655)	(\$1,814)	(\$7,469)	2,134
FY 17	(\$6,781)	(\$2,395)	(\$9,176)	2,347
FY 18	(\$7,463)	(\$2,634)	(\$10,097)	2,582
FY 19	(\$8,211)	(\$2,898)	(\$11,109)	2,840
FY 20	(\$722)	(\$266)	(\$988)	
Total	(\$28,832)	(\$10,007)	(\$38,839)	9,903

* w 10% annual growth per fiscal note assumptions

15-year life path for each year's vehicles

Year	Social Cost of Carbon (2.5%) in \$/ton (2014 \$s)	Value of Avoided Carbon FY 16 Vehicles	Value of Avoided Carbon FY 17 Vehicles	Value of Avoided Carbon FY 18 Vehicles	Value of Avoided Carbon FY 19 Vehicles
2015	\$65.55	\$690,530			
2016	\$67.85	\$714,759	\$786,101		
2017	\$69.00	\$726,873	\$799,425	\$879,469	
2018	\$70.15	\$738,988	\$812,748	\$894,127	\$983,470
2019	\$71.30	\$751,103	\$826,072	\$908,785	\$999,593
2020	\$73.60	\$775,332	\$852,720	\$938,100	\$1,031,838
2021	\$74.75	\$787,446	\$866,043	\$952,758	\$1,047,960
2022	\$75.90	\$799,561	\$879,367	\$967,416	\$1,064,083
2023	\$77.05	\$811,675	\$892,691	\$982,074	\$1,080,205
2024	\$78.20	\$823,790	\$906,015	\$996,732	\$1,096,328
2025	\$79.35	\$835,904	\$919,338	\$1,011,390	\$1,112,450
2026	\$80.50	\$848,019	\$932,662	\$1,026,047	\$1,128,573
2027	\$81.65	\$860,134	\$945,986	\$1,040,705	\$1,144,695
2028	\$82.80	\$872,248	\$959,309	\$1,055,363	\$1,160,818
2029	\$83.95	\$884,363	\$972,633	\$1,070,021	\$1,176,940
2030	\$86.25		\$999,281	\$1,099,337	\$1,209,185
2031	\$87.40			\$1,113,994	\$1,225,307
2032	\$88.55				\$1,241,430
2033	\$89.70				
Total		\$11,920,725	\$13,350,390	\$14,936,319	\$16,702,876

Grand Total	\$ 56,910,310
Total State and Local Rev Loss	(\$38,839,000)
Surplus Value	\$ 18,071,310
Cost Benefit Ratio	1.5

